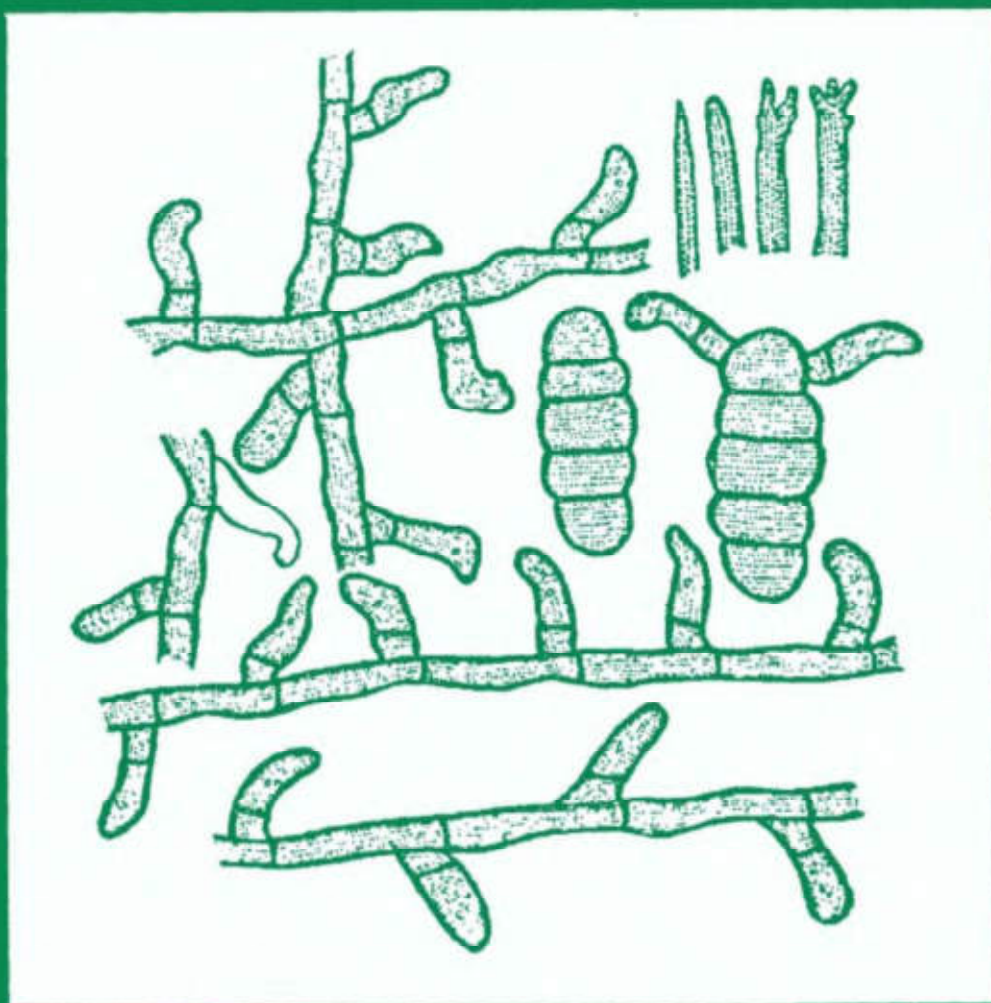


MELIOLALES OF INDIA

V. B. HOSAGOUDAR



BOTANICAL SURVEY OF INDIA

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CALCUTTA

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Cover figure : *Meliola mangiferae* Earle

FOREWORD

Meliolales of India by V.B. Hosagoudar is a comprehensive taxonomic monograph on Indian black mildews. It includes 375 species and infra-specific taxa which are presented in complete form for the first time. I hope it would serve as a useful manual to facilitate the identification of this highly specialised group of fungi in India. The line drawings are of specific value to the Mycologists and Plant Pathologists.

The taxonomic position of several species and infra-specific taxa has been suitably placed after the detailed field, herbarium and laboratory studies by the author.

I am sure this book will provide very useful information to systematists and generate interest in the study of similar groups of fungi in our country.

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INTRODUCTION

India is a tropical country lying to the north of equator with the Tropic of Cancer passing through its median and its southern end lying close to the equator. India lies between $8^{\circ} - 4'$ to $37^{\circ} - 6'$ north latitude and $68^{\circ} - 7'$ to $97^{\circ} - 25'$ east longitude. It is bounded on the southwest by the Arabian sea and southeast by the Bay of Bengal. On the north, northeast and northwest lie the Himalayan ranges. It measures 3214 Km from the north to south and 2933 Km from east to west with the total land area of 3280483 sq. km. including 6083 Km of coast line. Andaman and Nicobar Islands in the Bay of Bengal and Lakshadweep Islands in the Arabian sea are parts of the Indian territory.

The Indian subcontinent can be conveniently divided into two geographical areas: 1. The *Peninsular India* and 2. The *Extra Peninsular India*. The peninsular India comprises the Eastern and Western Ghats (Sahyadri). The Eastern Ghats border the east coast of India with an average height of 1000 m, while, the Western Ghats run along the western border of the Deccan Plateau from the mouth of river Tapti to Cape Comerin with an average height of 1200 m. The extra-peninsular India comprises the mountains like *Himalayas*; *Patkai* and allied mountain ranges run along the Indo-Bangladesh-Burma borders; *Aravalli* range in the north western India; *Vindhyan* range traverses nearly the whole width of peninsular India; *Satpura* range running parallel to the Narmada and Tapti river.

All the major land forms like hills, mountains, plateaus and plains are well represented in India. Altitudinally the extremes are greater in ranging from the sea level to the highest mountains in Himalayas. The humidity and rainfall also vary greatly from the lowest point in Thar desert to the highest near Cherapunji with an annual rainfall of 1080 cm. Himalayas are perpetually snow-clad while the peninsular India never experience snow fall due to its close proximity to the equator and sea.

Owing to its diverse climatic and altitudinal conditions, India is rich in the phanerogamic flora which are the chief hosts for the parasitic fungi. In comparison with phanerogams, the number of fungi known for this country is too less obviously because of the partial exploration.

The fungi, in general, which attack the cultivated plants have got much importance because of their direct effect on mankind. Several other groups of fungi whose occurrence are mostly restricted to wild plants are less destructive to cultivated plants and hence received less attention. Meliolaceae is one among the neglected groups.

Morphology: The gross appearance of the superficial ascomycetes with dark colonies are designated as 'Sooty moulds'. This term is applied not only to the superficial saprophytes but also to the parasites. To distinguish certain taxonomic group of fungi, the term sooty mould is applied to the saprophytic fungi of the family Capnodiaceae which are having dark coloured hyphae producing black to brown colonies on the living plants. These moulds are mainly associated with scale insects and honey-dew producers. Hyphae of these fungi are with mucilaginous outer wall which readily absorb water from the environment, keep the supporting plant portion in moist condition and also act as an adhesive (Hughes, 1976). When handled, these colonies will be peeled off easily and stick to hands and cloths.

In contrast to the sooty moulds, the meliolaceous fungi are also called as "dark or black mildews", a parallel word to powdery mildews and are classified under the family Meliolaceae of the order Meliolales (Hansford, 1946; Erikson & Hawksworth, 1986). Erroneously these are also called as sooty moulds but Stevens (1931) did not favour to use the term sooty mould to meliolaceous fungi. In their monographic work, Stevens (1927, 1928a) and Hansford (1961, 1963 a,b) have grouped the genera of Meliolaceae under the tribe Meliolineae. These are obligate parasites and their parasitism is well stated and illustrated by Doidge (1921), Roger (1953), Hansford (1961) and others. These fungi usually infect the leaves, petioles, young and soft stems having superficial mycelium, except in *Endomeliola*, producing hyphopodia and phialides. *Hyphopodia* are the specialized lateral cells of the hyphae arising from the horizontally spreading hyphae, consisting of lower cylindrical stalk cell and upper large and enlarged head cell. From the lower surface, head cells of the hyphopodia produce minute, knob-like haustorium into the host epidermal cells through the cuticle. This haustorium (usually single per cell) can be easily noticed from the upper surface of the head cell by a round, pale, pore like marking. *Phialides* are comparatively few in number, conoid to ampulliform, producing hyaline, unicellular phialoconidia. The function of the phialoconidia is unknown (Hughes 1981, Muller *et al.* 1991). *Setae* are of two types: perithecial and mycelial. *Mycelial setae* arise as an outgrowth from the middle of the mycelial cells and bend immediately to become almost perpendicular to the host surface and to the mycelia. These are straight to coiled; simple to dichotomously branched; acute, obtuse, clavate, dentate, cristate to fuscate at the tip. Mycelial setae are usually numerous, scattered to grouped around perithecia. While in some species, careful observation is necessary to locate them. Perithecial setae arise from the outer cells of the perithecial wall, straight to undulate, septate but never like appendages (presence of perithecial appendages is the character of the genus *Appendiculella* Hohnel), straight to twisted at the tip. The function of the setae is unknown. In

case of *Endomeliola*, germ tube produced from the ascospore penetrate into the palisade tissue and produce hyphae and hyphopodia intercellularly. Phialides may be either on the superficially produced crust or produced on the intercellular hyphae. Perithecial crust or globose perithecia are produced on the epidermis.

Development of perithecium: The perithecial development in meliolaceous fungi initiates by a short lateral branch of the mycelial hyphae. These mycelial hyphae are identical to hyphopodia and usually do not produce haustoria. At the time of perithecial development, in the head cells, first division takes place by a vertical septum slightly on the right side and passes across the cell with a slight curve. The second vertical septum on the left side makes the cell proper into three elongated cells. Subsequent horizontal divisions in these three cells make the ascomata intial into a multicellular platelet. As the development proceeds, the exposed cell wall becomes thicker and darker. The vertical walls remained thicker and coloured for a shortwhile and become thinner and colourless. Repeated division of the cells in the centre makes the perithecial primordium to become a hemispherical structure. Till now this stromatic growth is purely vegetative (Ward, 1883; Ryan, 1926; Graff, 1932). Subsequent development of the primordium resulted in the differentiation of sex organs. Antheridium and ascogonium initials develop simultaneously. Antheridial initial slightly longer, linear, slender and curved at the tip. Stout and straight ascogonium intial form the ascogonium proper with trichogyne. The tip of the antheridial intial was curved and pressed on the tip of the trichogyne of the ascogonium and the wall between ascogonium and antheridium initials dissolve at the point of contact so as to allow the flow of the male nucleus into the ascogonium intial and the subsequent development may be as stated by Thite (1975, 1982). The crooked dikaryotic binucleate ascus mother cells originate from the ascogenous hyphae, become clavate and uninucleate young asci are arranged on the hymenium; the single diploid nucleus of the young ascus by meiotic and mitotic divisions forms eight haploid nuclei. All these eight nuclei are arranged in four pairs, of which only two ascospores in each ascus with the haploid nuclei are formed and the remaining two disappear. The binucleate young ascospores divide to form four nucleate ascospore; septa are formed at both ends with one nucleus in each cell by leaving two nuclei in the central cell. Once again, nuclei in the distal cells divide and septa are laid so as to make the spore proper into a five celled structure with four uninucleate cells and the central cell binucleate. Till now the ascospores remain hyaline with acute terminal cells and as they attain maturity, spores get brown colour and the ends become rounded. At this stage the ascus is unitunicate and evanescent at maturity. The material mounted in 5% KOH, releases individual spores from the apical portion of the ascocarp with air bubbles either by gelatinization of the inner content of the ascomata by imbibition. From

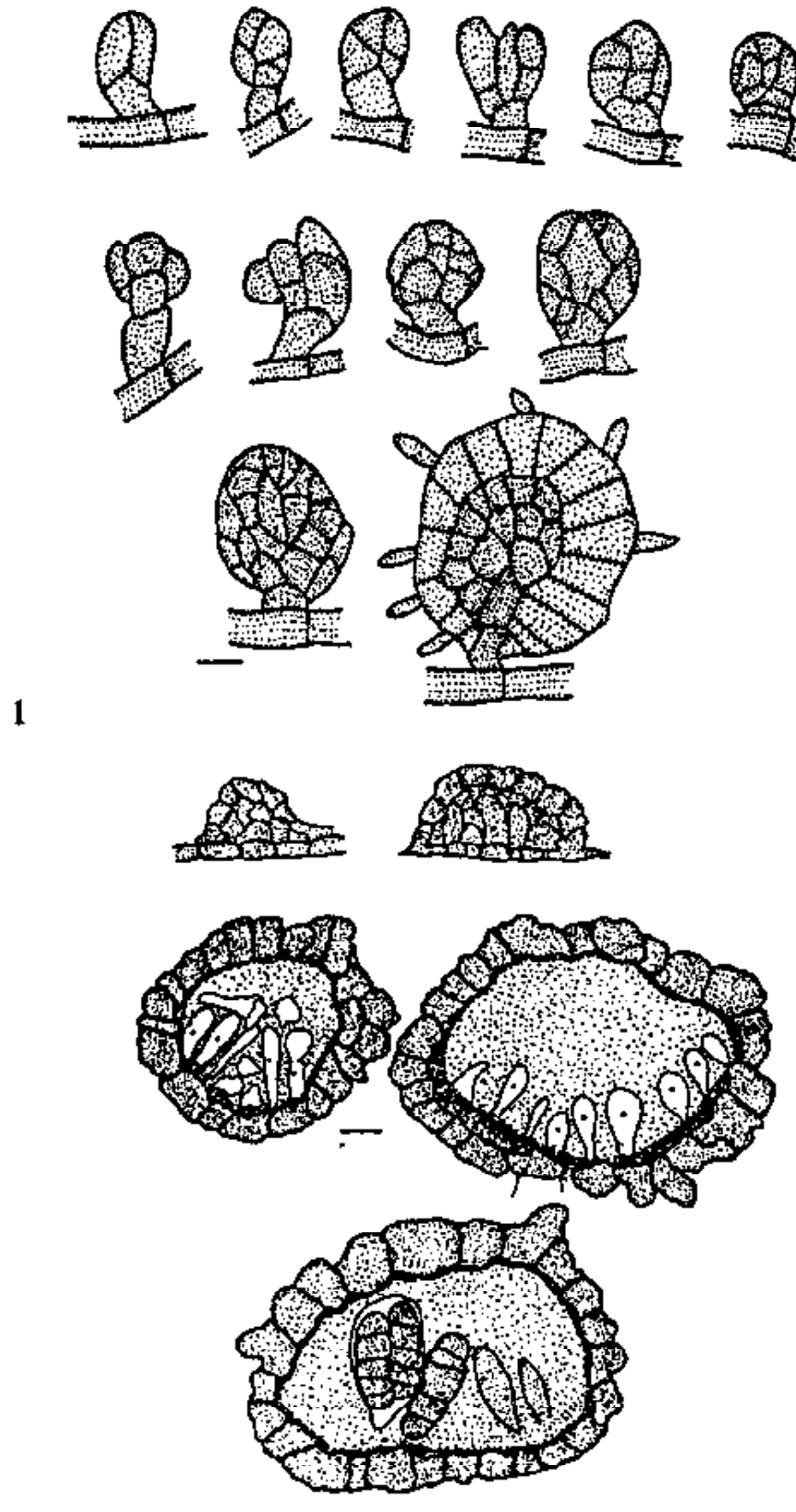


Fig. 1. Initial development of perithecium in *Meliola memecylii* Sydow.

Fig. 2. Perithecial development in *Meliola chandrasekharanii* Hosag.

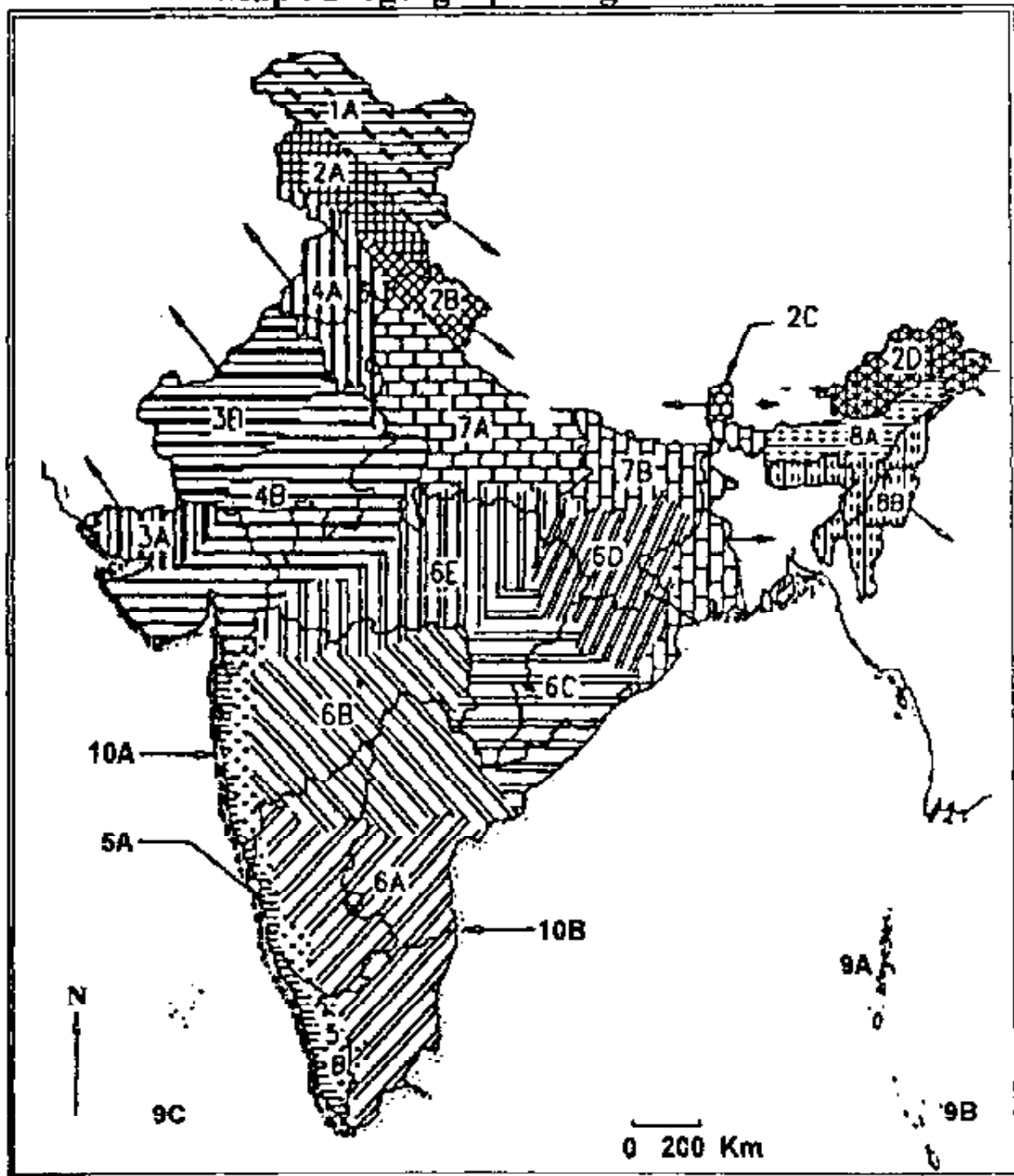
the top view, the ostiole is not visible. However, ostiolar primordia is visible in the section. Peridium of the ascomata is single layered, *textura angularis*, exposed surface cells are dark with the inner surface pale yellow to brown. Haustoria produced from the hyphopodia are bulbous, intracellular in the epidermal cells of the host but penetration of haustoria beneath the epidermal layer is not clear. However, it is essential to study at least a representative species for each genus of the family Meliolaceae so as to get a clear picture of developmental morphology and their life cycle (Hosagoudar *et al.* 1992b).

On the host plants, successive stages beginning from germinating ascospores to developed colonies with ascocarps can be traced. Germination in the ascospores, usually initiates from the terminal cells, though it is not uncommon from other cells, by producing 1-5 hyphopodia (Thite, 1975; Hosagoudar 1991a). After producing the first hyphopodium, the head cell of each hyphopodium sends haustorium from its lower surface in the epidermal cells of the host through the cuticle. After establishing itself on a suitable host, the ascospore produces germ tube and later produces either alternate, opposite or mixed type of hyphopodia depending upon the species. In some cases, the first formed hyphopodium will be pushed aside and the basal portion starts growing to form a hypha.

The ascospores of the meliolaceous fungi are often found on incompatible hosts. Such spores cease their growth after producing the first hyphopodium or just after producing the sterile promycelium. It may be due to their inability to send their haustorium into the host cuticle and epidermal walls of these "wrong hosts" or the haustoria may not be able to function as an absorbing organ. It may also be attributed to the absorption of incompatible nutrients which will arrest the further development of the parent ascospores. In some instances, spores on wrong hosts are unable to form the first hyphopodium in usual manner and sometimes produce elongated, tortuous, non-functional, often abnormal head cells at its end without haustoria on its lower surface. In certain other cases, they produce "phialides" instead of hyphopodium (Hansford, 1961). These were also cultured on different nutrients but the ascospores failed to produce hyphopodia (Thite & Patil, 1985). However, hyphopodia were produced on the hard substratum in the sterile water drops but failed to grow further (Goos & Palm, 1979).

Distribution: These fungi are widely distributed in tropical and subtropical regions of the world. However, their distribution also extended from warm to cold temperate zones. These fungi flourish well in all types of forests. The ground vegetation in an inaccessible forests were also infected with these fungi but were

Map : Biogeographic regions of India



1. Trans-Himalayan (1A-Tibetan) 2. Himalayan (2A-North West Himalaya, 2B- West Himalaya, 2C- Central Himalaya, 2D- East Himalaya) 3. Desert (3A- Kutch, 3B- Thar)
4. Semi Arid (4A- Punjab, 4B- Gujrat Rajwara) 5. Western Ghats (5A- Malabar Coast, 5B- Western Ghat Mountains) 6. Deccan Peninsula (6A- Deccan Plateau South, 6B- Central Plateau, 6C- Eastern Plateau, 6D- Chhota Nagpur, 6E- Central Highlands)
7. Gangetic Plain (7A- Upper Gangetic Plain, 7B- Lower Gangetic Plain) 8. North - East India (8A- Brahmaputra Valley, 8B- Assam Hills) 9. Islands (9A- Andaman Islands, 9B- Nicobar Islands, 9C- Lakshadweep Islands) 10. Coasts (10A- West Coast, 10B- East Coast).

severely hyperparasitized. These are shade and moisture loving and the prolonged drought will inhibit their growth.

An analysis of the geographical distribution of meliolaceous fungi on a world wide basis reveal that about half of their numbers known from India are endemic to India and rest show their greatest affinity with the other Asian countries but components of these are also present in the tropical and subtropical regions like Africa, South and North America. None of the meliolaceous fungi reported from India are known from Europe (Hosagoudar & Goos, 1994).

Previous work: The first reports of the genus *Meliola* from India have been by Cooke (1880, 1884) who reported *Meliola densa* Cooke and *M. zigzag* Berk. & Curt. These materials were collected and communicated by Col. Julian Hobson from Belgaum, Karnataka. Gamble (1899) collected *Meliola amphitricha* Fr. from Dehra Dun forest and got it identified from Kew. Sydow *et al.* (1911) described *Meliola butleri*, *M. diospyri*, *M. geniculata* and *M. indica* along with seven new records to India. Sydow (1913) and Sydow & Sydow (1914) described *Meliola opiliae* and *M. memecyli* from India. From McRae's Indian collections, Stevens (1928b) published two new species, namely *Meliola eugeniicola*, *M. holigarnae* and a new variety *M. indica* Sydow & Sydow var. *careyae* along with five new records to India. Uppal communicated 66 fungal collections from Maharashtra to Stevens. Of them, Stevens & Pierce (1933) reported *Meliola carissae* Doidge and *Irenopsis crotonis* (Stev. & Tehon) Stev. Bal & Dutta (1922) reported *Meliola cadigensis* Yates, *M. stenospora* Wint. and *M. jasminicola* Henn. from West Bengal. Uppal *et al.* (1935) reported *Meliola sacchhari* Sydow & Sydow, *M. citricola* Sydow & Sydow and *M. psidi* Fr. and also enlisted the hosts, *Atlantia racemosa* Wight & Arn. and *Erythrina indica* Lam., for an undetermined species of *Meliola* from Maharashtra. Hansford (1947) described *Meliola bambusicola* collected by Somayajulu from Ooty. Tunstall & Sarmah (1947) reported an undetermined species of *Meliola* on tea. Hansford & Thirumalachar (1948) described 19 new species, one new variety, three new records to India and these collections were made by Thirumalachar from southern part of Karnataka. Hansford (1957) further reported *Meliola simillima* Ell. & Ev. var. *major* and *M. nothopegiae* from India. Bagchee (1953) reported an undescribed species of *Meliola* on *Shorea robusta* Gaertn. from Dehra Dun forest. Agnihothrudu (1960) reported *Meliola albizziae* Hansf. & Deight. from Assam. Muller & Bose (1959), Bose (1962) and Bose & Muller (1964) described *Irenopsis crataegi* and reported *Asteridiella taxi* (Sawada) Hansf. and *Meliola melanochaeta* Sydow from Himalayas. After critical study of the Meliolineae, based on HCIO materials and his collections from Sikkim, Kapoor

(1967) described six new species, two new varieties and eleven new records to India. Rao (1967) while studying the hyperparasites, described a variety *Meliola aethiops* Sacc. var. *cassiae* on *Cassia fistula* L. from Andhra Pradesh. Anahosur (1969) described *Irene indica* from Coorg, Karnataka.

Kar & Maity (1970a,b, 1971) described 8 new species, 2 new varieties and reported *Meliola palmicola* Wint. var. *africana* Hansf. from West Bengal. They (1972) further reported three species and a variety of the genus *Meliola* Fr. and species each of *Appendiculella*, *Armatella* and *Irenopsis* from West Bengal. Nair (1971) reported *Meliola juttingii* Hansf. from Kerala. Thite & Kulkarni (1973, 1978) described two new species and reported 18 species of the genus *Meliola* from Maharashtra. Srinivasulu (1974) described 10 new species and reported 10 species of the genus *Meliola* from Maharashtra. Patil & Thite (1974) described *Meliola argyreiae* and reported *M. entadae* Hansf. from Maharashtra. Rao & Narendra (1974) reported *Meliola caseariicola* Hansf. from Mahabaleswar, Maharashtra. Subhedar & Rao (1977) described *Irenopsis agumbensis* from southern Karnataka. Maity (1978) described *Meliola reevesiae* and reported three species of *Meliola* from West Bengal. Srivastava & Topal (1981) described *Meliola garhwalensis* from Garhwal Himalayas. Kar & Bhattacharya (1982) reported *Meliola capensis* (Kalch. & Cooke) Theiss. var. *allophylicola* Hansf. & Deight. and *M. capensis* (Kalch. & Cooke) Theiss. var. *malayensis* Hansf. from West Bengal. Kamal *et al.* (1982), while surveying the fungi of Gorakhpur, described *Meliola parvisoliae* and reported *M. carissae* Doidge from Gorakhpur forest. Thite & Patil (1982) reported 13 species of *Meliola* from Maharashtra. Thite & Patil (1983) described *Meliola piperis* (*Piperaceae*), *M. ochrocarpi* and reported *M. asclepiadacearum* Hansf. and *M. simillima* Ell. & Ev. from Maharashtra. Nair & Kaul (1983) described *Meliola balakrishnanii*, *M. coilicosa* and *M. buchenaviae* Bât. var. *terminaliae* from Maharashtra. Thite & Patil (1985) described *Meliola blepharidis* from Maharashtra. Hosagoudar (1985) transferred *Irene indica* Anahosur to *Irenopsis indica* (Anahosur) Hosagoudar and also commented on Indian meliolaceous fungi enlisted in Bilgrami *et al.* (1979, 1981). Gupta & Gupta (1985a, b) reported *Asteridiella quercina* Hansf., *Meliola mitragynae* Sydow & Sydow, *M. panici* (Toro) Hansf. and *M. malacotricha* Speg. from Nainital, Uttar Pradesh. Hosagoudar (1986, 1987 a,b,c, 1988 a,b, 1989, 1991 a,b,c,d, 1992), Hosagoudar & Raju (1985), Hosagoudar & Antony (1988), Hosagoudar & Braun (1989), Hosagoudar & Goos (1989, 1990 a,b, 1991), Hosagoudar & Manian (1989), Hosagoudar & Rajendran (1989), Hosagoudar & Ansari (1991), Hosagoudar & Raghu (1993), Hosagoudar & Pandurangan (1994), Hosagoudar *et al.* (1988, 1989, 1992 a,b, 1993 a,b,c, 1994 a,b) have reported considerable number of meliolaceous fungi from southern India. However, Idukki hydroelectric project area of Kerala state is the only area in India which was

intensively surveyed for these fungi (Hosagoudar & Goos, 1989, 1990a). Though Andaman & Nicobar Islands are rich with the tropical evergreen forest, only few taxa have been reported from there (Lakshmanan *et al.*, 1990; Hosagoudar & Ansari, 1992). Hosagoudar & Udaiyan (1993) have reviewed this group in detail. Katumoto & Hosagoudar (1989) and Hosagoudar (1994b) provided a supplementary checklist to Hansford's Monograph.

The first attempt to provide a complete list of Indian fungi was made by Butler & Bisby (1931) and it was revised by Vasudeva (1960), who included all the fungi reported from India till 1952. This list included an account of 55 species of this group. Subsequently, several additional lists by Mundkur (1938), Ramakrishnan & Subramanian (1952), Subramanian & Ramakrishnan (1958), Subramanian & Tyagi (1964), Tandon & Chandra (1964), Tilak & Rao (1968), Mukerji & Juneja (1974), Sarbhoy *et al.* (1975) have appeared. The latest available check-list of Indian fungi is by Bilgrami *et al.* (1979, 1981) and Sarbhoy *et al.* (1986) which includes the fungi reported up to 1979. These latest lists include 100 taxa of Meliolaceae. Hosagoudar (1994a) provided a list of meliolaceous fungi reported from India.

Rodgers & Panwar(1988) divided Indian subcontinent into 10 biogeographic regions. Of these, Trans Himalayan, Desert, Semi-Arid and coastal regions have no reports of meliolaceous fungi; Himalayan, Eastern Ghats in Deccan Peninsula, North-East India and Islands represent less than 10 species each. On the other hand, considerably large number of these fungi have been reported by Kar & Bhattacharya (1982), Kar & Maity (1970 a,b; 1971, 1972) from Gangetic Plain. Comparitively, enormous number have been reported by Patil & Thite(1974), Thite & Kulkarni(1973, 1978), Thite & Patil(1982, 1983), Srinivasalu (1974) and Hosagoudar with his colleagues from the Western Ghats of Southern India (Map 1). However, none of the Indian regions have been systematically surveyed for these fungi except Idukki hydro-electric project area in Kerala(Hosagoudar & Goos, 1989, 1990).

In general, meliolaceous fungi usually infect the indigenous plants of that particular region. But in absence of their native host plants, they may switch over to closely related introduced or cultivated plants. Though these are obligate parasites, in many instances, they leave no mark of their existence on the host surfaces after removal of the colonies. While some species produce yellow haloes around the colonies and also cause yellow leaf spots on the corresponding opposite leaf surfaces, eg. *Amazonia peregrina* Sydow, *Meliola hunteriae* Hosag., etc. *Asteridielia clerodendricola* Hosag., stretches rest of the leaf portion towards the infection spots and give witches' broom appearance to the tender infected

shoot. *Meliola plumbaginis* Hansf. & Stev., reported from East Africa, is the only species that causes the death of the host plant. Hence, Wellman (1972) pointed out....." Now here are these black mildews being made a subject of major pathological study, although agriculturists who observe their crops well, know that at times these fungi are very damaging in their effect". A better understanding the biology of these fungi is greatly needed.

RECOGNITION IN THE FIELD AND LABORATORY

In the field, trained eyes can make collections of many meliolaceous fungi rather than a general surveyer. The colonies of meliolaceous fungi range from very minute to distinct crustose to velvety, isolated to confluent, but rarely cover the entire host surface homogeneously. Most of these fungi have no pathogenic effect on the host plants but a few cause yellow haloes around the colonies, shot holes and invaginations or witches' broom effects (Hansford, 1961; Hosagoudar & Goos, 1989). The identity of the host plants is equally important in the identification of these fungi. Hence, while collecting the infected host parts, it is essential to collect the host twig preferably with reproductive parts like flowers and or fruits to facilitate their determination. Separate field numbers are given to these collections. Field data regarding the pathogenicity, nature of the colonies, nearby infected host plants, locality, collection date, etc. are to be noted in the field book. A note is also to be made regarding the latex (if present), height, nature of leaf (simple or compound) to facilitate easy determination of the host plant. These collections are to be dried in between blotters by daily changing the materials to fresh blotters (Jain & Rao, 1977). After ensuring dryness of the materials, the host identity is to be confirmed with the help of experts and also by matching the materials in the regional herbarium.

In the laboratory, the fungal colonies are to be scraped and mounted in water to determine whether the fungus belongs to Meliolaceae or not. The study of the colonies in their natural habitat merits much in the taxonomy of meliolaceous fungi. Hence, several mounting techniques like Collodin solution (Gaillard, 1892; Stevens, 1916), Necol mounts (Ellis, 1950, 1960), Cellopane tape (Butler & Mann, 1959; Bretz & Berry, 1964; Flegel, 1980), Collodin-acetone drops (Hansford, 1961), Quick fix (Rao, 1972; Nayar & Wilson, 1973), Thermcol isobutyl methyl ketone solution (Hosagoudar & Mohanan, 1985), natural coloured nail polish (Hosagoudar & Kapoor, 1985), etc. have been suggested. For temporary and rapid mounts, sticky cellopane tape has to be firmly fixed on the colonies and gently rubbed on the tape just above the colonies. The epiphyllous colonies will then stick to the sticky portion of the tape. The tape is gently

removed from the host surface and then struck on a clean slide for the microscopic observations. For preparing permanent slides, natural coloured nail polish is preferred, which is cheap and readily available in the market.

The colonies free from the hyperparasites were selected for the study. A drop of natural coloured nail polish applied on the selected colonies, thinned carefully with the help of the fine brush without disturbing colonies, allowed to dry in a dust free chamber for about half an hour, rose coloured 'flip' will be formed with the colonies firmly embedded in it. These flips can be easily eased off with the help of a razor blade or scalpel. A drop of DPX mountant or Canada balsam is to be spread on the clean slides and the 'flips' are spread over it by avoiding air bubbles. Two more drops of the mountants are to be added on the flips while a clean cover glass placed over them by avoiding air bubbles. These slides are to be labelled with their corresponding field numbers and host names and allowed to dry for 2-3 days in a dust free chamber. Excess DPX can be easily removed after drying.

In some species, because of the heavy pigmentation, the septa will not be visible. In such cases, scrapes are to be made and mounted in 10% KOH solution (KOH crystals dissolved in distilled water). After half an hour, KOH was replaced by Lactophenol (Rangaswamy, 1975). Both KOH and Lactophenol work as good clearing agents and makes the septa visible for further study.

For the complete study of the fungus, mounted colonies should show the presence of hyphopodiate mycelium, perithecia, setae and ascospores. Measurements of the mycelial cells (length and breadth), hyphopodia (stalk cells and apical cells), phialides, setae, perithecia, perithecial appendages (in the case of *Appendiculella*), perithecial cells (in the case of *Asteridiella*) and ascospores are to be taken. The description of the fungus should include the position of the colonies on the host (epiphyllous, hypophyllous, caulicolous, etc.), nature of colonies (dense, velvety, crustose, etc.), nature of mycelium (straight, substraight, flexuous, crooked), branching pattern of the mycelium (branching opposite, alternate or irregular at acute or wide angles), nature of the reticulation (loosely or closely), arrangement of the hyphopodia (alternate, opposite or both and to what degree), nature of the hyphopodia (straight or curved; antrorse, spreading or recurved), arrangement of the hyphopodia (distantly, moderately or densely), nature of stalk cells (aseptate or septate) cylindrical or cuneate, shape and nature of the head cells (ovate or globose; entire, angular or lobed); placement of phialides (with hyphopodia or borne on a separate mycelial branch), arrangement and frequency of the phialides (alternate or opposite, numerous or few); setae (mycelial or perithecial), nature of the setae (straight, curved or uncinatate; simple

or branched; dentate, furcate, cristate, acute or obtuse at the tip), distribution of the setae (scattered all over the colony or grouped around perithecia); nature of the perithecia (superficial and globose or in the radiating mycelia); nature of the appendages in case of *Appendiculella* (straight, curved or twisted); nature of the perithecial cells in case of *Asteridiella* (mammiform or conoid); shape and septation of the ascospores. In case of *Endomeliola*, sectioning is needed to observe all the above characters.

Now the description of the material based on the above guide lines is ready to convert it into Beeli formula after fixing the generic identity.

BEELI FORMULA

This formula consists of eight digits. The first four digits represent the morphological characters like ascospore septation, perithecial appendages or setae, mycelial setae, arrangement of the hyphopodia. The second half of the formula consists of the measurements of ascospore length, ascospore breadth, diameter of the perithecia and the length of the mycelial setae. Entire to dentate setae are designated with 1/3.

I. Morphology:

- 1 Normal septation of the ascospores:
 1. 3 septate
 2. 4 septate

- 2 Perithecia:
 1. without setae and appendages
 2. bearing larviform appendages
 3. bearing uncinata or coiled setae
 4. bearing straight setae

- 3 Mycelial setae:
 0. absent
 1. straight and simple
 2. simple, uncinata or coiled
 3. dentate or shortly furcate (but

- less than 30 μm long)
4. branched, branches usually more
more than 30 μm long.

4 Hyphopodia:

1. alternate and unilateral (less
than 1% opposite)
2. opposite only
3. opposite and alternate

II. Measurements:

5 Maximum ascospore length:

1. below 20 μm
2. 21 to 30 μm
3. 31 to 40 μm
4. 41 to 50 μm
5. 51 to 60 μm
6. more than 60 μm

6 Maximum ascospore width:

1. up to 10 μm
2. 11 to 20 μm
3. 21 to 30 μm
4. more than 30 μm

7 Maximum diameter of the perithecia:

0. perithecia immature
1. up to 100 μm
2. 101 to 200 μm
3. 201 to 300 μm
4. more than 300 μm

8 Maximum length of the mycelial setae:

0. absent
1. up to 300 μm

2. 301 to 500 μm
3. 501 to 1000 μm
4. more than 1000 μm

Now, the entire description of the species, to be identified is converted into Beeli's (1920) digital formula. After confirming the generic identity of the fungus, under their respective host family, the species coming under the same digital formula are noted. Beeli formula aligns the like species. Slight variation in the measurements will bring changes in the digital numbers leading to wrong identity. Further, the formula does not reveal the nature of the colonies, position of the phialides, morphology of the hyphopodia, etc. So, there are several chances of getting together more than one species under the same formula. Hence, to overcome such problems, camera lucida drawings are made. Adequate knowledge regarding the distribution of the host (exotic, endemic, rare or threatened) is required. Beeli formula and species description matched with species reported under its host family, host specificity noted and the identity is confirmed by matching the line drawings with that of the type species. Awareness of the additional taxa to Hansford's (1961) monograph is essential. In experience it is learnt that endemic species harbour undescribed species.

In the present work, key to the genera is provided. Synoptic keys to the species are provided under their alphabetically arranged host families. All the species are arranged alphabetically under each genus. The genera are also arranged alphabetically. Line drawings are provided to the taxa examined and their numbers correspond to the taxa dealt in the text. Standard bar in the line drawings denote 10 μm length. Abbreviations used in the key and line drawings are : Col. Colonies; Hy. Hyphopodia; Ma. Mycelial appendages; Ms. Mycelial setae; Pa.- Perithecial appendages; Pc. Perithecial cells; Ph. Phialides and Ps. Perithecial setae.

MELIOLALES

Meliolales Gaumann ex Hawksworth & Erikson, *Systema Ascomycetum* 5:142, 1986.

Parasitic on vascular plants, mycelium ecto and endophytic with phialides and hyphopodia. Perithecia superficial, globose, pulvinate, crust or shield like. Asci unitunicate. Ascospores with rounded end cells, transseptate and dark brown. Phialoconidia present.

Type family: Meliolaceae

Gaumann (1964) considered that Meliolaceae are closely related to prototunicates. Muller & von Arx (1973) treated under unitunicate ascomycetes. Nannfeldt (1932) pleaded that these have relationship with bitunicates. Erikson (1982) suggested that Meliolaceae and Asterinaceae have common origin and treated under broadly conceived Dothidiales. However, the Meliolaceae differ from Asterinaceae in having phialides and hyphopodia, evanacent asci, brown and transversely 1-4 septate ascospores. Meliolaceae is the single family under this order Meliolales.

MELIOLACEAE

Meliolaceae Martin emend Hansf., Mycol. pap. 15: 23, 1946.

Type genus: *Meliola* Fries

Hosagoudar (1991d) has given an account for genus *Armatella* in India and hence, it has been deleted from this work but not from this group.

KEY TO THE GENERA

- | | | | |
|----|--|-----|-----------------------|
| 1. | Perithecia flattened-globose, hidden in the mycelial mat | ... | Amazonia |
| 1. | Perithecia globose, not hidden in the mycelial mat | ... | 2 |
| 2. | Perithecia with larviform appendages | ... | 3 |
| 2. | Perithecia without larviform appendages | ... | 4 |
| 3. | Mycelial setae or repend appendages prostrate | | Prataprajella |
| 3. | Mycelial setae not repend | | Appendiculella |
| 4. | Perithecial setae present | ... | Irenopsis |
| 4. | Perithecial setae absent | ... | 5 |
| 5. | Mycelium, subiculum of perithecia and perithecia setose | ... | Meliola |
| 5. | Mycelium, subiculum of perithecia and perithecia devoid of setae | ... | Asteridiella |

KEY TO THE SPECIES

ACANTHACEAE

Meliola

3111. 3222 Col. dense, hyphae straight; hy. crowded,
closely antrorse, hc. ovate, attenuate at
apex ... 77. **M. acanthacearum** var.
occidentalis
3111. 3222 Col. subdense; hyphae undulate; hy. sub-
antrorse to spreading, hc. ovate to cylin-
drical; ph. separate ... 105. **M. barleriae**
3111. 3221 Col. hypophyllous, dense; hyphae substraight;
hy. antrorse to spreading; hc. globose, entire
to angular ... 272. **M. nilgirianthi**

AGAVACEAE

Meliola

3111. 4232 ...162. **M. dracенаe-terniflorae**

ANACARDIACEAE

Meliola

3113. 3221 Col. epiphyllous; hyphae straight to
3 undulate; hc. entire ... 190. **M. geniculata**
3111. 4332 Col. amphigenous; hyphae straight to
3 tortuous; hc. entire to angulose ... 330. **M. semecarpicola**
3111. 4322 Col. epiphyllous; hyphae straight; hc.
3 entire, attenuate at apex ... 90. **M. anacardii**

3111. 6333 Col. hypophyllous; hyphae crooked; hc.
entire to lobate ... 206. *M. holigarnae*
3111. 5332 Col. epiphyllous; hyphae straight; hc.
entire to angular ...329. *M. semecarpi-anacardii*
3111. 5223 Col. amphigenous; hyphae straight;
hc. ovate and entire ... 251. *M. mangiferae*
3111. 4233 Col. hypophyllous; hyphae tortuous; hc.
entire to sublobate ... 114. *M. buchananicola*
3111. 4322 Col. epiphyllous; hyphae straight;
hc. entire ... 366. *M. travancoricae*
3111. 4223 Col. amphigenous; hyphae crooked; hc.
angulose ... 273. *M. nothopegiae*

ANCISTROCLADACEAE

Meliola

3113. 3221 ... 92. *M. ancistrocladii*

ANGIOPTERIDACEAE

Meliola

3111. 3222 ... 93. *M. angiopteridis* var.
indica

ANNONACEAE

Meliola

3111. 5322 ... 264. *M. mitrephorae*
2

APOCYNACEAE

Meliola

3111. 4323 Col. amphigenous; hyphae undulate; hc.
entire; ph. mixed with hy. ... 209. *M. ichnocarpi*

3111. 4222 Col. amphigenous; hyphae substraight to crooked; hc. irregularly lobate; ph. separate ... 129. *M. carissae* var. **indica**
3111. 4213 Infection cause shot-holes; col. hypophyllous; hyphae straight to undulate; hc. entire to sub-lobate; ph. separate ... 207. *M. hunteriae*
3111. 3223 Col. epiphyllous; hyphae substraight to undulate; hc. entire to shallowly lobate; ph. separate ... 130. *M. carissae* var. **spinari**
3111. 3222 Col. epiphyllous; thin; hyphae straight; hy. antrorse, few opposite ... 346. *M. tabernaemontanicola*
3111. 3222 Col. amphigenous, velvety; hyphae substraight; hy. spreading ... 205. *M. holarrhenae*
3111. 3222 Col. epiphyllous, crustose; hyphae straight; hy. antrorse ... 336. *M. srinivasului*
3111. 3222 Col. amphigenous, dense; hyphae straight to crooked; hy. antrorse to spreading ... 88. *M. alstoniae*
3111. 3222 Col. hypophyllous, thin, spreading; hyphae flexuous; hy. antrorse; ms. few flexuous to uncinata ... 334. *M. similima* var. **major**

3111. 3211 Col. amphigenous; hy. antrorse to recurved;
 hc. angular to sublobate; sp. 27-31 x
 11-12.5 μ m. ... 168. *M. ervatamiae*

AQUIFOLIACEAE

Meliola

3123. 4222 Hyphae undulate; hy. 12-18 μ m long; ms.
 uncinatae ... 226. *M. khasiensis*
3113. 5332 Hyphae substraight; hy. 18-25 μ m long;
 ms. straight ... 210. *M. ilicis-malabaricae*

ARACEAE

Asteridiella

3101. 3220 ... 50. *A. pothodis*

ARALIACEAE

Meliola

3143. 4221 Col. amphigenous; hy. 15% opposite; ms.
 around perithecia simple, straight, ms.
 on mycelia 1-2 times dichotomously
 branched ... 158. *M. dichotoma* var.
kusanoi
3123. 4222 Col. epiphyllous; hy. 15% opposite; ms.
 4
 around perithecia simple and uncinatae, ms. on
 mycelia 1-4 times dichotomously branched.
 ... 113. *M. brassaiopsidis*
3113. 42x2 Col. epiphyllous; hy. 3% alternate;
 ms. simple, straight ... 292. *M. payakli*

ARECACEAE

(Palmae)

3111. 5333 Col. amphigenous; hyphae straight; hc.
3 angulose to sublobate; ph. with hy.
... 286. *M. palmicola* var.
africana
3111. 5333 Col. epiphyllous; hyphae slightly
3 undulate; hc. entire; ph.
separate ... 131. *M. caryotae*
- ASCLEPIADACEAE**
- Meliola*
3111. 3223 Col. epiphyllous; hyphae straight;
hy. antrorse, hc. slightly lobate
... 364. *M. toxocarpi*
3111. 3223 Hyphae flexuous; hc. attenuated at apex;
ms. scattered, 572 μ m long ... 351. *M. telosmae* var.
radhanagariensis
3111. 3222 Hyphae undulate; hy. 1% opposite, hc.
entire to slightly lobate; ms. grouped
around perithecia ... 134. *M. ceropegiae*
3113. 4232 Col. hypophyllous, dense; hy. 60% opposite;
ms. numerous ... 369. *M. tylophorae*
3113. 3221 Col. epiphyllous, thin; hy. 5% opposite;
ms. few ... 350. *M. telosmae* var.
indica

ASTERACEAE
(Compositae)

Asteridiella
3101. 4220 ... 31. *A. cyclopoda*

Meliola
3111.3221 ... 150. *M. coreopsidis*

BIGNONIACEAE

Asteridiella
3101. 4220 ... 55. *A. schlegeliae* var.
stereospermi

Meliola
3111. 3221 ... 151. *M. crescentiae*

BORAGINACEAE

Asteridiella
3101. 4220 ... 33. *A. ehretiae*

Meliola
3113. 3222 ... 165. *M. ehretiicola*

BURSERACEAE

Meliola
3111. 4224 ... 118. *M. canarii*

CAESALPINIACEAE

Meliola
3113. 4232 Col. dense; hyphae tortuous; hy. 5%
opposite, antrorse to spreading, hc.
subulate; ms. straight ... 347. *M. tamarindi*

3113. 4222 Col. thin; hyphae sinuous; hy. 2%
opposite; ms. torulose ... 79. *M. aethlops* var.
cassiae

3113. 4222 Col. dense; hyphae straight; hy. 60%
opposite, subantrorse, hc. entire; ms.
straight ... 107. *M. bahtnicola*
3113. 3221 Col. thin; hyphae flexuous; hy. 10%
opposite, subantrorse, hc. entire;
ms. straight ... 81. *M. aethiops* var.
moullavae
3112. 3333 Col. hypophyllous, dense; hyphae straight;
3
hc. conoid; ms. dentate ... 227. *M. kingiodendri*

CAPPARACEAE

Meliola

3111. 4222 ... 128. *M. capparidicola*

CAPRIFOLIACEAE

Meliola

3111. 4222 Col. dense; hy. 21-28 μm long, hc.
sublobate; ms. 450 μm long ... 195. *M. goosii*
3111. 4221 Col. dense; hy. 21-25 μm long, hc.
angular; ms. 260 μm long ... 78. *M. aequatoriensis*
3111. 3223 Col. thin; hy. 13-15 μm long; hc.
entire; ms. 937 μm long ... 231. *M. leycesteriae*

CELASTRACEAE

Amazonia

3101. 4320 Col. epiphyllous; hyphae straight; hc.
entire ... 15. *A. mayteni*
3103. 4320 Col. hypophyllous; hyphae crooked;
hc. sublobate ... 16. *A. patllii*

- Asteridiella*
3101. 3220 ... 41. *A. lophopetali*
- Meliola*
3113. 4223 Hyphae crooked; hy. variously curved,
spreading; ms. numerous ... 110. *M. bhesae*
3113. 4223 Hyphae flexuous; hy. antrorse; ms.
few ... 133. *M. celastracearum*
3113. 4221 Hyphae substraight; hy. subantrorse;
3 ms. few, cristate ... 177. *M. euonymicola*
- CLUSIACEAE**
- Appendiculella*
3201. 4220 ... 20. *A. calophylli* var.
apetali
- Meliola*
3111. 5333 Col. amphigenous; hy. antrorse; hc.
often hamate ... 274. *M. ochrocarpi*
3111. 4323 Col. epiphyllous; hy. mostly antrorse;
hc. cylindrical ... 186. *M. garciniae*
- COMBRETACEAE**
- Amazonia*
3101. 4220 ... 10. *A. henryi*
- Asteridiella*
3101. 4220 ... 28. *A. combreti* var.
leonensis
- Meliola*
3111. 5323 Col. epiphyllous, dense; hyphae
substraight; hc. entire to angular;
ph. mixed with hy. ... 319. *M. roureae* var.
major

3111. 4233 Col. hypophyllous, thin; hyphae undulate;
hy. distantly placed, hc. entire to sub-
lobate; ph. mixed with hy. ... 147. *M. connari*
3111. 4223 Col. epiphyllous, thin; hyphae straight;
hc. slightly angular; ph. mixed with hy.
... 148. *M. connari* var.
indica
3111. 4222 Col. hypophyllous, dense; hyphae substraight
to crooked; hc. entire to angular; ph.
separate ... 85. *M. agumbensis*

CONVOLVULACEAE

Meliola

3141. 4231 Col. amphigenous, dense; hyphae undulate
to tortuous; hy. alternate; ms.
dichotomously branched ... 309. *M. quadrispina*
3123. 5232 Col. amphigenous, subdense; hyphae sub-
straight; hy. opposite & alternate; ms.
arcuate ... 169. *M. erycibes-paniculatae*
3113. 4221 Col. amphigenous, dense; hyphae flexuous;
hy. opposite & alternate; ms. simple,
straight ... 248. *M. malacotricha*
3112. 3222 Col. epiphyllous, dense; hyphae straight;
hy. opposite; ms. simple straight
... 249. *M. malacotricha* var.
major
3111. 3222 Col. amphigenous, dense; hyphae
crooked; hy. alternate; ms. simple,
clavate at the tip ... 142. *M. clavulata*

CORNACEAE

Asteridiella

3101. 4230

...

45. *M. mastixiae*

CUCURBITACEAE

Asteridiella

3101. 3220

...

29. *A. confragosa*

DICHAPETALACEAE

Meliola

3113. 4221

3

...

157. *M. dichapetali*

EBENACEAE

Asteridiella

3103. 4320

Col. amphigenous; hyphae straight;

hc. conoid

...

40. *A. Kapoorii*

3103. 4220

Col. hypophyllous; hyphae flexuous; hc.

cylindrical, rounded to truncate at the

apex

...

36. *A. eucleae* var.
*microspora**Meliola*

3111. 5221

Col. amphigenous; hyphae flexuous; hy.

alternate, hc. attenuate to truncate

at the apex

...

256. *M. megalocarpa* var.
microspora

3112. 5323

Col. hypophyllous; hyphae straight; hy.

densely placed, 2-5% alternate, hc.

slightly narrowed towards the apex

...

161. *M. diospyri* var.
yatesiana

3113. 4223 Col. amphigenous; hyphae straight; hy.

40% opposite, hc. entire to angular

...

160. *M. diospyri*

ELAEGNACEAE

Meliola

3113. 4223

...

166. *M. elaeagni*

ELAEOCARPACEAE

Asteridiella

3101. 4220

...34. *A. elaeocarpi-tuberculati*

ERICACEAE

Amazonia

3101. 4230

...

12. *A. karii*

Asteridiella

3101. 4220

...

48. *A. pentapterygii*

ERYTHROPALACEAE

Meliola

3111. 4222

...

171. *M. erythropali*

ERYTHROXYLACEAE

Meliola

3111. 4322

...

172. *M. erythroxylofolii*

EUPHORBLACEAE

Asteridiella

3101. 5330

Col. epiphyllous, dense; hyphae flexuous;

hc. angular to lobate

...

35. *A. entebbeensis*

3101. 5320 Col. hypophyllous, subdense; hyphae tortuous; hc. entire to sublobate ... 43. **A. mallofi**
3101. 4230 Col. amphigenous, subdense; hyphae crooked; hc. entire to angular ... 44. **A. mallotica**
3101. 4220 Col. hypophyllous, dense; hyphae substraight; hc. entire to sublobate ... 30. **A. crotonis**
3101. 3220 Col. epiphyllous, thin; hyphae tortuous; hc. entire ... 42. **A. macarangicola**
3113. 5230 Col. hypophyllous, crustose; hyphae crooked; hc. irregularly lobed ... 53. **A. resinosi**
- Irenopsis*
3401. 4320 ... 70. **I. paulensis**
- Meliola*
3141. 4227 Col. epiphyllous, dense; hyphae undulate; hc. lobate; ph. mixed with hy., ms. dichotomously branched ... 135. **M. chandleri**
3141. 4222 Col. amphigenous, crustose, dense; hyphae undulating; hc. entire; ms. dichotomously branched ... 204. **M. himalayensis**
3113. 4222
3 Col. amphigenous, subdense; hyphae substraight; hc. entire; ms. cristate ... 359. **M. thiteana**
3113. 5233 Col. epiphyllous, dense; hyphae undulating; hc. entire to sublobate; ph. mixed with hy.,

- ms. straight, simple ... 192. *M. glochidiicola*
3113. 4223 Col. amphigenous, dense; hyphae undulate;
hc. entire; ph. mixed with hy.; ms. simple
... 193. *M. glochidii* var. **velutini**
3113. 3223 Col. hypophyllous, dense; hyphae crooked; hc.
entire to angular; ms. acute to obtuse
... 224. *M. karnatakensis*
3113. 3223 Col. hypophyllous, thin, spreading; hyphae
substraight; hc. entire to angular; ms.
slightly flexuous ... 310. *M. radhanagariensis*
3113. 3222 Col. hypophyllous, dense; hyphae straight;
hc. entire; ph. mixed with hy.; ms.
simple ... 164. *M. drypeticola*
3112. 4222 Col. epiphyllous, dense; hyphae straight;
ms. entire; ph. mixed with hy.; ms.
simple ... 280. *M. ostodis*
3111. 4231 Col. amphigenous, subdense; hyphae slightly
undulate; hc. entire; ph. separate; ms.
simple ... 250. *M. mallotica*
3111. 3222 Col. epiphyllous, thin; hyphae substraight;
hc. entire; ph. mixed with hy.;
ms. few ... 219. *M. jatropae*
3111. 3221 Col. epiphyllous, very thin; hyphae
flexuous; hc. entire; ms. grouped
around perithecia ... 367. *M. trewiae*
3111. 3221 Col. epiphyllous, thin; hyphae sub-

straight; hc. angulose; ph. with hy.;

ms. straight

...

312. *M. ramosii*

FABACEAE
(Papilionaceae)

Meliola

3113. 4222
3

Col. epiphyllous, subdense; hyphae straight;

hc. ovate; ms. straight to curved ...

261. *M. millettiae-chryosophyllae* var.
indica

3113. 3223
3

Col. amphigenous, dense; hyphae slightly

crooked; hc. globose; ms. few, cristate

...

355. *M. teramni* var.
millettae

3113. 3221
3

Col. epiphyllous, thin; hyphae crooked;

hc. entire, curved; ms. few, grouped

around perithecia ...

267. *M. mucunae-acuminatae*
var. **indica**

3113. 3221
3

Col. epiphyllous, dense; hyphae undulate;

hc. globose; ph. mixed with hy.; ms.

simple

...

100. *M. atylosiae*

3111. 4224
3

Col. amphigenous, thin; hyphae undulate

to crooked; hc. globose, angulose, curved;

ph. mixed with hy.; ms. dentate

...

106. *M. butaanensis*

3113. 4223

Col. epiphyllous, dense; hyphae substraight

to crooked; hc. entire, curved; ph. mixed

with hy.

...

115. *M. buteae*

3113. 4223 Col. epiphyllous, thin; hyphae undulating;
hc. entire to angular; ph. mixed with hy.
... 265. **M. motatanensis**
3113. 4222 Col. mostly epiphyllous, subdense; hyphae
substraight; hc. globose, entire, straight to
curved; ph. mixed with hy. ... 145. **M. clitoriae**
3113. 3231 Col. epiphyllous, thin; hyphae undulating;
hc. globose, entire; ph. mixed with hy.
... 111. **M. bicornis**
3113. 3223 Col. epiphyllous, dense; hyphae crooked; hc.
curved; ms. numerous ... 262. **M. millettiae-racemosae**
3113. 3222 Col. epiphyllous, thin; hyphae undulate; hc.
globose; ph. mixed with hy. ... 266. **M. mucunae** var.
hirsutae
3113. 3221 Col. epiphyllous, subdense; hyphae crooked;
hy. 5% opposite; hc. entire ... 295. **M. phaseoli**
3111. 4222 Col. epiphyllous, thin; hyphae substraight;
hy. alternate, hc. entire to rounded angulose;
ph. mixed with hy. ... 170. **M. erythrinae**
3111. 4220 Col. epiphyllous, thin; hyphae tortuous;
hy. alternate, hc. angulose to shallowly
lobate; ph. mixed with hy. ... 104. **M. bantamensis**
var. **keralensis**
3111. 4221 Col. amphigenous; hyphae substraight;
hy. antrorse to recurved; hc. entire
to angular ... 305. **M. pterocarpi**

3111. 3231 Col. epiphyllous; hyphae straight; hy.
antrorse, hc. entire; ms. few ... 102. *M. banosensis*
var. *puerariae*
3113. 3212 Col. epiphyllous; hyphae flexuous; hy.
subantrorse, hc. often angular; ms.
very few ... 103. *M. banosensis* var.
puerariicola
- FAGACEAE**
- Amazonia*
3101. 4320 Col. epiphyllous, subdense; hyphae straight;
hc. cylindrical, entire ... 5. *A. balakrishnanii*
- Asteridiella*
3101. 4330 Col. mostly epiphyllous, dense; hyphae
substraight; hc. entire ... 52. *A. quercina*
- Meliola*
3113. 4233 Col. hypophyllous, thin; hyphae crooked;
hy. opposite and alternate, hc. entire
... 208. *M. hystricis*
3111. 4222 Hy. straight, antrorse, hc. globose;
3 ms. few, scattered ... 112. *M. bosei*
3111. 4222 Hy. straight to curved, antrorse to
3 spreading, hc. subglobose; ms. grouped
around perithecia ... 257. *M. melanochaeta*
3111. 4322 Col. epiphyllous, thin; hyphae straight;
hy. alternate, hc. pointed and rounded
towards the apex; ph. with hy.; ms.
simple, acute ... 252. *M. mannii*

FLACOURTIACEAE

Amazonia

3101. 4220 ... 7. *A. flacourtiæ*

Asteridiella

2101. 5230 Hy. alternate, hc. stellately lobate; sp.

3-septate, curved, fusiform ... 26. *A. caseariicola*

3103. 4220 Hy. 5% opposite, hc. rarely angular; sp.

4-septate, straight, obovoidal ... 56. *A. scolopæ*

Meliola

2111. 5332 ... 328. *M. scolopæ* var.
indica

GENTIANACEAE

Meliola

3111. 3222 ... 178. *M. exaci*

GESNERIACEAE

Asteridiella

3101. 3220 ... 32. *A. cyrtandrae* var.
didymocarpi

GNETACEAE

Meliola

3113. 5223 ... 194. *M. gneti*

HEMMAMALIDACEAE

Meliola

3121. 4222 ... 343. *M. symingtoniae*

HIPPOCRATEACEAE

Meliola

3113. 4222 Col. thin; hy. 20% opposite, hc. entire;
3
ms. dentate; sp. 4-septate ... 324. *M. salaciae*
2111. 4221 Col. dense; hy. alternate, hc. sublobate;
ms. acute; sp. 3-septate ... 277. *M. oligomera*

ICACINACEAE

Amazonia

3101. 5320 Col. hypophyllous, dense; hyphae sub-
straight; hc. entire ... 8. *A. gomphandrae*

Meliola

3113. 4223 Col. epiphyllous, subdense; hyphae flexuous;
hy. opposite and alternate, hc. entire; ph.
with hy. ... 159. *M. dimidiatae*
3113. 4222 Col. mostly hypophyllous; hyphae undulating;
hy. opposite and alternate; hc. angular to sub-
lobate; ph. separate ... 137. *M. chandrasekharanii*
3113. 4222 Col. hypophyllous, dense; hyphae undulate;
hy. alternate and opposite, hc. globose, entire;
ph. with hy. ... 326. *M. sarcostigmatis*
3111. 5323 Col. amphigenous, dense; hyphae sub-
straight; hy. alternate, hc. entire;
ph. with hy. ... 338. *M. stemonuri*

LAMIACEAE

Meliola

3111. 3221 ... 298. *M. pogostemonis*

LAURACEAE

Amazonia

3102. 4220 Col. crustose; branching closely reticulate;
hy. opposite, hc. entire ... 6. *M. cinnamomi*

3101. 4220 Col. dense; branching loosely reticulate;
hy. alternate, hc. lobate ... 4. *A. actinodaphnes*

Meliola

3121. 4233 Col. hypophyllous, dense; hyphae crooked; hy.
distantly placed, hc. lobate; ph. with hy., ms.
straight to arcuate and hamate ... 163. *M. drepanochaeta*
var. *insignis*

3111. 5333 Col. hypophyllous, dense; hyphae flexuous;
3 hc. entire; ph. with hy.; ms. dentate
... 108. *M. beilschmiediae* var.
cinnamomicola

3111. 5333 Col. hypophyllous, subdense; hyphae tortuous;
3 hc. entire to slightly lobate; ph. with hy.,
ms. dentate ... 270. *M. neolitseae*

3111. 5324 Col. hypophyllous, dense; hyphae straight to
3 crooked; hc. straight; sp. middle cell largest
... 331. *M. sempiensis* var.
nicobarica

3111. 5223
3 Col. hypophyllous, dense; hyphae crooked; hc.
entire; ph. with hy.; ms. dentate
... 233. *M. linderæ*
3113. 4323
3 Col. hypophyllous, crustose; hy. 10%
opposite, hc. entire; ph. with hy. ... 221. *M. kakachiana*
3111. 4223
3 Col. hypophyllous, dense; hyphae crooked;
hy. 1% opposite, straight to variously
curved, hc. entire to sublobate ... 333. *M. shettyi*
3113. 4223
3 Col. hypophyllous, spreading; hyphae
tortuous; hy. 10% opposite, hc. slightly
sublobate ... 152. *M. cryptocarficola*
3122. 4322
3 Col. epiphyllous, dense; hyphae straight;
hy. opposite, hc. entire; ms. curved to
uncinate ... 291. *M. patileana*
3113. 5244 Col. hypophyllous, subdense; hyphae tortuous;
hy. 5% opposite, hc. angulose to sublobate;
ph. separate ... 235. *M. litseae* var.
floribundae
3111. 5332 Col. hypophyllous, dense; hyphae crooked and
geniculate; hc. angular and truncate; ph.
with hy. ... 243. *M. machill*
3111. 5323 Col. epiphyllous, thin to subdense; hyphae
substraight to crooked; hc. ovate, globose,
entire; ph. with hy. ... 307. *M. pudukadensis*

3111. 5323 Col. very thin; hyphae crooked; hy. variously curved, hc. entire to slightly lobate; ms. numerous ... 225. *M. kaveriappai*
3111. 5322 Col. mostly epiphyllous, crustose; hyphae straight; hc. entire ... 182. *M. floridensis*
3111. 53x2 Col. epiphyllous, crustose; hyphae straight; hc. globose, entire; ph. with hy. ... 183. *M. floridensis* var. *pudukadensis*
3111. 4223 Col. hypophyllous, thin; hyphae crooked; hc. entire to angular; ph. with hy. ... 236. *M. litseae* var. *insignis*
3111. 4223 Col. epiphyllous, dense; hyphae straight; hc. versiform, entire; ph. with hy. ... 239. *M. litseae* var. *rotundipoda*
3111. 4222 Col. amphigenous, dense; hyphae flexuous; hc. entire, straight to curved; ms. few ... 109. *M. beilschmedicola*
3111. 4222 Col. epiphyllous, on black spots; hyphae straight; hc. entire; ph. with hy. ... 311. *M. ramacharii*
3111. 3233 Col. epiphyllous, subdense; hyphae straight; hc. bluntly pointed towards the apex, entire; ph. with hy. ... 238. *M. litseae* var. *microspora*
3111. 3223 Col. epiphyllous, subdense; hyphae straight;

- hc. versiform, entire; ph. with hy. ... 237. *M. litseae* var. **keralensis**

LECYTHIDACEAE

Meliola

3113. 4232 Col. epiphyllous; hc. globose; ph. mixed
with hy. ... 211. *M. indica*
3113. 4223 Col. epiphyllous; hc. subglobose to broadly
clavate; ph. separate ... 212. *M. indica* var. **careyae**

LEEACEAE

Amazonia

3101. 4230 Col. epiphyllous, subcrustose; hyphae
undulate; hc. entire ... 14. *A. leae*

Irenopsis

3401. 3220 Col. epiphyllous, thin; hyphae undulate;
hc. sublobate; ph. with hy. ... 66. *I. leae* var. **indica**
3403. 3210 Col. epiphyllous, dense; hy. 1% opposite; ps.
perpendicular to the host ... 67. *I. leae* var. **javensis**

Meliola

3111. 4222 ... 253. *M. maredumilliana*

LOBELIACEAE

Meliola

3112. 5222 ... 240. *M. lobeliae*

LOGANIACEAE

Meliola

3111. 4222 Col. epiphyllous, dense; hyphae substraight;
hy. subantrorse; hc. entire to angulose
... 187. *M. gardneriae*
3111. 3221 Col. amphigenous, subdense; hyphae straight;
hy. antrorse, hc. rounded to truncate at the
apex ... 335. *M. spigelliae*
3111. 3221 Col. epiphyllous, dense; hyphae flexuous; hy.
subantrorse, hc. versiform ... 188. *M. gardneriae*
var. *indica*
3111. 3221 Col. mostly epiphyllous, dense; hyphae
straight; hy. antrorse; hc. ovate,
entire ... 293. *M. petchii*

LYTHRACEAE

Meliola

3111. 3222 ... 374. *M. woodfordiae*

MALVACEE

Amazonia

3103. 4220 ... 2. *A. abutili*

Irenopsis

3403. 3220 Col. dense; hyphae straight to flexuous; hy.
5% opposite; ph. with hy. ... 71. *I. sidae*
3401. 4220 Col. subdense; hyphae flexuous to tortuous;

- hy. alternate; ph. separate ... 68. **I. mudumalaiensis**
3401. 3220 Col. thin; hyphae flexuous; hy. 1% opposite;
ph. with hy. ... 73. **I. thespesiae**
- Meliola*
3111. 3222 ... 229. **M. kydiae-calycinae**

MELASTOMATACEAE

Meliola

3113. 5334
3 Col. amphigenous, subdense; hyphae sub-
straight; hy. alternate and opposite;
ms. dentate ... 259. **M. memecylli**
3111. 4228
3 Col. hypophyllous, subdense; hyphae flexuous;
hy. alternate; ms. dentate ... 202. **M. heudelotii**
3113. 3213 Col. mostly epiphyllous, dense; hy. 20%
opposite ... 260. **M. memecylica** var.
indica
3111. 3223 Col. hypophyllous, very thin; hyphae sub-
straight; hy. distantly placed; ms. acute
... 82. **M. affinis** var.
indica

MELIACEAE

Irenopsis

3401. 4330 Hy. distantly placed, stalk cells
cylindrical, hc. entire to angular,
ph. with hy. ... 65. **I. indica**
3401. 4230 Hy. closely to distantly placed, stalk
cells flexuous, hc. entire to lobate;

- ph. separate ... 61. *I. chukrasiae*
- Meliola*
3133. 4221 Col. amphigenous, dense; hyphae straight;
hy. few opposite in young colonies; hc.
entire ... 342. *M. swietenicola*
3113. 3223 Col. amphigenous, subdense; hyphae
crooked; hy. 30% alternate, hc.
slightly attenuate ... 290. *M. parvula*
3112. 5333 Col. epiphyllous, dense; hyphae substraight;
hy. opposite, hc. truncate ... 95. *M. aphanamixidis*
3112. 4222 Col. epiphyllous, dense; hyphae straight;
2
hy. rarely solitary, hc. entire to
angular ... 317. *M. reinwardtiodendri*
3111. 5321 Col. on the midrib, dense; hyphae
tortuous; ms. numerous ... 294. *M. petrakii*
3111. 4221 Col. epiphyllous, thin; hyphae substraight;
ms. around perithecia ... 203. *M. heyniae*
3111. 3222 Col. epiphyllous, subdense; hyphae
substraight to flexuous; ms. few,
flexuous ... 269. *M. nairii*
3111. 3222 Col. amphigenous, thin; hyphae flexuous; ms.
numerous, often curved ... 138. *M. chukrasiae*
3111. 3221 Col. epiphyllous, diffused, dense; hyphae
straight; ms. scattered ... 84. *M. aglaicola*

MENISPERMACEAE

Meliola

3111. 4222 Col. epiphyllous, dense; hy. alternate, straight to curved, hc. globose; ms. densely scattered, acute to obtuse at the tip ... 341. *M. stephaniae*
3111. 3222 Col. amphigenous, subdense; hy. alternate to unilateral; straight, hc. attenuated at apex; ms. scattered to grouped around perithecia, acute at the tip ... 153. *M. cycleae*
3111. 3222 Col. epiphyllous, thin; hyphae undulate; hy. alternate, straight to curved, hc. clavate; ms. straight to curved ... 139. *M. cissampellicola*

MIMOSACEAE

Amazonia

3101. 3230 ... 1. *A. abaremae*

Meliola

3113. 3222 Col. mostly epiphyllous, dense; hyphae straight to flexuous; hy. 5% opposite; ms. straight to curved ... 80. *M. aethiops* var. *longiseta*
3113. 3223
3 Col. dense; hyphae crooked; hy. mostly opposite; ms. straight ... 258. *M. melanoxylois*
3113. 3222
3 Col. thin; hyphae substraight; hy. mostly alternate; ms. straight to flexuous at the upper portion ... 167. *M. entadicola*

3111. 4222 Col. subdense; hyphae crooked; hy.
alternate; ms. few, grouped around
perithecia, straight ... 275. *M. odoratissimae*
- MORACEAE**
- Irenopsis*
3401. 4220 Col. mostly epiphyllous, subdense; hyphae
undulate; hc. sublobate; ps. straight
... 60. *I. benguetensis*
- Meliola*
3121. 5322 Col. epiphyllous, dense; hyphae straight;
hy. alternate; ph. with hy.; ms.
arcuate to uncinata, obtuse at the tip
... 96. *M. artocarpi*
3111. 5222 Col. epiphyllous, dense; hyphae straight;
2
hy. alternate; ph. separate; ms.
arcuate, few straight, acute to obtuse at
the tip ... 97. *M. artocarpi* var.
indica
3113. 4221 Col. hypophyllous, dense; hyphae crooked;
2
hy. 60% opposite; ms. straight to uncinata,
obtuse to bidentate at the tip ... 213. *M. integrifolii*
3113. 3221 Col. amphigenous, subdense; hyphae substraight
to crooked; hy. alternate and opposite; ph.
separate ... 101. *M. bangalorensis*
3111. 4221 Col. epiphyllous, subdense; hyphae straight;

- hy. alternate; ph. with hy. ... 179. *M. ficicola*
3111. 3221 Col. epiphyllous, thin; hyphae substraight;
hy. alternate; ph. separate; ms. irregularly
curved ... 285. *M. ovatipoda*

MYRISTICACEAE

Meliola

3111. 3232 ... 268. *M. myristicae*

MYRSINACEAE

Amazonia

3101. 4230 ... 17. *A. peregrina*

Meliola

3113. 5323 Col. mostly epiphyllous, dense; hc. ovate
to cylindrical ... 365. *M. transvaalensis*

3113. 4232 Col. hypophyllous, dense; hc. cylindrical,
entire to angular ... 315. *M. rapanae* var.
microspora

3113. 4222 Col. hypophyllous, dense; hc.
globose ... 198. *M. groteana*

MYRTACEAE

Amazonia

3101. 4220 Col. amphigenous; hyphae slightly
undulate; hc. entire ... 19. *A. syzygii*

Asteridiella

3101. 4340 Col. amphigenous; hyphae straight;
hc. entire ... 47. *A. ohiana* var.
major

Meliola

2111. 4221 Col. very thin; hy. alternate; ms.
very few, straight ... 308. **M. pulchella** var.
syzygii
2111. 5222 Col. dense; hy. 1% opposite; ms.
2 grouped around perithecia, straight
to uncinata ... 245. **M. maduraiensis**
3111. 4223 Col. hypophyllous, dense; hyphae crooked;
2 hc. irregularly sublobate; ph. separate;
ms. straight to uncinata ... 175. **M. eugeniae-stocksii**
3121. 4221 Col. hypophyllous, dense; hyphae sub-
straight to tortuous; ms. uncinata to
arcuate ... 156. **M. densa**
3113. 4233 Col. amphigenous, thin; hyphae sub-
straight; hc. entire to angulose;
ms. straight ... 174. **M. eugeniae-jamboldis** var.
amphigena
3112. 4324 Col. amphigenous, thin; hy. opposite,
hc. entire; ms. straight ... 176. **M. eugenicola**
3111. 5334 Col. dense; hyphae straight to crooked;
hc. entire to angular; ms. few, grouped
around perithecia ... 191. **M. gersoppaensis**

3111. 5323 Col. hypophyllous, subdense; hyphae sub-
straight to crooked; hc. entire to angular;
ms. straight ... 173. *M. eugeniae-jamboloidis*
3111. 4233 Col. hypophyllous, dense; hyphae crooked; hc.
angular to sublobate; ms. arcuate to
hamate ... 163. *M. drepanochaeta* var.
insignis
3111. 4222 Col. hypophyllous, subdense; hyphae
crooked; hc. entire to sublobate;
ms. straight ... 368. *M. trichostroma*
3111. 3223 Col. thin; hyphae straight; hc. entire; ms.
few, grouped around perithecia ... 230. *M. laxa* var.
indica
3111. 3222 Col. amphigenous, thin to subdense;
hyphae undulate; hc. entire; ms.
straight ... 314. *M. rangnathii*

OLACACEAE

Meliola

3113. 4222 ... 276. *M. olacicola*

OLEACEAE

Asteridiella

3101. 4220 Hyphae substraight; hc. lobate;
ph. with hy. ... 24. *A. americana*

3101. 4221 Hyphae crooked; hc. entire;
ph. separate ... 59. *A. websteri*
- Meliola*
3112. 4223 Col. mostly epiphyllous; hyphae straight;
hy. opposite; ph. with hy. ... 189. *M. gemellipoda*
3111. 4322 Col. mostly epiphyllous; hyphae straight;
hy. alternate; hc. entire to sublobate;
ph. with hy. ... 255. *M. mayapeicola* var.
indica
3111. 4223 Col. mostly epiphyllous, dense; hyphae
straight; hc. entire; ph. with hy. ... 218. *M. jasminicola* var.
indica
3111. 4221 Col. epiphyllous, dense; hyphae flexuous;
hy. straight to curved, hc. straight;
ph. with hy. ... 254. *M. mayapeae*
3111. 4221 Col. hypophyllous, dense; hyphae straight;
hy. straight to crooked, hc. variously curved;
ph. with hy. ... 234. *M. linoceirae-malabaricae*
3111. 3231 Col. amphigenous, subdense; hyphae flexuous;
hc. cylindrical; ph. with hy. ... 232. *M. ligustri*
3111. 3222 Col. epiphyllous, thin; hyphae straight; hc.
clavate, entire; ph. with hy. ... 155. *M. daviesii*
3111. 3222 Col. mostly epiphyllous, dense; hyphae
straight; hc. ovate, entire; ph.
separate ... 217. *M. jasmini*
3111. 3222 Col. hypophyllous, thin; hyphae

straight; hc. globose, cylindrical;

ph. with hy. ... 247. *M. malabarensis*

OPILIACEAE

Meliola

3143. 4221 Col. amphigenous, dense; hy. alternate and
opposite; ms. straight, apex dentate to
furcate up to 30 μ m; sp. 4-septate ... 119. *M. cansjerae*
3113. 4232 Col. amphigenous, dense; ms. obtuse to
3 dentate; sp. 4-septate ... 120. *M. cansjerae*
var. *indica*
3113. 4231 Col. caulicolous, amphigenous, crustose;
hy. few alternate; ms. acute ... 279. *M. opiliae* var.
singalensis
3112. 4231 Col. amphigenous, dense; hy. opposite;
3 ms. straight, simple to dentate; sp.
4-septate ... 278. *M. opiliae*
2111. 5343 Col. amphigenous, subdense; hy. alternate;
ms. straight, acute; sp. 3-septate ... 121. *M. cansjericola*

PANDANACEAE

Meliola

3111. 5331 ... 223. *M. Kapoorii*
2

PERIPLOCACEAE

Meliola

3111. 5232 Col. amphigenous; hy. antrorse to
retorse, hc. ovate; ms. acute to
obtuse; sp. 45-55 μm long ... 199. **M. hemidesmi**
3111. 3223 Col. epiphyllous; hy. antrorse to sub-
antrorse, hc. ovate to globose; ms.
acute; sp. 30-35 μm long ... 200. **M. hemidesmicola**

PINACEAE

Asteridiella

2101. 5230 ... 49. **A. pitya**

PIPERACEAE

Meliola

3111. 4223 Col. spreading; hc. globose, angular
to slightly lobate ... 339. **M. stenospora**
3111. 4223 Col. subdense; hc. globose, crenately
lobate; ph. separate ... 340. **M. stenospora**
var. **major**
3111. 3222 Col. dense; hc. ovate, entire; ph.
with hy. ... 357. **M. thitei**

PITTOSPORACEAE

Meliola

3111. 5222 ... 301. **M. polytricha**

POACEAE

Meliola

3141. 5332 Col. mostly epiphyllous, dense; hyphae straight to undulate; hc. lobate; ph. separate; ms. dichotomously branched ... 296. *M. phyllostachydis*
3141. 5231 Col. amphigenous, dense; hyphae straight to crooked; hc. sublobate; ph. separate; ms. dichotomously branched ... 98. *M. arundinis*
3141. 4221 Col. mostly epiphyllous, dense; hyphae straight to tortuous; hc. sublobate; ph. mixed with hy.; ms. dichotomously branched ... 154. *M. cymbopogonis*
3111. 4223
3 Col. mostly epiphyllous, dense; hyphae sub-straight to crooked; hc. entire to angulose; ph. separate; ms. dentate ... 323. *M. sacchari*
3111. 4223 Col. amphigenous, dense; hyphae straight to tortuous; hc. entire to shallowly lobate; ph. separate; ms. simple, acute ... 288. *M. panici* var. *laciacidis*
3111. 4223 Col. amphigenous, subdense; hyphae straight to tortuous; hc. entire to sublobate; ph. mixed with hy., ms. acute ... 356. *M. themedae* var. *indica*
3111. 3222 Col. epiphyllous, dense; hyphae straight to substraight; hc. angular to sublobate;

ph. separate; ms. acute ... 287. *M. panici*

POLYGONACEAE

Meliola

3111. 3221 Hy. alternate, antrorse to spreading;
ms. numerous ... 299. *M. polygona*

3112. 4222 Hy. opposite, closely arranged,
antrorse; ms. few ... 300. *M. polygonicola*

RHAMNACEAE

Amazonia

3101. 3220 ... 9. *A. gouaniae*

Appendiculella

2201. 4320 ... 22. *A. hoveniae*

Irenopsis

3401. 4230 ... 72. *I. tenuissima* var.
major

Meliola

3113. 3222 Col. mostly epiphyllous, thin; hyphae
3
straight; hy. alternate and opposite;
ms. dentate ... 377. *M. zizyphi*

RHIZOPHORACEAE

Meliola

3111. 5224 ... 94. *M. anisophylleae* var.
caralliae

ROSACEAE

Appendiculella

2101. 4230 ... 21. *A. calostroma*

- Asteridiella*
2101. 42x0 ... 51. *A. pygei* var. *microspora*
- Meliola*
3113. 5223 Col. epiphyllous, dense; hyphae straight;
hy. alternate and opposite; hc. entire to
sublobate; ms. acute ... 320. *M. rubi* var. *garhwalensis*
3111. 4221 Col. epiphyllous, very thin; hyphae thin,
crooked; hy. entire; ms. few ... 322. *M. rubiella*
var. *indica*
3111. 3232 Col. epiphyllous, thin; hyphae robust,
substraight; hy. alternate; hc. entire;
ms. acute ... 321. *M. rubiella*
- RUBIACEAE
- Amazonia*
3101. 3220 ... 18. *A. psychotriae*
- Meliola*
3112. 5333 Col. epiphyllous, dense; hyphae sub-
straight; hy. opposite; hc. entire
to angular ... 348. *M. tawaoensis*
3112. 4223 Col. amphigenous, dense; hyphae
straight; hy. opposite, hc. ovate-
cylindrical ... 313. *M. randlicola*
3112. 4223 Col. epiphyllous, crustose; hyphae
straight; hy. crowded; hc. ovate-

- globose ... 216. **M. ixorae-coccineae**
3113. 4233 Col. amphigenous, dense; hyphae sub-
straight; hy. opposite and alternate;
hc. entire ... 370. **M. twaitesiana**
3113. 4223 Col. epiphyllous, thin to dense; hyphae
crooked; hy. alternate and opposite; hc.
entire to angulose ... 263. **M. mitragynae**
3111. 3221 Col. epiphyllous, thin; hyphae sub-
3 straight; hy. alternate; hc. entire ... 91. **M. anceps**
3111. 3222 Col. amphigenous, thin; hyphae flexuous;
2 hc. entire to angular and attenuated; ms.
straight to uncinata ... 222. **M. kanniyakumariana**
3111. 53232 Col. amphigenous, dense; hyphae
straight; hc. entire to rarely angular;
ph. separate ... 123. **M. canthii-angustifolii**
3111. 4322 Col. amphigenous, subdense; hyphae sub-
straight; hc. entire to angular ... 372. **M. weberae**
3111. 4224 Col. hypophyllous, thin; hyphae tortuous;
hc. entire to slightly lobate; ms. grouped
around perithecia ... 215. **M. ixorae var. macrospora**
3111. 4224 Col. hypophyllous, dense; hyphae sub-
straight; ms. densely scattered and
slightly flexuous ... 136. **M. chandolensis**

3111. 4223 Hyphophyllous colonies mostly on the
veins; hyphae straight; hc. entire
to crenately lobate ... 241. *M. longiseta*
3111. 4223 Col. amphigenous; hyphae flexuous; hc.
oblong, entire ... 83. *M. africana*
3111. 4222 Col. amphigenous, crustose; hyphae
straight; hc. entire, truncate;
ms. few ... 201. *M. henryi*
3111. 42x2 Col. amphigenous, dense; hyphae straight;
hc. entire to angulose ... 122. *M. canthii*
3111. 4222 Col. hypophyllous, thin; hyphae flexuous;
stalk cells of hy. aseptate to septate;
hc. entire to sublobate ... 297. *M. plectroniae*
3111. 4222 Col. mostly hypophyllous, subdense;
hyphae crooked; hc. ovate, entire;
ph. separate ... 373. *M. wendlandiae*
3111. 3223 Col. amphigenous, thin; hyphae crooked;
hc. entire to sublobate; ph. separate
... 214. *M. ixorae*
3111. 3223 Col. mostly hypophyllous, thin; hyphae
substraight; hc. entire; ph. with hy.
... 303. *M. psychotriae*
3111. 3223 Col. hypophyllous, subdense; hyphae
flexuous; hc. irregularly sublobate
304. *M. psychotriae-nudiflorae*

RUTACEAE

Amazonia

3101. 4320 Col. mostly epiphyllous, subdense;

- hyphae substraight; hy. alternate;
 ph. with hy. ... **3. A. acronychiae**
- Asteridiella*
 3101. 3320 Col. amphigenous, dense; hyphae
 straight; hc. entire to angular
 ... **23. A. acronychiae-pedunculatae**
- Meliola*
 3141. 5221 Col. amphigenous, subdense; hyphae
 straight; hc. curved, entire; ms.
 dichotomously branched ... **352. M. tenella**
3141. 4231 Col. mostly hypophyllous, dense;
 hyphae substraight; hc. entire;
 ms. dichotomously branched ... **354. M. tenella var. atalantiicola**
3141. 4221 Col. epiphyllous, dense; hyphae
 straight; hc. cylindrical, entire;
 ms. dichotomously branched ... **353. M. tenella var. atalantiae**
3121. 5332 Col. epiphyllous, dense; hyphae sub-
 straight; hy. alternate; hc. lobate;
 ph. with hy.; ms. obtuse to hamate
 ... **375. M. zanthoxyli**
3111. 5323 Col. amphigenous, dense; hyphae straight;
 2
 hy. antrorse to recurved; hc. entire to
 sublobate; ms. straight and uncinata
 ... **371. M. vepridis**

3113. 4233
3 Col. mostly epiphyllous, subcrustose;
hyphae straight; hy. opposite and
alternate; hc. entire; ph. with hy.,
ms. dentate ... 116. *M. butleri*
3113. 4223
2 Col. mostly hypophyllous; hyphae
substraight; hy. alternate and
opposite; hc. entire; ph. with hy.;
ms. dentate ... 140. *M. citricola*
3113. 4223
3 Col. epiphyllous, thin; hyphae straight;
hy. alternate and opposite; hc. entire;
ms. with hy.; ms. dentate ... 141. *M. clausenae*
3113. 42x3
3 Col. mostly hypophyllous, crustose;
hyphae straight; hy. alternate and
opposite; hc. conoid, entire; ph. with
hy.; ms. dentate ... 99. *M. atalantiae*
3113. 3233
3 Col. hypophyllous, thin; hyphae straight;
hy. alternate and opposite; hc. globose,
entire; ph. with hy.; ms. dentate ... 117. *M. cadigensis*
var. *glycosmidis*
3113. 3223
3 Col. mostly hypophyllous, subdense;
hy. alternate and opposite, hc. curved,

- entire; ph. with hy.; ms. dentate ... 318. *M. rickiana*
var. *zanthoxyli*
3113. 3223 Col. hypophyllous, dense; hyphae
3 straight; hy. alternate and opposite;
hc. entire to angulose; ph. with hy.;
ms. dentate ... 289. *M. paramignyae*
3113. 4221 Col. epiphyllous, dense; hyphae sub-
straight; hy. alternate and opposite,
hc. widely ovate, entire; ph. with hy.;
ms. acute ... 361. *M. toddallicola* var.
indica
3112. 4342 Col. amphigenous, dense; hyphae straight;
hy. opposite, hc. oblong, entire; ph.
with hy. ... 360. *M. toddaliae*
3111. 5333 Col. amphigenous, crustose hyphae
straight; hy. antrorse to spreading;
ms. obtuse ... 244. *M. macropoda*
3111. 5322 Col. amphigenous, thin; hyphae
flexuous; hy. antrorse; ms. acute
to obtuse ... 376. *M. zanthoxyli-ovalifolii*
3111. 4223 Col. mostly epiphyllous, dense; hyphae
straight; hy. alternate, hc. ovate,
entire; ph. with hy.; ms. acute ... 349. *M. tectleae* var.
toddaliae-asiaticae
3111. 4222 Col. hypophyllous, dense; hyphae
straight; hc. ovate, entire; ph.

with hy.; ms. acute ... 242. *M. luvungae*

SABIACEAE

Asteridiella

3101. 5330 ... 46. *A. meliosmae*

SANTALACEAE

Meliola

3111. 5231 Col. amphigenous, subcrustose;
hyphae substraight; hc. ovate;
ph. with hy. ... 281. *M. osyridicola*

3111. 4221 Col. mostly epiphyllous, dense;
hyphae substraight; hc. ovate;
ph. separate ... 282. *M. osyridicola* var.
indica

3111. 3221 Col. mostly hypophyllous, dense;
hyphae substraight; hc. pyriform;
ph. with hy. ... 327. *M. scleropyri*

SAPINDACEAE

Meliola

3113. 4223 Col. mostly epiphyllous; hyphae straight;
3
hy. alternate and opposite, hc. ovate,
entire; ms. dentate ... 124. *M. capensis* var.
allophylicola

3113. 4221 Col. mostly epiphyllous; hyphae straight;
3
hy. alternate and opposite, hc. conoid;
ms. dentate ... 284. *M. otonephelli*

3113. 3223 Hyphae straight; hy. antrorse to sub-
3

antrorse, hc. globose; ms. grouped

around perithecia, acute, obtuse to

dentate

... 87. *M. allophyli-concanici*

3113. 3222
3

Hyphae straight; hy. antrorse, hc. conoid;

ms. scattered, acute to dentate ...

127. *M. capensis* var.
schleicherae

3113. 3222
3

Col. epiphyllous, subdense; hyphae

straight; hy. alternate and opposite,

hc. globose, entire; ms. dentate ...

271. *M. nephelii* var.
singalensis

3112. 3212

Col. amphigenous, dense; hyphae

straight; hc. conoid ...

125. *M. capensis* var.
emerginati

3112. 3223
3

Col. mostly hypophyllous; hyphae

straight; hy. opposite, hc. conoid;

ms. dentate ...

126. *M. capensis* var.
malayensis

3112. 3221
3

Hyphae straight to tortuous; hy.

antrorse to retrorse, hc. ovate;

ms. obtuse to dentate ...

180. *M. filicii*

3113. 3222

Col. hypophyllous, thin; hyphae crooked;

hy. alternate and opposite, hc. entire to

slightly lobate; ms. dentate ...

146. *M. commixta*

3113. 3222

Col. hypophyllous, spreading; hyphae

flexuous; hc. entire to angular; ms.

obtuse ...

181. *M. filicicola*

3111. 4223 Col. epiphyllous, dense; hyphae straight; hc. conoid, entire; ms. acute to obtuse ... 332. *M. serjaniae* var. **major**
3111. 3222 Col. epiphyllous, subdense; hyphae straight; hy. 1% opposite, hc. entire to sinuately lobate; ms. acute to obtuse ... 283. *M. otophorae* var. **indica**

SAPOTACEAE

- Asteridiella*
3101. 4220 ... 54. *A. sapotacearum*
- Meliola*
3113. 4323 ... 220. *M. jayachandranii*
3

SCROPHULARIACEAE

- Meliola*
3111. 3222 ... 362. *M. toreniae*

SIMAROUBACEAE

- Meliola*
3113. 3221 ... 86. *M. ailanthi*
3

SMILACACEAE

- Meliola*
3111. 4233 Hy. 18-22 μm long; perithecia 280 μm in diam.; sp. 37-43.5 x 15-18.5 μm ... 185. *M. gamblei*
3111. 4223 Hy. 18-22 μm long; perithecia 198 μm

in diam.; sp. 42-50 x 18-20 μm ... 325. *M. salleana* var.
smilacis

SOLANACEAE

Meliola

3111. 3222 ... 246. *M. mahabaleshwarensis*

STAPHYLEACEAE

Meliola

3112. 3211 ... 337. *M. staphyleacearum*

Prataprajella

3211. 5244 ... 378. *P. turpiniicola*

STERCULIACEAE

Asteridiella

3101. 5320 Hyphae crooked; hy. antrorse, hc.
angular to sublobate; ph. with
hy.; peridial cells conoid ... 25. *A. anamalaiana*

3101. 4320 Hyphae straight; hy. subantrorse, hc.
entire; ph. separate; peridial
cells indistinct ... 39. *A. heritiericola*

Irenopsis

3401. 3220 Col. thin; hyphae undulate; hy. antrorse
to spreading, hc. entire to angular;
ps. 8-12, straight ... 63. *I. eriolaenae*

3401. 3220 Col. dense; hyphae tortuous; hy. antrorse
to retrorse, hc. angular to slightly lobate;
ps. 4-10, straight to curved ... 64. *I. helicteridis*

3401. 3220 Col. thin; hyphae substraight; hy.
antrorse, hc. entire to angular; ps.

very few, straight to flexuous ... 74. *I. tjibodensis*

Meliola

3111. 5323 Hy. alternate, hc. entire; sp.
42-51 μm long ... 316. *M. reevesiae*
3113. 3222 Hy. 5-10% opposite, hc. sublobate;
sp. 37-41 μm long ... 306. *M. pterospermi* var.
microspora

STYRACACEAE

Meliola

3121. 3231 ... 228. *M. kweichowensis* var.
uncinata

SYMPLOCACEAE

Amazonia

3101. 3220 ... 13. *A. karnatakensis*

Meliola

3111. 5222 ... 344. *M. symplocicola*
3

SYMPHOREMACEAE

Meliola

3113. 3222 ... 345. *M. symphorematicola*
2

THEACEAE

Meliola

3141. 4231 ... 196. *M. gordoniae*

THYMELEACEAE

Irenopsis

3401. 4220 ... 69. *I. mysorensis*

TILIACEAE

Asteridiella

3101. 4220 ... 38. *A. grewiae*

Irenopsis

3401. 4230 Col. amphigenous; hc. entire to sub-lobate; perithecial setae 6-8, uncinata at the apex ... 75. *I. triumfettae*

3401. 3210 Col. epiphyllous; hc. entire to angular; perithecial setae very few, straight at the apex ... 62. *I. coimbatonica*

Meliola

3111. 5323 Col. amphigenous, subdense; hyphae crooked; hy. distantly arranged, hc. angular to sublobate ... 358. *M. thirumalacharii*

3111. 4221 Col. mostly epiphyllous, dense; hyphae straight; hc. entire to slightly lobate ... 197. *M. grewiae* var. *longispora*

TORICELLIACEAE

Meliola

3111. 4223 ... 363. *M. toricelliae*

VACCINIACEAE

Amazonia

2101. 5330 ... 11. *A. kakachiana*

Asteridiella

3101. 4210 ... 57. *A. vacciniicola*

VERBENACEAE

Asteridiella

3101. 4320 Col. epiphyllous, thin; hyphae sub-
straight; hc. entire to sublobate;
ph. separate ... 37. *M. formosensis*
3101. 4220 Col. mostly epiphyllous, dense, strongly
pathogenic; hyphae tortuous; hc. entire
to sublobate; ph. with hy. ... 27. *M. clerodendricola*
3101. 3230 Col. epiphyllous, subdense; hyphae
crooked; hc. entire; ph. with hy.
... 58. *M. vivekananthanii*

Meliola

3113. 4223
3 Col. epiphyllous, subdense; hyphae
substraight; hy. opposite and alter-
nate, hc. entire; ph. with hy.; ms.
dentate ... 302. *M. premnicola*
3111. 4221 Col. epiphyllous, crustose; hyphae
straight; hc. cylindrical, entire;
ph. with hy.; ms. acute to clavate
... 132. *M. castlerockensis*
3111. 3222 Col. caulicolous, epiphyllous,
dense; hyphae straight; hc. ovate,
entire; ph. with hy.; ms. obtuse
... 89. *M. altissimae*
3111. 3221 Col. mostly epiphyllous, dense;
hyphae tortuous; hc. entire; ph.
with hy. ... 143. *M. clerodendricola*
3111. 3221 Col. epiphyllous, subdense; hyphae

straight; hc. entire; ms. few.

... 144. *M. clerodendricola*
var. *micromera*

3111. 3221 Col. epiphyllous, dense; hyphae
crooked; hc. entire; ms. straight
to flexuous

... 149. *M. cookeana*

VITACEAE

Meliola

3141. 4231

... 184. *M. furcata*

XANTHOPHYLLACEAE

Irenopsis

3401. 5330

... 76. *I. xanthophylli*

GENUS AMAZONIA

Amazonia Theissen, Ann. Mycol. 11: 499, 1913; Theissen & Sydow, Ann. Mycol. 15: 421, 1917; Hansford, Sydowia Beih. 2: 25, 1961.

Meliolaster Doidge, Trans. Roy. Soc. South Africa 8: 123, 1920 (non *Meliolaster* Hohnel).

Actinodothis Sydow & Sydow, Philippine J. Sci. 9: 174, 1914.

Mycelium superficial, brown, septate, branched, hyphopodiate. Perithecia in radiating mycelia, wall radial, shield like, non-ostiolate, hemispherical, inner wall pale, thin. Asci 2-4-spored, evanescent; ascospores brown, 3-4 septate.

Type: *A. psychotriae* (P. Henn.) Theiss.

1. **Amazonia abaremae** Hosag. & Antony, J. Swamy Bot. Club 5: 73, 1988.

Colonies epiphyllous, dense, up to 8 mm in diameter. Hyphae straight to substraight, branching opposite at acute angles, closely reticulate and form solid mycelial mat, cells 12-15.5 x 4-6 μm . Hyphopodia alternate, closely arranged, closely antrorse, 15-18.5 μm long; stalk cells cuneate, 3-6 μm long; head cells ovate, globose, entire, 9-12.5 x 9-11 μm . Phialides few, mixed with hyphopodia,

opposite to alternate, ampulliform, 15-18.5 x 6-9.5 μm . Perithecia scattered to grouped, flattened-globose, up to 202 μm in diam.; ascospores cylindrical, 4-septate, slightly constricted, 34-37 x 12.5-15.5 μm .

Materials examined: On leaves of *Abarema bigemina* (L.) Kosterm. (Mimosaceae), Changanacherry, Kerala, December 1986, V.T. Antony HClO 40462 (type).

Distribution: India (Kerala).

2. *Amazonia abutuli* Hosag., Crypt. Bot. 2/3: 183, 1991.

Colonies epiphyllous, subdense, up to 2 mm in diameter. Hyphae substraight to slightly flexuous, branching alternate at wide angles, loosely reticulate, cells 24-50 x 6-9.5 μm . Hyphopodia alternate and about 10% opposite, straight to curved, antrorse to recurved, 12-19 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, globose, entire to truncate at the apex, 9-12.5 x 8-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 9-25 x 6-8 μm . Perithecia scattered, flattened-globose, up to 120 μm in diam.; ascospores mostly cylindrical, 4-septate, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Abutilon ramosum* (Cav.) Guill. & Perr. (Malvaceae), Nilgiris, Tamil Nadu, January 25, 1990, V.B. Hosagoudar HClO 30354 (type).

Distribution: India (Tamil Nadu).

3. *Amazonia acronychiae* Hosag. in Hosag. & Goos, Mycotaxon 36: 230, 1989.

Colonies amphigenous, mostly epiphyllous, subdense, up to 3 mm in diameter, confluent. Hyphae substraight, branching opposite at wide angles, closely reticulate, cells 22-30 x 8-10 μm . Hyphopodia alternate, closely antrorse, straight to curved, 24-44 μm long; stalk cells cuneate, 10-22 μm long; head cells ovate, clavate, angular to irregularly sublobate, 18-22 x 14-18 μm . Phialides numerous, mixed with hyphopodia, conoid to ampulliform, 22-30 x 8-10 μm . Perithecia scattered, flattened-globose, up to 110 μm in diam.; ascospores obovoidal, 4-septate, constricted, 42-46 x 20-22 μm .

Materials examined: On leaves of *Acronychia pedunculata* (L.) Miq.

(Rutaceae), Idukki, Kerala, June 12, 1983, V.B. Hosagoudar HCIO 40463.

Distribution: India (Kerala).

4. **Amazonia actinodaphnes** Hosag. in Hosag. & Goos, Mycotaxon 36: 230, 1989 (*actinodaphnis*).

Colonies epiphyllous, dense, up to 5 mm in diameter, confluent. Hyphae straight to slightly undulate, branching alternate at acute to wide angles, densely reticulate, cells 26-36 x 3-5 μm . Hyphopodia alternate, scattered, antrorse, spreading, straight to recurved, 16.5-20 μm long; stalk cells cylindrical to cuncate, 3-8 μm long; head cells ovate, globose, pyriform, stellately lobate, rounded at the apex, 10-15 x 10-16.5 μm . Phialides few, mixed with hyphopodia, alternate, ampulliform, 13-26.5 x 6-10 μm . Perithecia closely scattered, flattened-globose, up to 165 μm in diam.; ascospores cylindrical, 4-septate, constricted, 43-46 x 15-16.5 μm .

Materials examined: On leaves of *Actinodaphne malabarica* Balakr. (*A. hookeri* sensu Bedd.) (Lauraceae), Idukki, Kerala, October 11, 1982, V.B. Hosagoudar HCIO 40467 (type).

Distribution: India (Kerala).

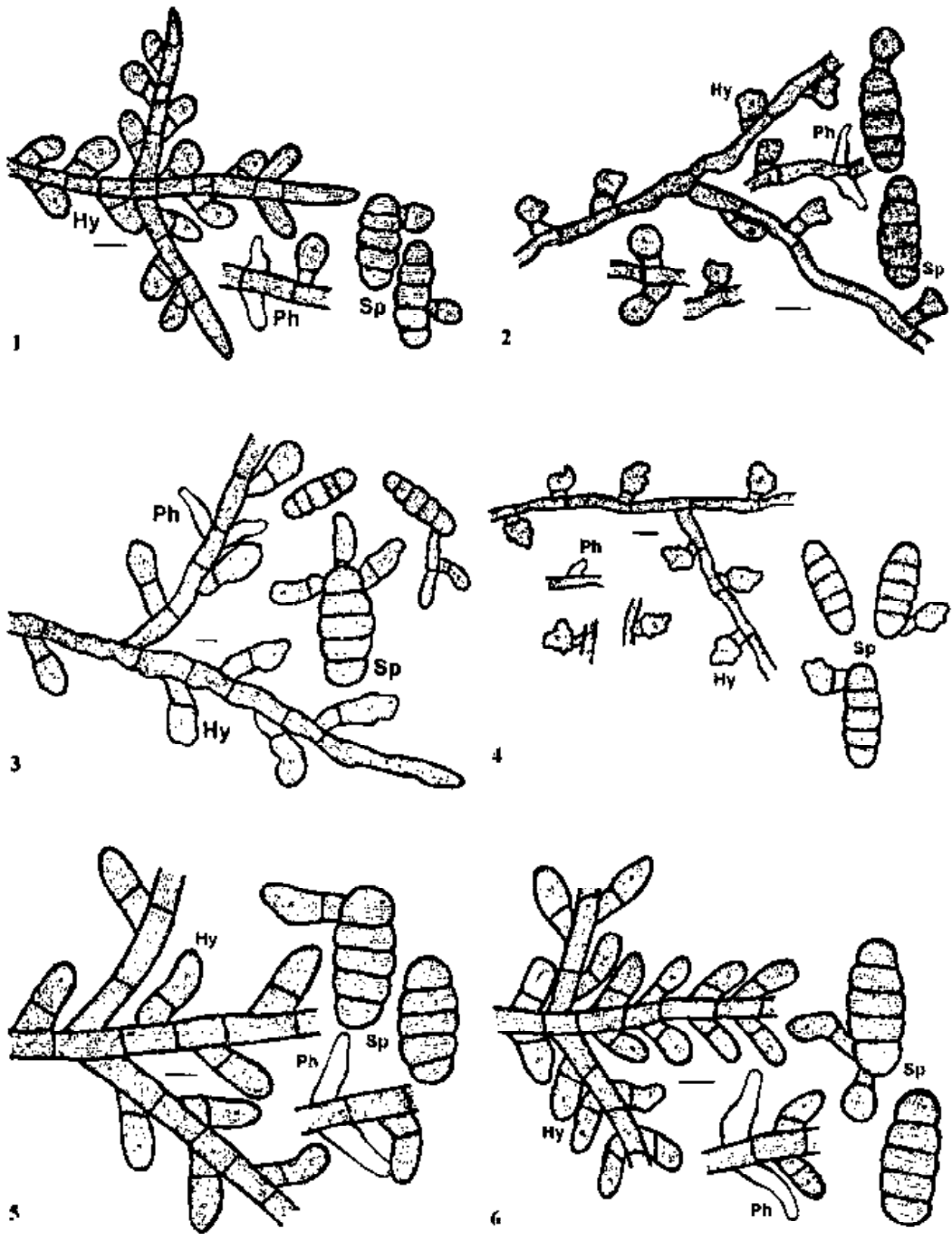
5. **Amazonia balakrishnanii** Hosag. in Hosag. & Goos, Mycotaxon 37: 404, 1990.

Colonies epiphyllous, subdense, up to 3 mm in diameter. Hyphae mostly straight, branching opposite to alternate at acute to wide angles, closely reticulate, cells 15-18.5 x 9-12.5 μm . Hyphopodia alternate, antrorse, 24-25 μm long; stalk cells cuneate, 6-9.5 μm long; head cells versiform to cylindrical, entire, 15-18.5 x 12-15.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-25 x 9-12.5 μm . Perithecia seated on exhyphopodiate mycelia, scattered, flattened-globose, up to 118 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted at the septa, 34-43.5 x 21-25 μm .

Materials examined: On leaves of *Castenopsis armata* Spanch (Fagaceae), Assam, January 1887, G. Mann HCIO 39434a (type, *p.p.*).

Distribution: India (Assam).

6. **Amazonia cinnamomi** Hosag., Nova Hedwigia 47: 535, 1988.



1. *Amazonia abaremae* Hosag. & Antony 2. *A. abutili* Hosag. 3. *A. acronychiae* Hosag. 4. *A. actinodaphnes* Hosag. 5. *A. balakrishnanii* Hosag. 6. *A. cinnamomi* Hosag.

Colonies epiphyllous, dense, crustose, up to 2 mm in diam., confluent. Hyphae straight to substraight, branching opposite at wide angles, loosely to closely reticulate and almost solid in the centre, cells 15.5-19 x 6-9.5 μm . Hyphopodia opposite, few solitary, crowded, antrorse, mostly straight, 18-22 μm long; stalk cells cuncate, 4-6 μm long; head cells ovate, versiform, entire, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 21-25 x 9-12.5 μm . Perithecia globose, up to 162 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 40-44 x 15-19 μm .

Materials examined: On leaves of *Cinnamomum riparium* Gamble (Lauraceae), Pooyankutty, Kerala, June 16, 1983, V.B. Hosagoudar IMI 321576 (type), MH 79017 (isotype).

Distribution: India (Kerala).

7. **Amazonia flacourtiiae** Hosag., Siddappa & Udaiyan, *Nova Hedwigia* 56: 193, 1993.

Colonies amphigenous, thin to subdense, up to 2 mm in diameter, confluent. Hyphae substraight to flexuous, branching opposite at acute angles, loosely reticulate, cells 12.5-22 x 6-9.5 μm . Hyphopodia alternate, straight, rarely curved, antrorse, 15.5-25 μm long; stalk cells cuneate, 3-6.5 μm long; head cells ovate, entire, 12.5-20.5 x 8-14 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15.5-22 x 6-9.5 μm . Perithecia flattened-globose, scattered, up to 124 μm in diam.; ascospores obovoidal, 4-septate, strongly constricted at the septa, 34-46.5 x 12.5-18.5 μm .

Materials examined: On leaves of *Flacourtia* sp. (Flacourtiaceae), Nilgiris, Tamil Nadu, February 16, 1991, V.B. Hosagoudar HCIO 30617 (type).

Distribution: India (Tamil Nadu).

8. **Amazonia gomphandruae** Hosag., *Nova Hedwigia* 47: 536, 1988.

Colonies hypophyllous, dense, crustose, up to 2 mm in diam. Hyphae straight to substraight, branching alternate at acute angles, closely reticulate and thalloid, cells 9-12.5 x 6-9.5 μm . Hyphopodia alternate, crowded, very closely antrorse, 21-25 μm long; stalk cells cuneate, 6-9.5 μm long; head cells ovate, mostly globose, entire, 12-18.5 x 9-12.5 μm . Phialides not seen. Perithecia few, scattered, up to 160 μm in diam.; ascospores obovoidal, 4-septate, strongly constricted, 56-59 x 21.5-25 μm .

Materials examined: On leaves of *Gomphandra coriacea* Wight (Icacinaceae), Lakshmi Estate, Idukki, Kerala, December 15, 1982, V.B. Hosagoudar IMI 1321577 (type), MH 75769 (isotype); Kakachi, Tirunelveli, Tamil Nadu, February 25, 1994, V.B. Hosagoudar HCIO 41539.

Distribution: India (Kerala, Tamil Nadu).

9. *Amazonia gouaniae* Hosag. & Braun, Crypt. Bot. 1: 56, 1989.

Colonies epiphyllous, subdense, up to 2 mm in diam. Hyphae straight to undulate, branching opposite to irregular at acute angles, loosely reticulate, cells 27-30 x 7-9.5 μm . Hyphopodia alternate, straight to curved, antrorse to spreading, 18.5-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, entire, 12-15.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15.5-18.5 x 9-12.5 μm . Perithecia scattered, flattened-globose, up to 161 μm in diam.; ascospores obovoidal, 4-septate, constricted, 31-40.5 x 12-15 μm .

Materials examined: On leaves of *Gouania microcarpa* DC. (Rhamnaceae), Gudalur, Nilgiris, Tamil Nadu, March 11, 1969, D.B. Deb HCIO 40464 (type).

Distribution: India (Tamil Nadu).

10. *Amazonia henryi* Hosag., J. Econ. Tax. Bot. 12: 246, 1988.

Colonies foliicolous, amphigenous, dense, up to 2 mm in diam., rarely confluent. Hyphae straight to undulate, branching mostly opposite, rarely alternate at wide angles, loosely reticulate, cells 18.5-25 x 8-12.5 μm . Hyphopodia alternate, straight to curved, antrorse to spreading, 18.5-21 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells globose, truncate, rarely angular, entire, 12-15.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, conoid to ampulliform, 15-25 x 12-15.5 μm . Perithecia scattered, flattened-globose, up to 124 μm in diam.; ascospores broadly ovate, 4-septate, constricted, 31-40.5 x 13-15.5 μm .

Materials Examined: On leaves of *Combretum decandrum* Roxb.

(Combretaceae), Warangal, Andhra Pradesh, February 26, 1963, A.N. Henry HCIO 39301 (type).

Distribution: India (Andhra Pradesh).

11. *Amazonia kakachiana* sp. nov.

Coloniae amphigenae, plerumque epiphyllae, densae, ad 2 mm diam., raro confluent. Hyphae flexuosae, plerumque alternate ramosae, laxe vel dense reticulate, cellulae 37-50 x 7-9.5 μ m. Hyphopodia alternata, antrorsa vel anguste antrorsa, 27-43.5 μ m longa; cellula basali cylindracea vel cuneata, 12-25 μ m longa; cellula apicali ovata, cylindracea, plerumque integra, raro truncata ad apicem to sublobata, 15-21 x 12-15.5 μ m. Phialides illis hyphopodiis commixtis, dispersa, ampullacea, 21-28 x 12-14 μ m. Perithecia dispersa, appanato-globosa, ad 250 μ m diam.; ascosporae fusiformae, rectae vel curvulae, 3-septatae, constrictae, 52-56 x 21-23 μ m.

Colonies amphigenous, mostly epiphyllous, dense, up to 2 mm in diameter, rarely confluent. Hyphae flexuous, branching mostly alternate at acute angles, loosely to closely reticulate, cells 37-50 x 7-9.5 μ m. Hyphopodia alternate, antrorse to closely antrorse, 27-43.5 μ m long; stalk cells cylindrical to cuneate, 12-25 μ m long; head cells ovate, cylindrical, mostly entire, rarely truncate at apex to sublobate, 15-21 x 12-15.5 μ m. Phialides mixed with hyphopodia, scattered, ampulliform, 21-28 x 12-14 μ m. Perithecia scattered, flattened-globose, up to 250 μ m in diam.; ascospores fusiform, straight to curved, 3-septate, constricted at the septa, 52-56 x 21-23 μ m.

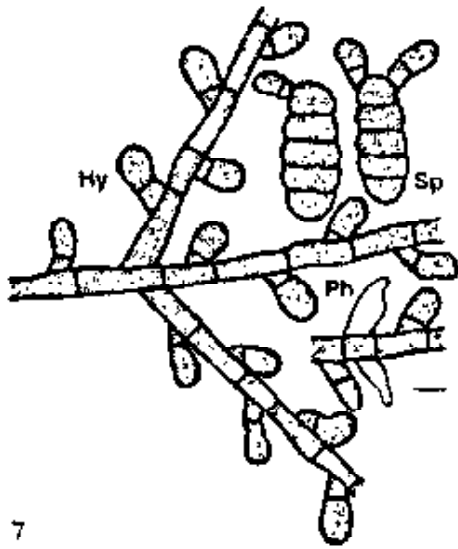
Materials examined: On leaves of *Vaccinium leschenaultii* Wight var. *zeylanica* Clarke (Vacciniaceae), Kakachi Cliff, Tirunelveli dist., Tamil Nadu, February 25, 1994, V.B. Hosagoudar HCIO 41621 (type).

Distribution: India (Tamil Nadu).

This forms the first report of the genus *Amazonia* on the rare plant of the family Vacciniaceae (Hansford, 1961).

12. *Amazonia karii* Hosag. & Balakr. in Hosag., Patil & Balakr., J. Econ. Tax. Bot. 13: 78, 1989.

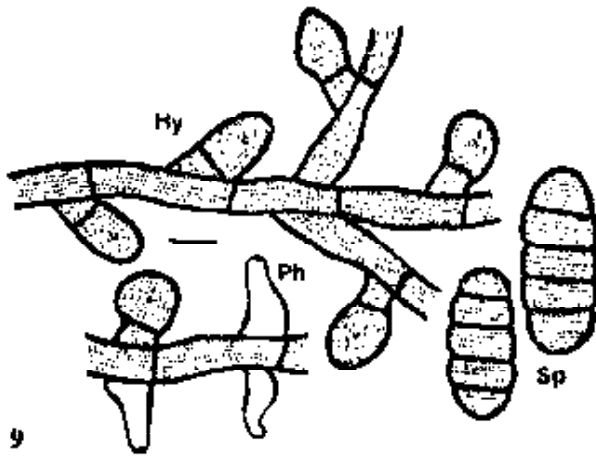
Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching opposite at acute angles, closely reticulate and form solid mycelial mat at the centre, cells 24-34 x 9-12.5 μ m. Hyphopodia alternate, mostly straight, antrorse to spreading, 18-25 μ m long; stalk cells cylindrical to cuneate, 6-9.5 μ m long; head cells ovate,



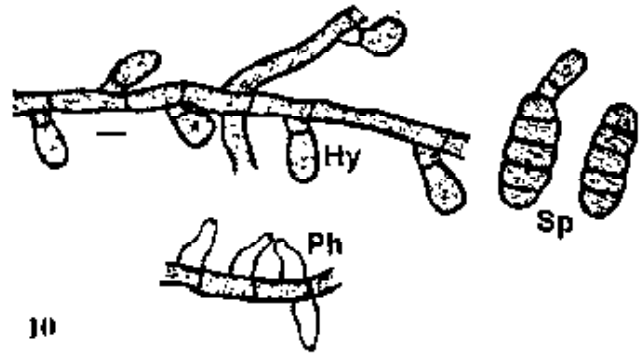
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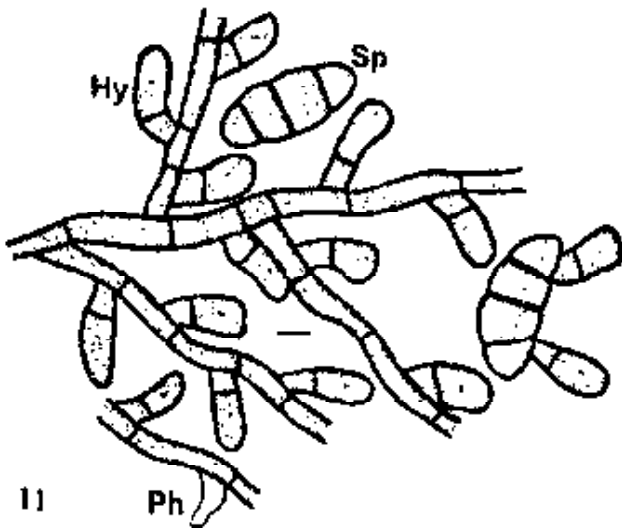
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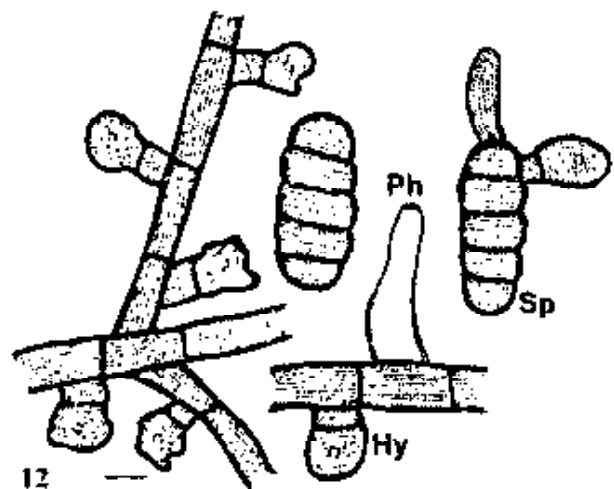
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7. *Amazonia flacourtiiae* Hosag. et al. 8. *A. gomphandrae* Hosag. 9. *A. gouaniae* Hosag. & Braun 10. *A. henryi* Hosag. 11. *A. kakachiana* Hosag. 12. *A. kariii* Hosag. & Balakr.

globose, entire, angulose to sublobate, 10-12.5 x 9-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 27-46.5 x 12-15.5 μm . Perithecia closely scattered, flattened-globose, up to 217 μm in diam.; ascospores obovoidal, 4-septate, 40-43.5 x 15-19 μm .

Materials examined: On leaves of *Agapetes* sp. (Ericaceae), Calcutta, West Bengal, February 22, 1978, A.K. Kar IMI 225673 (type).

Distribution: India (West Bengal).

13. *Amazonia karnatakensis* Hosag. & Manian, J. Econ. Tax. Bot. 13: 45, 1989.

Colonies amphigenous, subdense to dense, up to 3 mm in diameter, confluent. Hyphae straight to substraight, branching opposite to irregular at acute angles, loosely reticulate, cells 12-22 x 9-12.5 μm . Hyphopodia alternate, mostly antrorse, 21-28 μm long; stalk cells cylindrical to cuneate, 6-9 μm long; head cells straight to curved, ovate to globose, stellately lobate, 15-19 x 15-22 μm . Phialides mixed with hyphopodia, mostly opposite, ampulliform, 15-22 x 9-12 μm . Perithecia scattered, flattened-globose, up to 155 μm ; ascospores obovoidal, 4-septate, constricted, 31-34 x 12-15.5 μm .

Materials examined: On leaves of *Symplocos* sp. (Symplocaceae), Madikeri, Karnataka, September 18, 1987, S. Manian MH 82158 (type); IMI 321578 (isotype).

Distribution: India (Karnataka).

14. *Amazonia leae* Hansf. & Thirum., Farlowia 3: 257, 1948; Hansf., Sydowia Beih. 2: 370, 1961; Hosag., Raghu & Pillai, Nova Hedwigia 58: 529, 1994.

Colonies mostly epiphyllous, dense, subcrustose, up to 1 mm in diameter. Hyphae undulate, branching alternate to irregular at acute angles, radiating reticulate and almost solid at the centre, cells 10-15 x 6-8 μm . Hyphopodia alternate, antrorse, straight, 12-16 μm long; stalk cells cylindrical to cuneate, 3-5 μm long; head cells subglobose, entire, 10-12 μm . Phialides not seen. Perithecia flattened-globose beneath radiate mycelia, up to 260 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 40-44 x 14-20 μm .

Materials examined: On leaves of *Leea macrophylla* Roxb. (Leeaceae), Balehonnur, Karnataka, April 29, 1945, M.J. Thirumalachar HCIO 10870 (type);

L. indica (Burm.f.) Merr., Gersoppa, Uttar Kannada, Karnataka, September 24, 1992, P.A. Raghu HCIO 40746.

Distribution: India (Karnataka).

15. *Amazonia mayteni* Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 57: 107, 1994.

Colonies predominantly epiphyllous, crustose to velvety, up to 2 mm in diam. Hyphae straight to substraight, branching alternate at acute angles, very closely reticulate, compact and almost opaque, cells 12-15.5 x 6-9.5 μm . Hyphopodia alternate, subantrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 3-5 μm long; head cells globose, entire, 12-14 x 12-15.5 μm . Phialides not seen. Perithecia scattered, flattened-globose, up to 190 μm in diam.; ascospores obovoidal, 4-septate, constricted, 37-43.5 x 15-22 μm .

Materials examined: On leaves of *Maytenus rothiana* (Laws.) Lobru-Callen (Celastraceae), Gersoppa, Karnataka, October 10, 1992, P.A. Raghu HCIO 40553 (type).

Distribution: India (Karnataka).

16. *Amazonia patilii* sp. nov.

Coloniae hypophyllae, densae, crustosae, ad 1 mm diam., raro confluentes. Hyphae subrectae vel anfractuae, alternate vel irregulariter acuteque ramosae, dense reticulatae et solidae, cellulae 15-18.5 x 8-10 μm . Hyphopodia alternata, ad 2% opposita, antrorsa, 18-25 μm longa; cellula basali cylindracea vel cuneata, 6-9.5 μm longa; cellula apicali angularis vel irregulariter lobata, ovata vel globosa, 12-15.5 x 12-14 μm . Perithecia illis hyphopodiis commixta, alternata, ampullacea, 12-18.5 x 6-8 μm . Perithecia dispersa, applanato-globosa, ad 150 μm diam.; ascosporae obovoideae, 4-septatae, fortiter constrictae, 40-43.5 x 15-22 μm .

Colonies hypophyllous, dense, crustose, up to 1 mm in diameter, rarely confluent. Hyphae straight to crooked, branching alternate to irregular at acute angles, closely reticulate and form dense solid mycelial mat, cells 15-18.5 x 8-10 μm . Hyphopodia alternate, about 2% opposite, antrorse, 19-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate to globose angular to irregularly to sublobate, 12-15.5 x 12-14 μm . Phialides mixed with hyphopodia, alternate, ampulliform, 12-18.5 x 6-8 μm . Perithecia scattered, flattened-globose, up to 150 μm diam.; ascospores obovoidal, 4-septate, strongly constricted at the

septa, 40-43.5 x 15-22 μm .

Materials examined: On leaves of *Maytenus emerginata* (Willd.) Ding Hu (*Gymnosporia montana* (Roth) Benth.) (Celastraceae), Amboli, Maharashtra, February 13, 1977, M.S. Patil HCIO 32525 (type).

Distribution: India (Maharashtra).

The new species differs from *Amazonia stevensii* Hansf. in having 4-septate ascospores.

17. *Amazonia peregrina* Sydow & Sydow, Ann. Mycol. 15: 238, 1917; Hansford, Sydowia Beih. 2: 507, 1961; Hosag. & Goos, Mycotaxon 36: 236, 1989; 42: 126, 1991.

Meliola peregrina Sydow & Sydow, Philippine J. Sci. 8: 479, 1913.

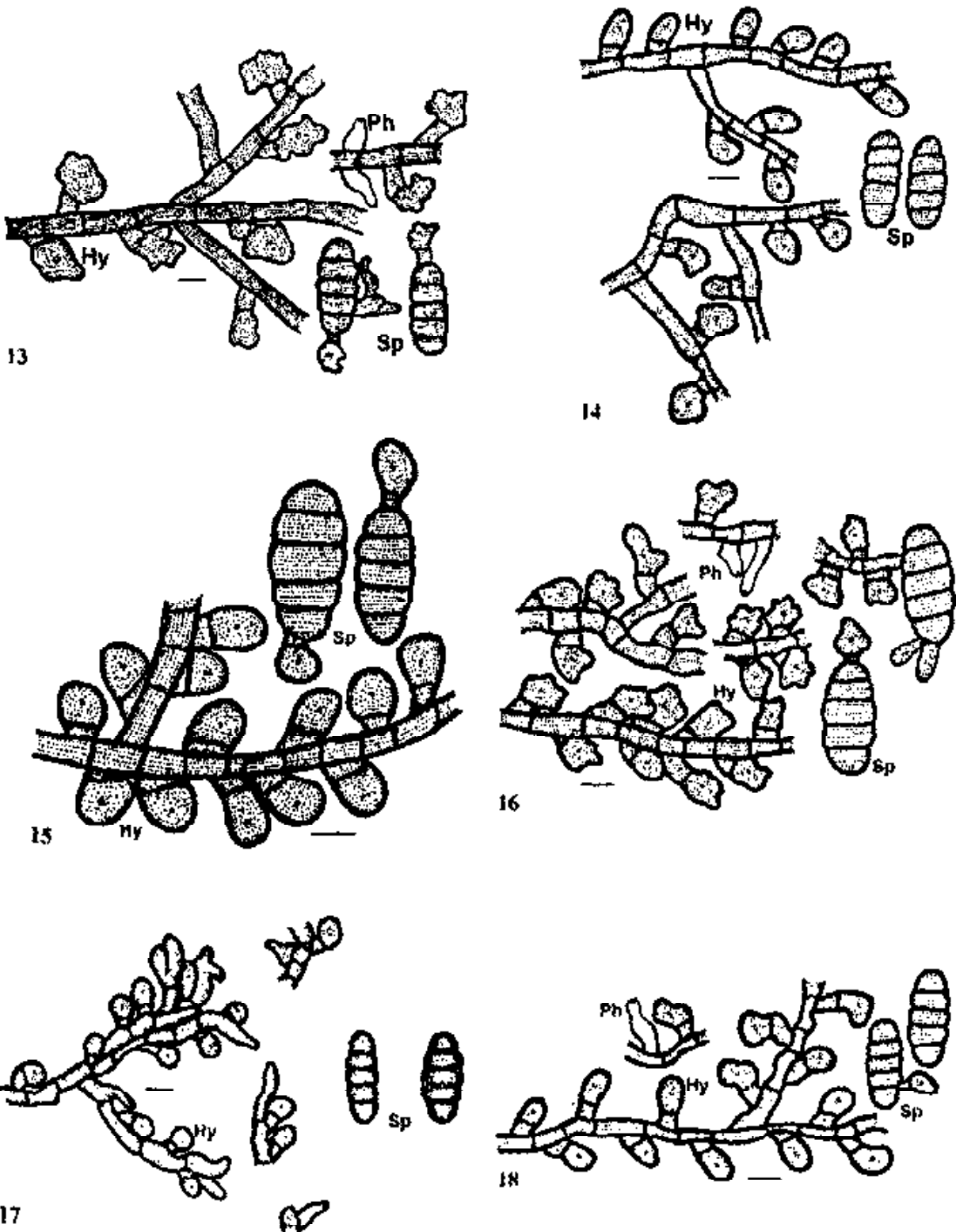
Colonies amphigenous, mostly hypophyllous, crustaceous, up to 2 mm in diameter, confluent. Hyphae straight to undulating, branching alternate to opposite at acute angles, closely reticulate, forming solid mycelial mat and impart thalloid appearance, cells 13-16.5 x 6-8 μm . Hyphopodia alternate to unilateral, very closely arranged, antrorse, straight to curved, 13-16.5 μm long; stalk cells cuneate, 3.5-5 μm long; head cells globose, entire, 10-13 x 10-11.5 μm . Phialides mixed with hyphopodia, alternate, ampulliform, 13-16.5 x 6.5-8 μm . Perithecia mostly aggregated, flattened-globose, glabrous, black, up to 281 μm in diam.; ascospores cylindrical to obovoidal, 4-septate, constricted, 36-43 x 13-16 μm .

Materials examined: On leaves of *Embelia basaal* (Rem. & Schultes) A. DC. (*E. viridiflora sensu* Clarke) (Myrsinaceae), Gaganabawada, Maharashtra, May 1, 1984, D.B. Pawar HCIO 36385; *Maesa indica* (Roxb.) DC. (Myrsinaceae), Idukki, Kerala, January 10, 1982, V.B. Hosagoudar HCIO 40467; near Sholayar dam, Valparai, Coimbatore, Tamil Nadu, December 25, 1990, V.B. Hosagoudar HCIO 30513.

Distribution: India (Kerala, Tamil Nadu), Formosa, Philippines, Uganda.

This species mostly occurs on the leaves infected with *Meliola groteana* Sydow but can be easily distinguished by its crustose colonies.

18. *Amazonia psychotriae* (Henn.) Theiss., Ann. Mycol. 11: 499, 1913; Hansf., Sydowia Beih. 2: 574, 1961.



13. *Amazonia karnatakensis* Hosag. & Manian 14. *A. leae* Hansf. & Thirum.
 15. *A. mayteni* Hosag. et al. 16. *A. patillii* Hosag. 17. *A. peregrina* Sydow 18. *A. psychotrine* (Henn.) Theiss.

Meliola asterinoides Wint. var. *psychotriae* Henn., Hedwigia 43: 361, 1904.

Colonies epiphyllous, dense, up to 3 mm in diameter. Hyphae straight to crooked, branching opposite to alternate at acute angles, loosely to closely reticulate, cells 12-15.5 x 5-7 μm . Hyphopodia alternate, antrorse, straight to curved, 15-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells straight to curved, ovate, globose, entire to angular, 9-15.5 x 11-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-21 x 8-9.5 μm . Perithecia scattered to grouped, flattened-globose, up to 140 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 31-37.5 x 12-15.5 μm .

Materials examined: On leaves of *Psychotria* sp. (Rubiaceae), Agumbe, Karnataka, May 7, 1992, C.M. Pillai HCIO 30987; *Saprosma corymbosum* (Bedd.) Bedd. (Rubiaceae), Valve House, Kanniyakumari, Tamil Nadu, February 28, 1994, V.B. Hosagoudar HCIO 42533.

Distribution: India (Karnataka, Tamil Nadu), Brazil, Congo Belge, Java, Porto Rico, San Domingo, Sierra Leone, Uganda.

19. *Amazonia syzygii* Hosag. in Hosag. & Goos, Mycotaxon 36: 236, 1989; 42: 126, 1991; Hosag., Dayal & Goos, Mycotaxon 46: 202, 1993.

Colonies amphigenous, subdense, crustose to slightly velvety, up to 2 mm in diameter, rarely confluent. Hyphae substraight to slightly undulate, branching mostly opposite at wide angles, closely reticulate, cells 16-20 x 6-8 μm . Hyphopodia alternate, straight, antrorse to spreading, 18-20 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells ovate to subglobose, entire, 10-14 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, conoid to ampulliform, 20-24 x 8-10 μm . Perithecia flattened-globose, scattered to grouped, up to 180 μm in diam.; ascospores obovate, 4-septate, slightly constricted, 44-48 x 16-20 μm .

Materials examined: On leaves of *Syzygium cumini* Skeels (Myrtaceae), Idukki, Kerala, December 13, 1992, V.B. Hosagoudar HCIO 40469 (type); Shankarankudi, Valparai, Coimbatore, Tamil Nadu, December 27, 1990, V.B. Hosagoudar HCIO 30514; *Syzygium* sp., Sampaje forest nursery, Sampaje, Kodagu, Karnataka, December 22, 1991, B.R. Dayal HCIO 30841.

Distribution: India (Karnataka, Kerala, Tamil Nadu).

GENUS APPENDICULELLA

Appendiculella Hohnel in Sitzb. K. Akad. Wiss. Wien, Math.- naturw. Kl. 128: 556, 1919.

Irene Stev., Ann. Mycol. 25: 420, 1927 (non Theiss. & Sydow, 1917).

Mycelium superficial, brown, septate, branched, hyphopodiate. Perithecia globose, non-ostiolate, true perithecial larviform and striated appendages present, mycelial setae and perithecial setae absent; asci 2-4 spores, evanescent; ascospores brown, 3-4 septate.

Type: *A. calostroma* (Desm.) Hohnel based on *Sphaeria calostroma* Desm.

20. **Appendiculella calophylli** (Stev.) Toro var. **apetali** Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 108, 1994.

Colonies hypophyllous, subdense, crustose, up to 3 mm in diam., rarely confluent. Hyphae substraight to flexuous, branching alternate, opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 30-46.5 x 6-9.5 μm . Hyphopodia alternate, less than 1% opposite, straight to curved, antrorse to recurved, 30-43.5 μm long; stalk cells cylindrical to cuncate, 6-31 μm long; head cells ovoid to globose, entire, angular, sublobate to sinuate, 12-25 x 9-25 μm . Phialides mixed with hyphopodia, opposite and alternate, ampulliform, 15-31 x 9-12.5 μm . Perithecia scattered, up to 125 μm in diam.; perithecial appendages numerous, subcylindrical to mammiform, obtuse to hamate at the tip, up to 25 μm long; ascospores obovoidal, 4-septate, slightly constricted, 43-46.5 x 15-18.5 μm .

Materials examined: On leaves of *Calophyllum apetalum* Willd. (Clusiaceae), Gersoppa, Karnataka, October 24, 1992, P.A. Raghu HCIO 40854 (type); *C. austroindicum* Kosterm., Kakachi, Tirunelveli, Tamil Nadu, February 21, 1994, V.B. Hosagoudar HCIO 41561.

Distribution: India (Karnataka, Tamil Nadu).

21. **Appendiculella calostroma** (Desm.) Hohnel in Sitzb. K. Akad. Wissen. Wien. Math. naturw. Kl. 138: 556, 1919; Kapoor, Indian Phytopathol. 20: 151, 1967; Kar & Maity, Norw. J. Bot. 19: 248, 1972.

Meliola calostroma (Desm.) Hohnel, Ann. Mycol. 15: 363, 1917.

Irene calostroma (Desm.) Hohnel, Ann. Mycol. 16: 213, 1918.

Meliola rubicola Henn., Hedwigia 43: 140, 1904.

Irenina rubi Stev. & Rold. var. *angulosa* Stev. & Rold., Philippine J. Sci. 56: 52, 1935.

Irenopsis crataegi Bose, Indian Phytopathol. 13: 144, 1962.

Colonies amphigenous, mostly epiphyllous, dense, crustose, up to 2 mm in diameter. Hyphae mostly straight, branching mostly opposite at wide angles, loosely reticulate, cells 37-50 x 6-8 μ m. Hyphopodia alternate, antrorse to spreading, 24-28 μ m long; stalk cells cylindrical to cuneate, 9-12.5 μ m long; head cells globose, irregularly sublobate, 12-15.5 x 18-25 μ m. Phialides mixed with hyphopodia, opposite to alternate, conoid to ampulliform, 18-28 x 9-12.5 μ m. Perithecia mostly grouped at the centre of the colony, up to 300 μ m in diam.; perithecial appendages many, cylindrical to conoid twisted, rounded at the apex, 49-95 x 18-25 μ m; ascospores ellipsoidal, mostly curved, 3-septate, 40-43.5 x 15-18 μ m.

Materials examined: On leaves of *Rubus ellipticus* Smith (Rosaceae), Kalimpong, West Bengal, March 19, 1957, J.N. Kapoor HCIO 26605; *Crataegus crenulata* Roxb. (Rosaceae), Chaubattia, Uttar Pradesh, October 15, 1959, J.N. Kapoor HCIO 28331; *Rubus calycinus* Don., Manebhanjan, Darjeeling, West Bengal, May 17, 1967, Coll. unknown IMI 133535; *R. vulgaris* Meikle, Balehonnur, Karnataka, April 28, 1946, M.J. Thirumalachar HCIO 10900.

Distribution: India (Karnataka, Sikkim, Uttar Pradesh, West Bengal), Brazil, Chile, China, Costa Rica, Formosa, Hawaii, Japan, New South Wales, Philippines, Porto Rico, San Thome, South Africa, Tonkin, U.S.A., Uganda, Venezuela.

22. *Appendiculella hoveniae* Kar & Maity, Sydowia 24: 65, 1971.

Colonies amphigenous, thin, up to 3 mm in diameter. Hyphae substraight to undulate, branching opposite at acute angles, closely reticulate, cells 27-49.5 x 6-10 μ m. Hyphopodia alternate, straight, antrorse to spreading, 15-31 μ m long; stalk cells cylindrical to cuneate, 12-22 x 15-18.5 μ m. Phialides mixed with hyphopodia, opposite to alternate, conoid to ampulliform, 12-28 x 9-12.5 μ m. Perithecia scattered to grouped, up to 225 μ m in diam.; perithecial appendages conoid, twisted, simple, up to 62 μ m long; ascospores ellipsoidal, straight to slightly curved, 3-septate, slightly constricted at the septa, 37-42 x 15-18.5 μ m.

Materials examined: On leaves of *Hovenia dulcis* Thumb., (Rhamnaceae), Rajabhatkhawa forest, Jalpaiguri, West Bengal, October 28, 1967, Coll. unknown

IMI 133540 (type).

Distribution: India (West Bengal).

GENUS ASTERIDIELLA

Asteridiella Mc Alpine, Proc. Linn. Soc. New South Wales, 1897 p. 38; Theiss. & Sydow, Ann. Mycol. 15: 482, 1917; Hansf. Sydowia Beih. 2: 25, 1961.
Irene Theiss. & Sydow, Ann. Mycol. 15: 194, 1917; 15: 461, 1917.
Irenina Stev., Ann. Mycol. 25: 411, 1927.

Mycelium superficial, brown, septate, branched, hyphopodiate, devoid of mycelial setae and appendages. Perithecia borne on the mycelia, globose, non ostiolate, without mycelial and perithecial setae, lacks perithecial appendages, perithecial surface cells protruberent, conoid; asci 2-4 spored, evanescent; ascospores brown, 3-4 septate.

Type: *A. solani* Mc Alpine

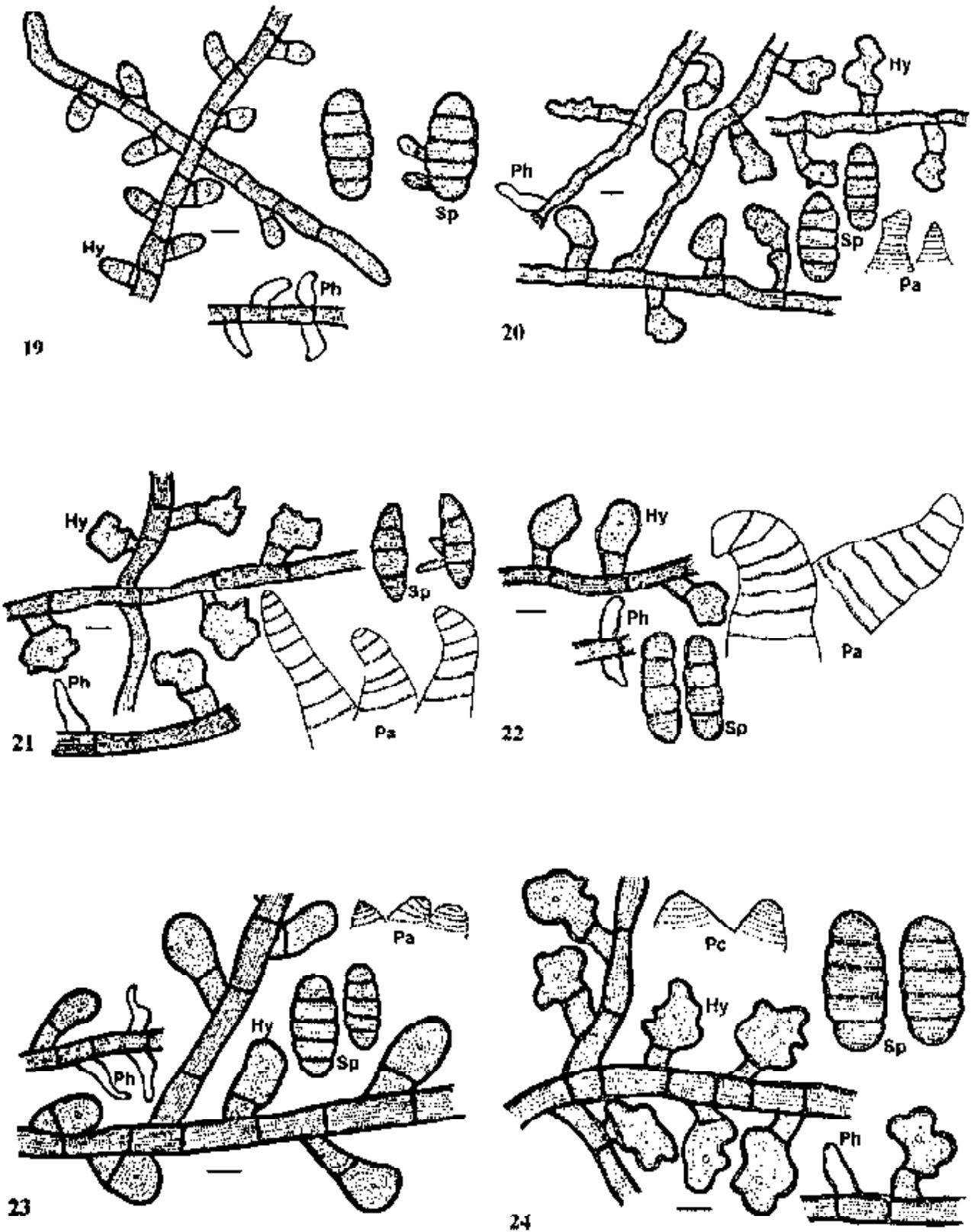
23. **Asteridiella acronychiae-pedunculatae** Hosag. in Hosag. & Goos, Mycotaxon 42: 126, 1991.

Colonies amphigenous, dense, crustose, up to 2 mm in diameter, rarely confluent. Hyphae straight to substraight, branching alternate to opposite at acute angles, loosely reticulate, cells 27-34 x 7-9.5 μm . Hyphopodia alternate, straight to slightly curved, antrorse to subantrorse, 27-40.5 μm long; stalk cells cylindrical to cuneate, 9-18.5 μm long; head cells clavate, ovate, cylindrical, entire to angular, 18-21.5 x 12-15.5 μm . Phialides numerous, mixed with hyphopodia, alternate to opposite, ampulliform, 24-31 x 9-12.5 μm . Perithecia scattered, up to 115 μm in diam; perithecial cells conoid to mammiform, up to 18.5 μm long; ascospores obovoidal, 4-septate, constricted at the septa, 34-37.5 x 15-21.5 μm .

Materials examined: On leaves of *Acronychia pedunculata* (L.) Miq. (Rutaceae), Eremeparai, Top Slip, Coimbatore, Tamil Nadu, December 20, 1990, V.B. Hosagoudar HCIO 30515 (type).

Distribution: India (Tamil Nadu).

24. **Asteridiella americana** Hansf., Sydowia 10: 51, 1957; Sydowia 2: 529, 1961; Patil & Thite, J. Shivaji Univ. 18: 220, 1978; Hosag., Nova Hedwigia 47:



19. *Amazonia syzygii* Hosag. 20. *Appendiculella calophylli* (Stev.) Toro var. *apetali* Hosag. et al. 21. *A. calostroma* (Desm.) Hochnel 22. *A. hoveniae* Kar & Maity
23. *Asteridiella acronychiae - pedunculatae* Hosag. 24. *A. americana* Hansf.

537, 1988.

Colonies epiphyllous, dense, crustose, up to 2 mm in diameter. Hyphae substraight to undulate, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 15-34 x 6-9 μm . Hyphopodia alternate, mostly antrorse, rarely recurved, 30-37 μm long; stalk cells cylindrical to cuneate, 6-9 μm long; head cells ovate, globose, deeply and irregularly lobate, 24-28 x 18-24 μm . Phialides mixed with hyphopodia, conoid to ampulliform, 18-31 x 9-12.5 μm . Perithecia scattered to loosely aggregated, up to 155 μm in diam.; perithecial cells conoid to mammiliform, up to 22 μm long; ascospores obovoidal, 4-septate, constricted, 40-43.5 x 15-18.6 μm .

Materials examined: On leaves of *Chionanthus mala-elengi* (Dennst.) Green (*Linociera malabarica* Walt. ex G. Don), Idukki, Kerala, December 28, 1983, V.B. Hosagoudar HCIO 39391.

Distribution: India (Kerala, Maharashtra), Florida, U.S.A.

Ascospores of the present collection are considerably smaller as against reported (43-49 x 20-23 μm) by Hansford (1957).

25. *Asteridiella anamalaiana* Hosag. in Hosag. & Goos, Mycotaxon 42: 127, 1991.

Colonies epiphyllous, scattered, dense, crustose to velvety, up to 2 mm in diameter. Hyphae substraight to crooked, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 24-28 x 6-8 μm . Hyphopodia alternate, mostly antrorse, 21-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells globose, angular to rarely sublobate, 15-18 x 18-22 μm . Phialides numerous, mixed with hyphopodia, opposite to alternate, ampulliform, 18-22 x 6-9.5 μm . Perithecia scattered, up to 140 μm in diam.; perithecial cells protruded, conoid, curved at the apex, up to 15 μm long; ascospores obovoidal to cylindrical, 4-septate, slightly constricted at the septa, 43-53 x 18-22 μm .

Materials examined: On leaves of *Sterculia urens* Roxb. (Sterculiaceae), Nedungundru, Valparai, Veloniae, Coimbatore, Tamil Nadu, December 23, 1990, V.B. Hosagoudar HCIO 30529 (type) (as *Meliola anamalaiana*).

Distribution: India (Tamil Nadu).

26. *Asteridiella casearlicola* sp. nov.

Coloniae amphigenae, plerumque epiphyllae, densae, crustosae, ad 1 mm diam., raro confluentes. Hyphae rectae vel subrectae, plerumque opposite acuteque ramosae, laxe vel dense reticulatae, cellulae 18-28 x 6-8 μm . Hyphopodia alternata, antrorsa, 27-43.5 μm longa; cellula basali cuneata, 9-18.5 μm longa; cellula apicali globosa, stellato lobata, 18-24, 18-25 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 18-28 x 6-8 μm . Perithecia laxe aggregata, ad 250 μm diam.; cellulae peridiales mammiformiae, 15-25 μm longae; ascosporae fusiformiae, plerumque curvulae, 3-septatae, 49-53 x 15-18.5 μm .

Colonies amphigenous, mostly epiphyllous, dense, crustose, up to 1 mm in diam., rarely confluent. Hyphae straight to substraight, branching mostly opposite at acute angles, loosely to closely reticulate, cells 18-28 x 6-8 μm . Hyphopodia alternate, antrorse, 27-43.5 μm long; stalk cells cuneate, 9-18.5 μm ; head cells globose, stellately lobate, 18-24 x 18-25 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-28 x 6-8 μm . Perithecia loosely grouped, up to 250 μm in diam.; peridial cells mammiform, 15-25 μm long; ascospores fusiform, mostly curved, 3-septate, 49-53 x 15-18.5 μm .

Materials examined: On leaves of *Casearia esculenta* Roxb. (Flacourtiaceae), M.K. Vayal, Kanniyakumari dist., Tamil Nadu, February 27, 1994, V.B. Hosagoudar HCIO 41628 (type).

Distribution: India (Tamil Nadu).

Stellately lobed head cells of the hyphopodia and 3-septate ascospores distinguishes the present new species from the rest of the two *Asteridiella* species reported on the members of the family Flacourtiaceae.

27. *Asteridiella clerodendricola* Hosag. in Hosag. & Goos, Mycotaxon 36: 237, 1989; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 109, 1994.

Colonies amphigenous, mostly epiphyllous, dense, scattered, up to 10 μm in diameter, rarely confluent and cause stretching of the surrounding leaf surface with a yellow halo surrounding the spots. Hyphae strongly appressed to the leaf surface, not easily separable, tortuous, branching alternate to opposite at wide angles, strongly reticulate, cells 18-38 x 6-8 μm . Hyphopodia alternate to unilateral, straight to curved, antrorse to spreading, 22-30 μm long; stalk cells cylindrical to cuneate, 8-16 μm long; head cells globose, angulose, entire to sublobate, 14-16 x 12-16 μm . Phialides few, mixed with hyphopodia, opposite to alternate, ampulliform, 20-22 x 8-10 μm . Perithecia mostly aggregated, up to 245

μm in diam.; perithecial surface cells irregularly protruded, 30-36 μm long; ascospores ellipsoidal, 4-septate, straight to slightly curved, 36-42 x 14-18 μm .

Materials examined: On leaves of *Clerodendrum viscosum* Vent. (Verbenaceae), in the forest along the road from Painavu to Kulamavu, Idukki, Kerala, December 22, 1983, V.B. Hosagoudar 40475 (type); MH 78998; Lakshmi Estate, December 23, 1983, V.B. Hosagoudar MH 7909; Painavu, Kerala, December 22, 1983, V.B. Hosagoudar MH 78998; Seithur Hills, Kamarajar dist., Tamil Nadu, November 12, 1992, V.B. Hosagoudar HClO 40855.

Distribution: India (Kerala, Tamil Nadu).

The infection restricted to the young growing leaves and tender stem portion. Two to many such infected spots on the leaves stretch rest of the leaf portion and given crinkled appearance to the growing plant parts. Twelve species of the genus *Asteridiella* have been recorded on various members of the family Verbenaceae. The present species differs from the rest in producing pathogenic effect on the host plant.

28. *Asteridiella combreti* (Stev.) Hansf. var. *leonensis* Hansf., Sydowia Beih. 20: 160, 1961; Hosag. & Goos, Mycotaxon 36: 238, 1989.

Colonies epiphyllous, subdense, up to 4 mm in diameter, confluent. Hyphae substraight to slightly undulate, branching alternate to opposite at wide angles, loosely reticulate, cells 20-34 x 6-8 μm . Hyphopodia alternate, straight, introrse, 20-26 μm long; stalk cells cylindrical to cuncate, 6-8 μm long; head cells globose, entire to angular, 12-18 x 12-16 μm . Phialides numerous, borne on a separate mycelial branch, opposite, ampulliform, 14-24 x 4-8 μm , tip occasionally twisted and bent variously. Perithecia scattered, verrucose, up to 170 μm in diam.; perithecial cells mammillate, 8-10 μm long; ascospores obovoidal, 4-septate, constricted, 36-42 x 12-18 μm .

Materials examined: On leaves of *Terminalia chebula* Retz. (Combretaceae), Radhanagari, Maharashtra, October 1971, A.N. Thite HClO 31914; *T. paniculata* Roth, Idukki, Kerala, December 13, 1982, V.B. Hosagoudar HClO 40476, MH 75727; January 24, 1983, V.B. Hosagoudar MH 75824; Meenmutty, Kerala, December 27, 1983, V.B. Hosagoudar MH 78990; October 4, 1983, V.B. Hosagoudar MH 78142.

Distribution: India (Kerala, Maharashtra), Congo Belge, Gold Coast, Java, New Guinea, Philippines, Sierra Leone, Uganda.

Perithecia were widely opened at the centre.

29. *Asteridiella confragosa* (Sydow & Sydow) Hansf., *Sydowia* 10: 47, 1957; *Sydowia Beih.* 2: 124, 1961; Hosag. & Goos, *Mycotaxon* 36: 238, 1989. *Meliola confragosa* Sydow & Sydow, *Leafl. Philipp. Bot.* 5: 1536, 1912; Sydow & Petrak, *Ann. Mycol.* 29: 184, 1931. *Irena confragosa* (Sydow & Sydow) Sydow & Sydow, *Ann. Mycol.* 15: 195, 1917. *Irenina confragosa* (Sydow & Sydow) Stev., *Ann. Mycol.* 25: 465, 1927.

Colonic epiphyllous, subdense to dense, up to 2 mm in diameter, rarely confluent. Hyphae undulate, branching mostly opposite at wide angles, loosely reticulate, cells 20-26 x 8-10 μm . Hyphopodia alternate to unilateral, straight to curved, antrorse, spreading, 22-38 μm long; stalk cells cylindrical to cuneate, 6-14 μm long; head cells entire to irregularly sublobate, 14-24 x 12-20 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 20-24 x 6-8 μm . Perithecia scattered to grouped, up to 140 μm in diam.; perithecial cells wedge-shaped, up to 16 μm long; ascospores ellipsoidal, 4-septate, constricted, end cells rounded, 38-40 x 12-16 μm .

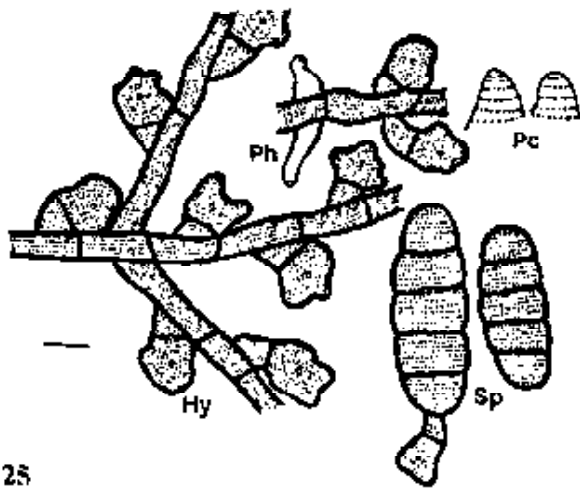
Materials examined: On leaves of *Trichosanthes tricuspidata* Lour. (*T. palmata* Roxb.) (Cucurbitaceae), Idukki, Kerala, October 8, 1983, V.B. Hosagoudar HCIO 40477; MH 78904; December 12, 1983, V.B. Hosagoudar MH 79042.

Distribution: India (Kerala), Malaya, Philippines, Sumatra.

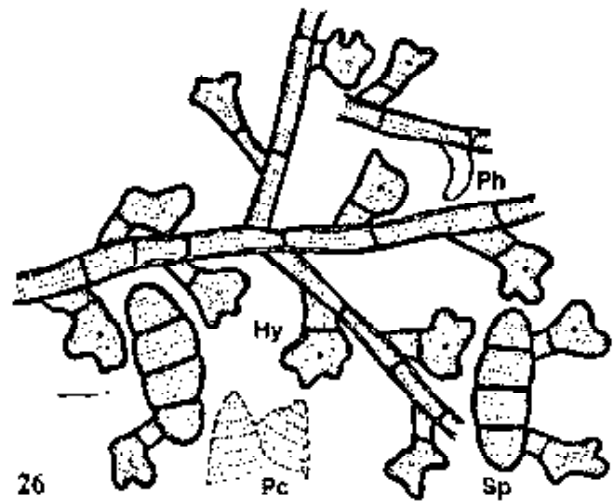
30. *Asteridiella crotonis* Hosag. in Hosag. & Goos, *Mycotaxon* 36: 239, 1989.

Colonies hypophyllous, dense, up to 5 mm in diameter. Hyphae substraight to undulate, branching opposite at wide angles, loosely to closely reticulate and form solid mass of mycelia, cells 18-24 x 6-8 μm . Hyphopodia alternate and unilateral, spreading, antrorse to recurved, 22-26 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells ovate, entire to imperfectly lobate, 16-20 x 12-18 μm . Phialides few, mixed with hyphopodia, opposite to alternate, ampulliform, 16-18 x 6-8 μm . Perithecia scattered, up to 196 μm in diam.; perithecial cells conoid, 20-26 μm long; ascospores ellipsoidal, 4-septate, constricted, straight to slightly curved, 44-48 x 16-20 μm .

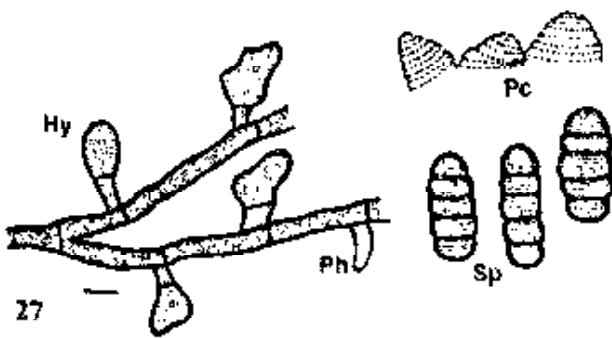
Materials examined: On leaves of *Croton zeylanicus* Muell.-Arg. (*C. reticulatus* Heyne ex Muell.-Arg.) (Euphorbiaceae), Pamba, Idukki, Kerala,



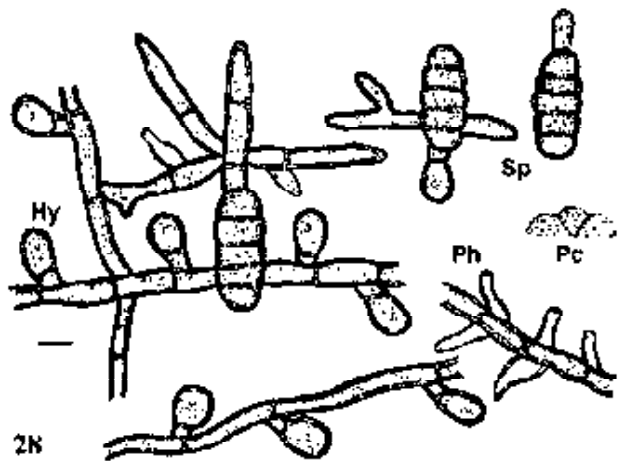
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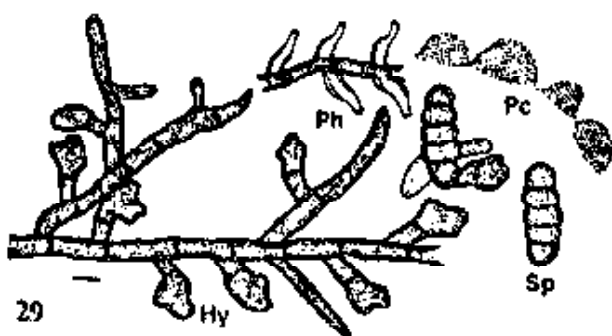
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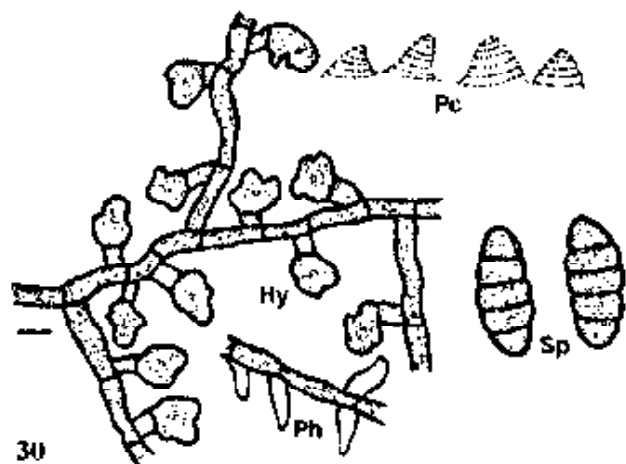
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25. *Asteridiella anamalaiana* Hosag. 26. *A. caseariicola* Hosag. 27. *A. clerodendriicola* Hosag. 28. *A. combreti* (Stev.) Hansf. var. *leonensis* Hansf. 29. *A. confragosa* (Sydow) Hansf. 30. *A. crotonis* Hosag.

October 10, 1983, V.B. Hosagoudar HCIO 40478 (type); MH 78936 (isotype).

Distribution: India (Kerala).

31. *Asteridiella cyclopoda* (Stev.) Hansf., *Sydowia* 10: 47, 1957; *Sydowia* Beih. 2: 419, 1961; Hosag. & Goos, *Mycotaxon* 36: 239, 1989; 42: 127, 1991. *Meliola cyclopoda* Stev., *Illinois Biol. Monogr.* 2: 16, 1916. *Irena cyclopoda* (Stev.) Toro, *Mycologia* 17: 140, 1925. *Irenina cyclopoda* (Stev.) Stev., *Ann. Mycol.* 25: 452, 1927; Hansf. & Deight., *Mycol. Pap.* 23: 64, 1948; Hughes, *Mycol. Pap.* 48: 42, 1952.

Colonies hypophyllous, rarely amphigenous, subdense to dense, up to 5 mm in diameter. Hyphae undulate, branching alternate to opposite at acute angles, loosely reticulate, cells 22-30 x 8-10 μm . Hyphopodia alternate and unilateral, antrorse, spreading, 22-28 μm long; stalk cells cuneate to cylindrical, 4-14 μm long; head cells globose, entire and rarely angular, 14-18 x 12-14 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 16-22 x 8-10 μm . Perithecia scattered and aggregated, up to 200 μm in diam.; perithecial cells mammillate, up to 10 μm long; ascospores ellipsoidal, 4-septate, constricted, 38-42 x 12-16 μm .

Materials examined: On leaves of *Vernonia arborea* Buch.-Ham. (*V. monosis* Clarke) (Asteraceae), Idukki, Kerala, October 6, 1983, V.B. Hosagoudar MH 78174, HCIO 40479; Shankarankudi, Valparai, Coimbatore, Tamil Nadu, December 12, 1990, V.B. Hosagoudar HCIO 30516.

Distribution: India (Kerala, Tamil Nadu), British Guiana, Gold Coast, Porto Rico, Sierra Leone, Uganda, Venezuela. The Indian collections slightly vary from the type species by the formation of hypophyllous colonies, larger hyphopodia and smaller perithecial cells.

32. *Asteridiella cyrtandrae* (Stev.) Hansf. var. *didymocarpi* Hosag. in Hosag., Raghu & Pillai, *Nova Hedwigia* 58: 529, 1994.

Colonies amphigenous, minute, dense, velvety, up to 2 mm in diameter. Hyphae flexuous, branching alternate at acute angles, loosely reticulate, cells 24-28 x 5-7 μm . Hyphopodia alternate, straight, antrorse, 15-22 μm long; stalk cells cuneate, 6-9.5 μm long; head cells ovate, globose, 9-12.5 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 6-8 μm . Perithecia scattered to loosely grouped, up to 170 μm in diam.; perithecial cells

conoid to mammiform, up to 10 μm long; ascospores obovoidal, 4-septate, 31-34 x 13-15.5 μm .

Materials examined: On leaves of *Didymocarpus humboldtianus* Gard. (Gesneriaceae), Erattiar, Sethur hills, Kamarajar dist., Tamil Nadu, October 13, 1992, V.B. Hosagoudar HCIO 40747 (type).

Distribution: India (Tamil Nadu).

33. *Asteridiella ehretiae* Hosag. & Raghu in Hosag., Raghu & Pillai, Nova Hedwigia 58. 530, 1994.

Colonies hypophyllous, dense, crustose, up to 5 mm in diameter, rarely confluent. Hyphae straight to substraight, branching alternate to opposite at acute angles, loosely to closely reticulate, cells 24-28 x 6-8 μm . Hyphopodia alternate, straight to curved, antrorse to recurved, 21-31 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells globose, stellately and irregularly sublobate to lobate, 15-18.5 x 12-18.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 6-8 μm . Perithecia scattered, widely opened at maturity, up to 120 μm in diam.; perithecial cells not distinct; ascospores obovoidal, 4-septate, slightly constricted, 42-45 x 18-28 μm .

Materials examined: On leaves of *Ehretia canarensis* (Clarke) Gamble (Boraginaceae), Gerusoppa, Uttara Kannada, Karnataka, May 23, 1992, P.A. Raghu HCIO 40748 (type).

Distribution: India (Karnataka).

34. *Asteridiella elaeocarpi-tuberculati* Hosag., Crypt. Bot. 2/3: 183, 1987.

Colonies epiphyllous, subdense, up to 2 mm in diameter, confluent. Hyphae substraight to undulate, branching opposite at wide angles, loosely reticulate, cells 31-36 x 4-6.5 μm . Hyphopodia alternate, straight to curved, antrorse, 18-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells globose, ovate, truncate at the apex, entire, 16-18.5 x 12-15.5 μm . Phialides borne on a separate mycelial branch, mostly opposite, ampulliform, 18-25 x 6-9.5 μm . Perithecia scattered, seated on exhyphopodiate mycelia, globose, up to 124 μm in diam.; perithecial cells conoid, curved, acute at the apex, up to 15 μm

long; ascospores obovoidal, 4-septate, slightly constricted at the septa, 40-46.5 x 15-18.5 μm .

Materials examined: On leaves of *Elaeocarpus tuberculatus* Roxb. (Elaeocarpaceae), Thorepalli, Nilgiris, Tamil Nadu, January 29, 1990, V.B. Hosagoudar HCIO 30357 (type).

Distribution: India (Tamil Nadu).

35. *Asteridiella entebbeensis* (Hansf. & Stev.) Hansf., *Sydowia* 10: 48, 1957; *Sydowia Beih.* 2: 210, 1961; Hosag., *Nova Hedwigia* 52: 497, 1991.
Irenia entebbeensis Hansf. & Stev., *J. Linn. Soc. London* 51: 268, 1937.

Colonies epiphyllous, dense, up to 2 mm in diameter, rarely confluent. Hyphae flexuous, branching alternate to opposite at acute to wide angles, loosely to closely reticulate, cells 30-40.5 x 6-9.5 μm . Hyphopodia alternate, straight to curved, antrorse to spreading, 15-31 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells ovate, globose, angular to slightly lobate, 9-12.5 x 15-18.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-25 x 6-9.5 μm . Perithecia scattered to grouped, up to 210 μm in diam.; perithecial cells conoid, up to 25 μm long; ascospores obovoidal, 4-septate, constricted at the septa, 43-53 x 18-21.5 μm .

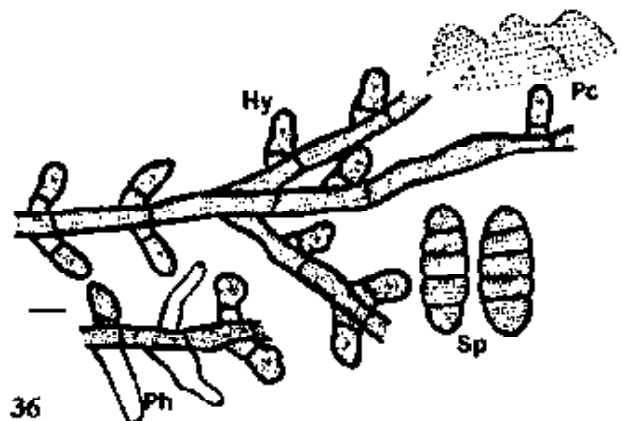
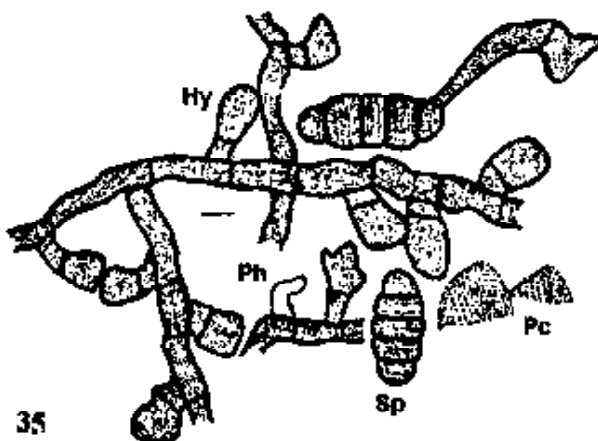
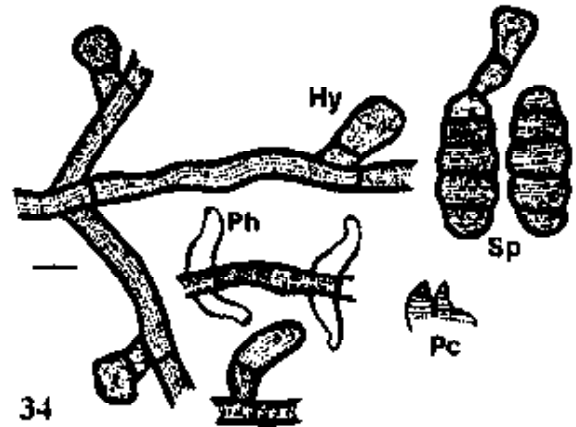
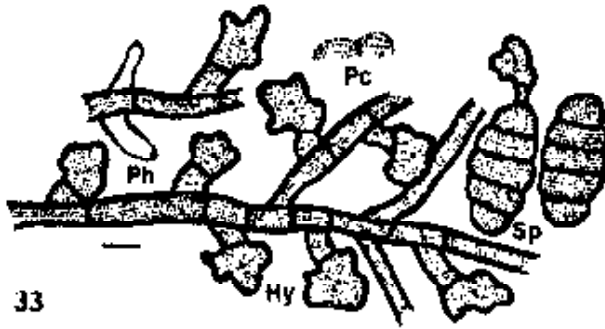
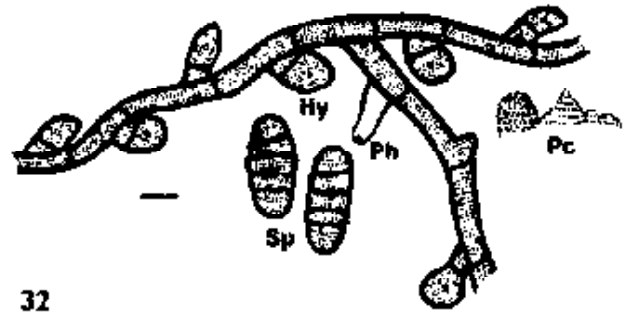
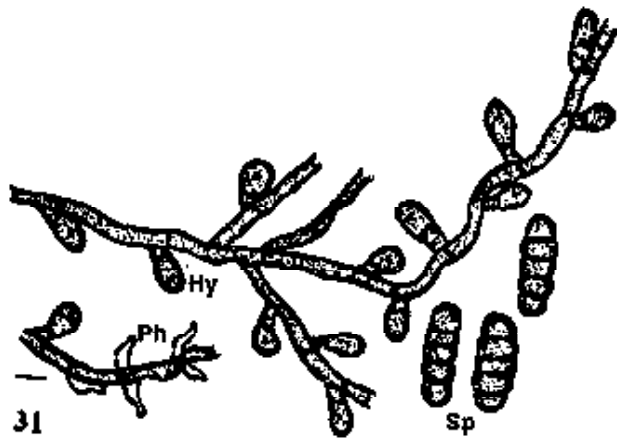
Materials examined: On leaves of *Macaranga peltata* (Roxb.) Muell.-Arg. (Euphorbiaceae), near Nooradi Settlement, Valparai, Coimbatore, Tamil Nadu, March 23, 1990, V.B. Hosagoudar HCIO 30380.

Distribution: India (Tamil Nadu), Congo Belge, Congo, Gold Coast, Sierra Leone, Uganda.

36. *Asteridiella eucleae* Hansf. var. *microspora* V.B. Hosagoudar et P.A. Raghu, var. nov.

Differt a var. *eucleae* hyphopodiis et ascosporis brevioribus.

Colonies amphigenous, mostly hypophyllous, dense, crustose, up to 5 mm in diameter, rarely confluent. Hyphae substraight to flexuous, branching opposite at acute to wide angles, loosely to closely reticulate, cells 24-31 x 6-8 μm . Hyphopodia opposite, solitary to alternate, antrorse, subantrorse, straight to rarely recurved, 12-22 μm long; stalk cells cylindrical to cuncate, 3-5 μm long; head cells cylindrical, entire to angular, rounded to truncate at the apex, 9-17 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, neck elongated, 24-28 x 9-12.5 μm . Perithecia scattered, up to 155 μm in diam.; perithecial cells conoid, straight to curved, 9-15 μm long; ascospores obovoidal,



31. *Asteridiella cyclopoda* (Stev.) Hansf. 32. *A. cyrtandrae* (Stev.) Hansf. var. *didymocarpi* Hosag. 33. *A. ehretiae* Hosag. & Raghu 34. *A. elaeocarpi-tuberculati* Hosag. 35. *A. entebbeensis* (Hansf. & Stev.) Hansf. 36. *A. eucleae* Hansf. var. *microspora* Hosag. & Raghu

4-septate, slightly constricted at the septa, 40-43.5 x 15-18.5 μm .

Materials examined: On leaves of *Diospyros candolleana* Wight (Ebenaceae), Gerusoppa, Uttara Kannada, Karnataka, March 23, 1992, P.A. Raghu HCIO 41605 (type).

Distribution: India (Karnataka).

This collection is close to *Asteridiella eucleae* Hansf. in having alternate and opposite hyphopodia but the new variety differs from var. *eucleae* in having smaller hyphopodia and ascospores.

37. *Asteridiella formosensis* (Yamam.) Hansf., Sydowia 10: 48, 1957; Sydowia Beih. 2: 686, 1961; Hosag. & Goos, Mycotaxon 36: 240, 1989; 42: 128, 1991; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 109, 1994. *Irene formosensis* Yamam., Trans. Nat. Hist. Soc. Taiwan 31: 15, 1941. *Meliola formosensis* (Yamam.) Cif., Mycopathologia 7: 87, 1954 (non Yamam, 1941).

Colonies epiphyllous, thin, smooth, up to 4 mm in diameter, confluent. Hyphae substraight to undulate, branching alternate at wide angles, loosely reticulate, cells 30-44 x 6-8 μm . Hyphopodia alternate, straight to curved, antrorse, spreading, 26-36 μm long; stalk cells cuneate to cylindrical, 8-12 μm long; head cells ovate, clavate, entire to sublobate, 18-24 x 12-16 μm . Phialides borne on a separate mycelial branch, mostly opposite, rarely unilateral, often two phialides borne very closely to a single mycelial cells, ampulliform, 12-18 x 6-8 μm . Perithecia scattered, up to 200 μm in diam.; perithecial cells obtusely conoid, 6-10 μm long; ascospores ellipsoidal, 4-septate, constricted, middle cell slightly larger, 42-46 x 20-26 μm .

Materials examined: On leaves of *Callicarpa tomentosa* (L.) Murray (Verbenaceae), Idukki, Kerala, October 4, 1983, V.B. Hosagoudar MH 78157; Pamba, Kerala, October 10, 1983, V.B. Hosagoudar MH 78929; Castle Rock, Karnataka, January 1, 1984, C.R. Patil HCIO 40031; January 10, 1984, C.R. Patil HCIO 30803; Kozhikamathi, Top Slip, Coimbatore, Tamil Nadu, December 21, 1990, V.B. Hosagoudar HCIO 30517; Gersoppa, Uttara Kannada, Karnataka, October 25, 1992, P.A. Raghu HCIO 40856; Radhanagari, Maharashtra, 1981, A.N. Thite HCIO 31631; Zolambi, Chandoli, Sangli, Maharashtra, March 29, 1991, C.R. Patil HCIO 30803; Veerapuli Reserve Forest, Kanniyakumari dist., Tamil Nadu, February 22, 1994, V.B. Hosagoudar HCIO 41643.

Distribution: India (Karnataka, Kerala, Tamil Nadu), Formosa.

However, the Indian collections vary from the species description in having smaller perithecial cells.

38. *Asteridiella grewiae* C.R. Patil ex V.B. Hosagoudar, sp. nov.

Coloniae epiphyllae, densae, ad 2 mm diam. Hyphae anfractuae, irregulariter acuteque vel laxe ramosae, laxae vel dense reticulatae, cellulae 27-31 x 6-8 μm . Hyphopodia alternata, recta vel curvula, antrorsa vel retrorsa, 15-25 μm longa; cellula basali cylindræa vel cuneata, 3-9.5 μm longa; cellula apicali ovata, globosa, integra, angularia vel sublobata, 12-15.5 x 12-14 μm . Phialides illis hyphopodiis commixta vel opposita, ampullacea, 18-25 x 6-8 μm . Perithecia dispersa, positus in exhyphopodiatis mycelialia, ad 124 μm diam.; cellulae peritheciales indistinctae; ascospores obovoideae vel cylindræae, 4-septatae, constrictae, 40-44 x 15-18.5 μm .

Colonies epiphyllous, dense, up to 2 mm in diameter. Hyphae crooked, branching irregular at acute to wide angles, loosely to closely reticulate, cells 27-31 x 6-8 μm . Hyphopodia alternate, straight to curved, antrorse to retrorse, 15-25 μm long; stalk cells cylindrical to cuneate, 3-9.5 μm long; head cells ovate, globose, entire, angular to sublobate, 12-15.5 x 12-14 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-25 x 6-8 μm . Perithecia scattered, seated on exhyphopodiate mycelium, up to 124 μm in diameter; perithecial cells not distinctly projected; ascospores obovoidal to cylindrical, 4-septate, constricted at the septa, 40-43.5 x 15-18.5 μm .

Materials examined: On leaves of *Grewia subinaequalis* DC. (*G. asiatica* sensu Mast.) (Tiliaceae), Castle Rock, Karnataka, January 10, 1984, C.R. Patil HClO 40029 (type).

Distribution: India (Karnataka).

This species is distinct from the other *Asteridiella* species reported on the members of Tiliaceae in having crooked mycelia, indistinct perithecial cells and smaller ascospores.

The host identity is to be confirmed by subsequent collections from the type locality.

39. *Asteridiella heritiericola* (Thite & Patil) comb. nov.

Meliola heritiericola Thite & Kulkarni, J. Shivaji Univ. (Sci.) 18: 210,

1978 (*herietariicola*)

Colonies epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching opposite to irregular at wide angles, loosely reticulate, cells 24-37.5 x 6-7 μm . Hyphopodia alternate, distantly placed, subantrorse, 15-22 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose, entire, 9-15.5 x 12-14 μm . Phialides borne on a separate mycelial branch, closely arranged, alternate to opposite, ampulliform, 15-22 x 6-8 μm . Perithecia seated on exhyphopodiate mycelium, globose, peridial cells not distinguished, up to 124 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 37-41 x 18-22 μm .

Materials examined: On leaves of *Herietaria littoralis* Dryand (Sterculiaceae), Londa, Karnataka, November 1969, A.N. Thite HCIO 31624 (type).

Distribution: India (Karnataka).

40. *Asteridiella kapoorii* V.B. Hosagoudar et P.A. Raghu, sp. nov.

Coloniae amphigenae, subdensae, patentiae, ad 8 mm diam. Hyphae rectae, alternate vel irregulariter laxe ramosae, laxe reticulatae, cellulae 31-37 x 6-8 μm . Hyphopodia opposita (60%) vel alternata, raro solitaria, recta vel curvula, antrorsa, subantrorsa vel retrorsa, 15-25 μm longa; cellula basali cylindracea vel cuneata, 3-6.5 μm longa; cellula apicali recta vel curvula, oblonga, cylindracea vel plerumque conoidea, integra, 12-18.5 x 9-12.5 μm . Phialides illis hyphopodiis commixtis, alternatis vel oppositis, ampulliformis, 21-25 x 9-12.5 μm . Perithecia dispersa, plerumque immatura, ad 135 μm diam.; cellulae perdiales mammiformae, 8-10 μm longae; ascospores obovoideae, 4-septatae, constrictae ad septae, 40-46.5 x 18-22 μm .

Colonies amphigenous, subdense, spreading, up to 8 mm in diameter. Hyphae substraight, branching alternate to irregular at wide angles, loosely reticulate, cells 31-37 x 6-8 μm . Hyphopodia opposite (60%) and alternate, few solitary, straight to curved, antrorse, subantrorse to recurved, 15-25 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells straight to curved, oblong, cylindrical, conoid, entire 12-18.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-25 x 9-12.5 μm . Perithecia scattered, mostly immature, matured perithecia up to 125 μm in diam.; perithecial cells mammiform, 8-10 μm long; ascospores obovoidal, 4-septate, constricted, 40-46.5 x 18-22 μm .

Materials examined: On leaves of *Diospyros* sp. (Ebenaceae), Kudremukh, Chikmagalur, Karnataka, February 1, 1993, P.A. Raghu HCIO 4111 (type).

Distribution: India (Karnataka).

Asteridiella diospyricola (Hansf. & Deight.) Hansf. and *A. eucleae* Hansf. are known on the members of the family Ebenaceae. The present new species is close to *A. eucleae* Hansf. in having alternate and opposite hyphopodia but differs from it in having predominantly opposite and conoid head cells of the hyphopodia and smaller ascospores.

41. *Asteridiella lophopetali* Hosag. & Raghu, New Botanist 20: 65, 1993.

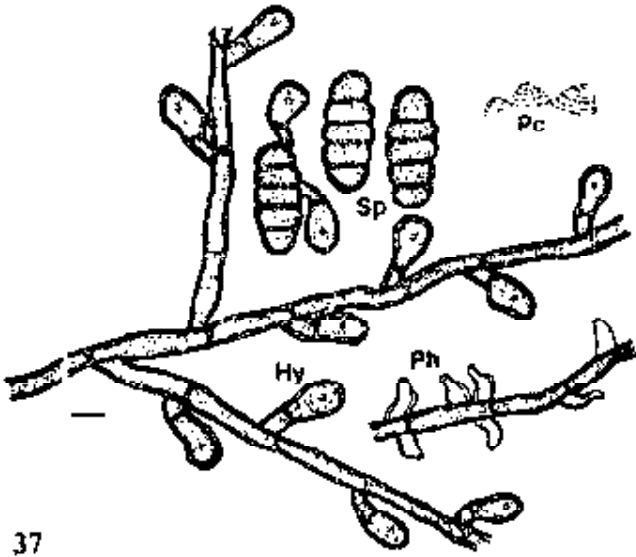
Colonies epiphyllous, dense, crustose to velvety, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite at acute angles, very closely reticulate and form solid mycelial mat, cells 9-12.5 x 6-9.5 μm . Hyphopodia alternate, antrorse, 15-22 μm long; stalk cells cuneate, 2-6.5 μm long; head cells ovate to globose, entire, angular to sublobate, 13-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate, ampulliform, 18-22 x 6-9.5 μm . Perithecia grouped at the centre of the colonies, up to 220 μm in diam.; perithecial cells mammiform, straight to curved at the apex, up to 25 μm long; ascospores obovoidal, 4-septate, strongly constricted at the septa, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Lophopetalum wightianum* Arn. (Celastraceae), Gersoppa, Uttara Kannada, Karnataka, October 22, 1992, P.A. Raghu HCIO 40857 (type).

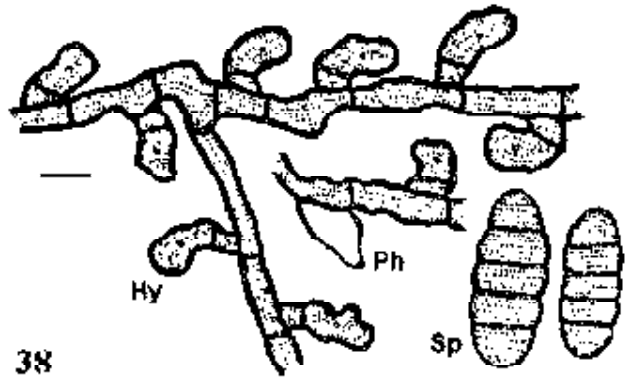
Distribution: India (Karnataka).

42. *Asteridiella macarangiicola* Hosag. in Hosag. & Goos, Mycotaxon 36: 240, 1989.

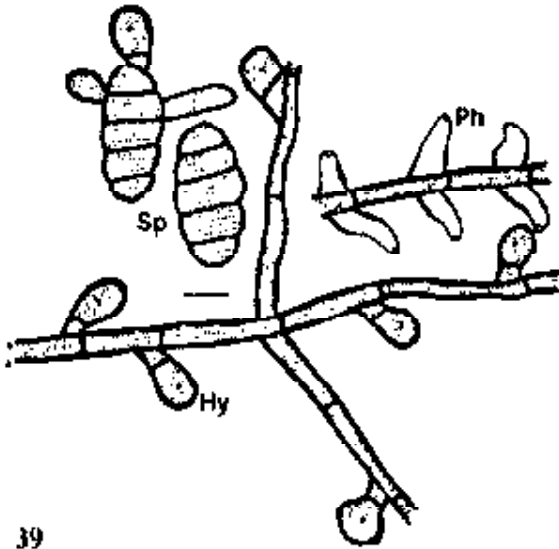
Colonies epiphyllous, thin, indistinct, up to 2 mm in diameter. Hyphae tortuous, branching opposite to alternate, loosely reticulate, cells 38-44 x 6-8 μm . Hyphopodia alternate, straight to curved, spreading, mostly antrorse, 20-28 μm long; stalk cells cylindrical to cuneate, 8-12 μm long; head cells globose, ovate, entire, rarely slightly angulose, 12-16 x 6-10 μm . Perithecia scattered, up to 180 μm in diam.; perithecial cells conoid, up to 14 μm long; ascospores ellipsoidal, 4-septate, constricted, 38-40 x 16-18 μm .



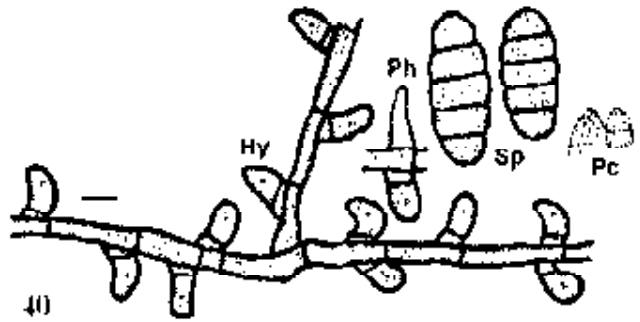
37



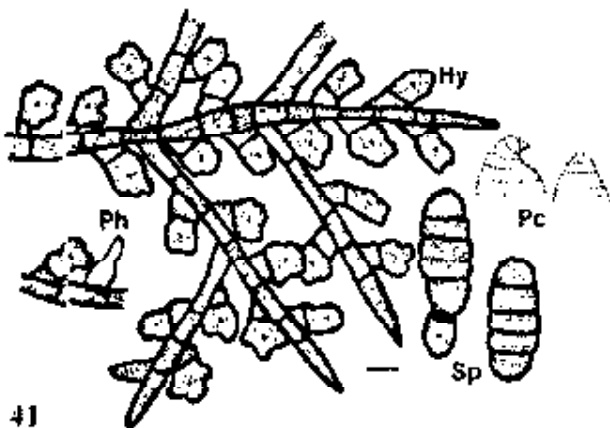
38



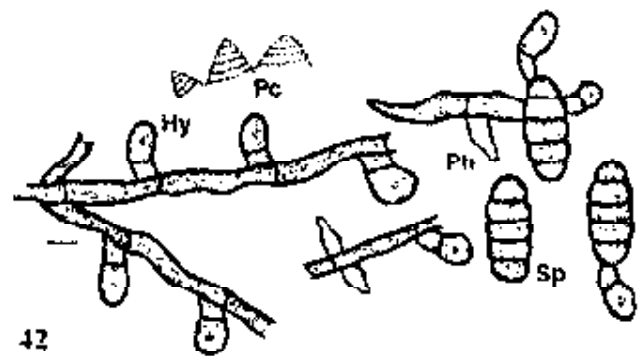
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42

37. *Asteridiella formosensis* (Yamam.) Hansf. 38. *A. greviae* Patil ex Hosag. 39. *A. heritiericola* (Thite & Patil) Hosag. 40. *A. Kapoorii* Hosag. 41. *A. lophopetali* Hosag. & Raghu 42. *A. macarangicola* Hosag.

Materials examined: On leaves of *Macaranga peltata* Muell.-Arg. (Euphorbiaceae), Calvary Mount, Idukki, Kerala, December 24, 1983, V.B. Hosagoudar HCIO 40481 (type), MH 79099; Meenmutty, Idukki, Kerala, June 9, 1983, V.B. Hosagoudar MH 75050.

Distribution: India (Kerala).

This species is close to *A. erythrocoecae* Hansf. and *A. hansfordii* (Stev.) Hansf. but differs from both by the formation of inconspicuous colonies, tortuous mycelia, larger hyphopodia, entire head cells of the hyphopodia and distinctly broader ascospores.

43. *Asteridiella malloti* (Hansf. & Thirum.) Hansf., Sydowia 10: 49, 1957; Sydowia Beih. 2: 209, 1961; Patil & Thite, J. Shivaji Univ. 18: 220, 1978; Hosag. & Goos, Mycotaxon 36: 241, 1989.

Irenina malloti Hansf. & Thirum., Farlowia 3: 289, 1948; Hansf., Reinwardtia 3: 83, 1954.

Meliola malloti (Hansf. & Thirum.) Cif., Mycopathologia 7: 88, 1954.

Colonies hypophyllous, subdense, almost hidden in the epidermal hairs, scattered, rarely confluent, up to 6 mm in diameter. Hyphae tortuous, branching alternate to irregular at acute angles, loosely to closely reticulate, cells 44-68 x 4-6 μ m. Hyphopodia alternate to unilateral, antrorse, spreading, 18-28 μ m long; stalk cells cylindrical to cuneate, 6-14 μ m long; head cells globose, angulose, entire to sublobate, 12-16 x 12-16 μ m. Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 14-18 x 6-8 μ m. Perithecia scattered to aggregated, up to 190 μ m, perithecial surface cells conoid, twisted variously, 20-30 μ m long; ascospores cylindrical to fusiform, 4-septate, middle cell larger, 48-54 x 16-22 μ m.

Materials examined: On leaves of *Mallotus alba* Muell.-Arg. (Euphorbiaceae), Balehonnur, Karnataka, September 28, 1944, M.J. Thirumalachar HCIO 10840 (type); *M. philippensis* (Lam.) Muell.-Arg., Lakshmi Estate, Idukki, Kerala, December 25, 1983, V.B. Hosagoudar MH 79098; *M. tetracoccus* (Roxb.) Kurz (*M. albus* Muell.-Arg.), Pamba, Kerala, October 12, 1983, V.B. Hosagoudar MH 78950; *M. philippensis* (Lam.) Muell.-Arg., Maredumilli, East Godavari, Andhra Pradesh, December 19, 1993, M. Mohanan HCIO 41633.

Distribution: India (Andhra Pradesh, Karnataka, Kerala, Maharashtra), Java, New South Wales, Philippines.

44. *Asteridiella mallotica* (Yamam.) Hansf., Sydowia 10: 49, 1957; Hosag. & Goos, Mycotaxon 42: 128, 1991.

Irenina mallotica Yamam., Trans. Nat. Hist. Soc. Formosa 30: 415, 1940.

Colonies amphigenous, mostly hypophyllous, subdense, up to 5 mm in diameter, rarely confluent. Hyphae strongly appressed to the host surface, undulate to crooked, branching irregular at acute to wide angles, loosely to closely reticulate, cells 15-35 x 6-9.5 μm . Hyphopodia alternate, distantly placed, variously curved to antrorse, 24-44 μm long; stalk cells cylindrical, straight to curved, 9-22 μm long; head cells ovate, globose, entire to angular, 15-22 x 9-15.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15-25 x 6-9.5 μm . Perithecia scattered to aggregated, up to 240 μm in diam.; perithecial cells conoid to mammiform, up to 22 μm long; ascospores straight to slightly curved, ellipsoidal, 4-septate, constricted at the septa, 44-50 x 15-18.5 μm .

Materials examined: On leaves of *Mallotus philippensis* (Lam.) Muell.-Arg. (Euphorbiaceae), Nedungundru, Veloniae, Valparai, Coimbatore, Tamil Nadu, December 23, 1990, V.B. Hosagoudar HClO 30518.

Distribution: India (Tamil Nadu), Formosa, Philippines.

45. *Asteridiella mastixiae* V.B. Hosagoudar et P.A. Raghu, sp. nov.

Coloniae amphigenae, densae, crustosae, ad 2 mm diam., raro confluentes. Hyphae subrectae, irregulariter acuteque vel laxe ramosae, laxae vel dense reticulatae, cellulae 30-46.5 x 8-9.5 μm . Hyphopodia alternata vel unilateralia, antrorsa vel subantrorsa, 27-34 μm longa; cellula basali cylindracea vel cuneata, 9-15.5 μm longa; cellula apicali ovata, globosa, integra vel sublobata, 15-25 x 15-22 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, conoidea vel ampullacea, 24-31 x 6-9.5 μm . Perithecia dispersa, ad 280 μm diam.; cellulae peritheciales cylindraceae, conoideae, rectae, ad 20 μm longae; ascosporae plerumque curvulae, 4-septatae, leniter constrictae ad septae, 40-46.5 x 15-18.5 μm .

Colonies amphigenous, dense, crustose, up to 2 mm in diameter, rarely confluent. Hyphae substraight, branching irregular at acute to wide angles, loosely to densely reticulate, cells 30-46.5 x 8-9.5 μm . Hyphopodia alternate to unilateral, antrorse to subantrorse, 27-34 μm long; stalk cells cylindrical to cuneate, 9-15.5 μm long; head cells ovate, globose, entire to sublobate, 15-25 x 15-22 μm . Phialides mixed with hyphopodia, alternate to opposite, conoid to ampulliform,

24-31 x 6-9.5 μm . Perithecia scattered, up to 280 μm in diam.; perithecial cells cylindrical, conoid, straight, up to 20 μm long; ascospores mostly curved, 4-septate, slightly constricted at the septa, 40-46.5 x 15-18.5 μm .

Materials examined: On leaves of *Mastixia arborea* (Wight) Bedd. (Cornaceae), Kudremukh, Chikmagalur, Karnataka, February 1, 1993, P.A. Raghu HClO 41112 (type).

Distribution: India (Karnataka).

The new species differs from *Asteridiella aucubae* (Henn.) Hansf. in having substraight mycelium, straight perithecial cells and smaller ascospores.

46. *Asteridiella meliosmae* Kar & Maity, *Sydowia* 24: 60, 1971.

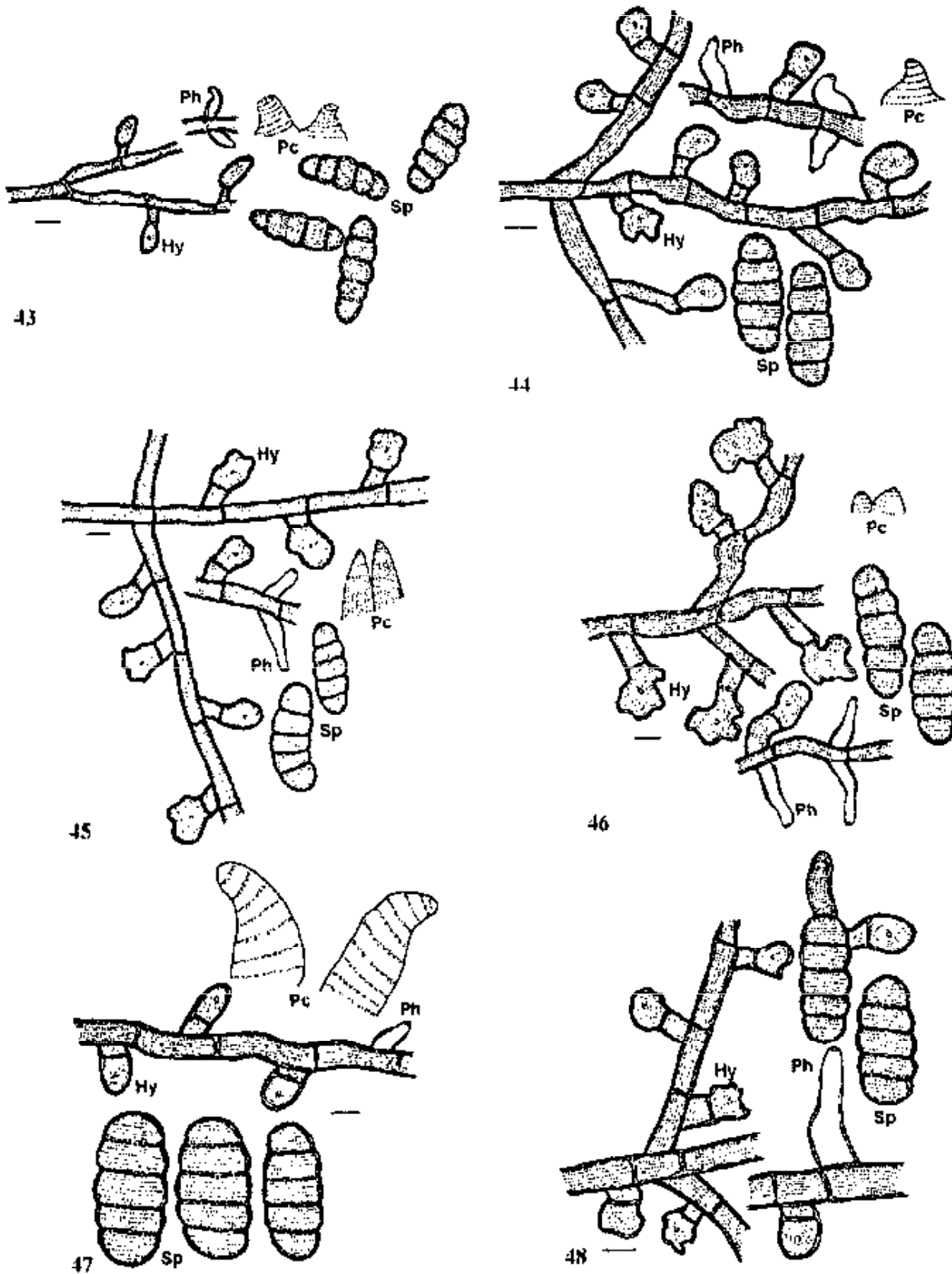
Colonies epiphyllous, subdense to dense, up to 3 mm in diameter, rarely confluent. Hyphae straight to crooked, branching mostly opposite at acute angles, loosely to closely reticulate, cells 27-37 x 7-9.5 μm . Hyphopodia alternate, straight to curved, mostly antrorse, 24-34 μm long; stalk cells cylindrical to cuneate, 9-15.5 μm long; head cells globose, mostly irregularly sublobate, 15-18.5 x 15-22 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 21-25 x 9-12.5 μm . Perithecia scattered to grouped, up to 247 μm in diam.; perithecial cells projected, conoid, up to 43 μm long; ascospores obovoidal, straight to curved, 4-septate, constricted at the septa, 45-53 x 15-22 μm .

Materials examined: On leaves of *Meliosma simplicifolia* (Roxb.) Walp. (Sabiaceae), Jalpaiguri, West Bengal, November 7, 1967, IMI 133538 (type).

Distribution: India (West Bengal).

47. *Asteridiella ohiana* (Stev.) Hansf. var. *major* Kar & Maity, *Sydowia* 24: 63, 1970.

Colonies amphigenous, mostly epiphyllous, up to 5 mm in diameter. Hyphae straight to undulate, branching opposite at acute angles, loosely to closely reticulate, cells 21-28 x 6-8 μm . Hyphopodia alternate, straight to slightly curved, subantrorse to antrorse, 15-22 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, versiform, entire, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 20-28 x 5-8 μm . Perithecia scattered, up to 343 μm in diam.; perithecial cells conoid, up to 70 μm long; ascospores obovoidal, 4-septate, constricted at the septa, 43-48.5 x 20-25 μm .



43. *Asteridiella malloti* (Hansf. & Thirum.) Hansf. 44. *A. mallotica* (Yamam.) Hansf. 45. *A. mastixiae* Hosag. & Raghu 46. *A. meliosmae* Kar & Maity 47. *A. ohiana* (Stev.) Hansf. var. *major* Kar & Maity 48. *A. penuapterygii* Kar & Maity

Materials examined: On leaves of *Syzygium claviflora* Roxb. (Myrtaceae), Dhupguri, Jalpaiguri, West Bengal, November 7, 1967, Coll. not known IMI 133537 (type).

Distribution: India (West Bengal).

48. *Asteridiella pentapterygii* Kar & Maity, *Sydowia* 24: 62, 1971.

Colonies epiphyllous, dense, scattered, up to 2 mm in diameter. Hyphae straight, branching opposite at acute to wide angles, loosely to closely reticulate, cells 9-13 μm long. Hyphopodia alternate, straight to curved, antrorse to spreading, 18-22 μm long; stalk cells cylindrical to cuneate, 4-6.5 μm long; head cells globose to ovate, entire, rarely angular, 13-16.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulli-form, 19-26.5 μm . Perithecia scattered, up to 152 μm in diam.; perithecial cells conoid, up to 36.5 μm long; ascospores cylindrical, 4-septate, constricted at the septa, 39.5-43 x 13-20 μm .

Type: On leaves of *Pentapterygium serpens* Klotsch (Ericaceae), Tung, Darjeeling, West Bengal, India, May 12, 1967, IMI 133534.

Materials examined: Material was not available for the study.

Distribution: India (West Bengal).

49. *Asteridiella pitya* (Sacc.) Hansf., *Sydowia Beih.* 2: 749, 1961; Pirozynski & Shoemaker, *Can. J. Bot.* 48: 1324, 1970.

Meliola pitya Sacc., *Nuove G. Bot. Ital.* 23: 185, 1916.

Irenina pitya (Sacc.) Stev., *Ann. Mycol.* 348, 1927.

Irenina taxi Sawada, *Bull. Gov. forest Exp. Sta. Tokyo* 46: 137, 1950.

Asteridiella taxi (Sawada) Hansf. ex Muller & Bose, *Indian Phytopath.* 12: 14, 1959.

Colonies amphigenous, mostly hypophyllous, discrete, up to 2 mm in diameter, confluent. Hyphae flexuous to geniculate, branching opposite to irregular at acute angles, closely reticulate, cells 10-13 x 7-10 μm . Hyphopodia alternate, mostly straight, subantrorse, 10-37 μm long; stalk cells cylindrical, 4-10 μm long; head cells globose, entire, 10-15 x 10-13 μm . Phialides not seen. Perithecia scattered, up to 300 μm in diam.; surface cells conical, straight to curved, up to 40 μm long; ascospores ellipsoidal, 3-septate, constricted, 43-52 x 16-20 μm .

Type: On *Taxus* sp.

Materials examined: Material was not available for the present study and known only from the report.

Distribution: India (Uttar Pradesh), Japan.

50. *Asteridiella pothodis* (Hansf. & Thirum.) Hansf., *Sydowia* 10: 49, 1957; *Sydowia Beih.* 2: 714, 1961.

Irenina pothodis Hansf. & Thirum., *Farlowia* 3: 288, 1948.

Colonies mostly epiphyllous, subdense, up to 2 mm in diameter. Hyphae substraight to crooked, branching opposite at wide angles, closely reticulate, cells 25-30 x 8-9 μm . Hyphopodia alternate, more or less antrorse, straight to curved, 15-25 μm long; stalk cells cylindrical to cuncate, 4-10 μm long; head cells ovate, globose, clavate, rarely angulose, straight to curved, 10-14 x 10-13 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 13-29 x 8-10 μm . Perithecia scattered, up to 190 μm in diam.; surface cells conoid, projecting ascospores cylindrical to subellipsoidal, 4-septate, constricted, 38-48 x 16-18 μm .

Materials examined: On leaves of *Pothos scandens* L. (Araceae), Teerthahalli, Karnataka, April 4, 1945, M.J. Thirumalachar HClO 10862 (type).

Distribution: India (Karnataka).

51. *Asteridiella pygei* Hansf. var. *microspora* var. nov.

Differt a var. *pygei* ascosporis brevioribus.

Colonies epiphyllous, dense, scattered, up to 2 mm in diameter. Hyphae substraight to crooked, branching irregular at acute angles, loosely reticulate, cells 27-40 x 5-7 μm . Hyphopodia alternate, antrorse, subantrorse, spreading, straight to recurved, 18-31 μm long; stalk cells cylindrical to cuncate, 6-12.5 μm long; head cells ovate, globose, entire, angular to irregularly sublobate to lobate, 12-18.5 x 12-15.5 μm . Phialides mixed with hyphopodia, scattered, ampulliform, 15-18.5 x 6-9.5 μm . Perithecia immature. Ascospores curved, ellipsoidal, 3-septate, slightly constricted at the septa, 37-41 x 11-13 μm .

Materials examined: On leaves of *Rubus* sp. (Rosaceae), Senghila, Sikkim, April 14, 1962, J.N. Kapoor HClO 28365 (type).

Distribution: India (Sikkim).

Curved ascospores, entire to angular head cells of hyphopodia brings the present collection close to *Asteridiella pygei* Hansf. However, the new variety differs from the var. *pygei* in having smaller ascospores.

52. *Asteridiella quercina* Hansf., *Sydowia* 10: 50, 1957; *Sydowia* Beih. 2: 309, 1961; Maity, *Indian J. Mycol. Res.* 16: 26, 1978; Gupta & Gupta, *Indian Phytopathol.* 38: 576, 1985.

Irenina quercina Hansf., *Farlowia* 3: 273, 1948.

Colonies amphigenous, mostly epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae substraight to flexuous, branching opposite at acute angles, loosely reticulate, cells 18-25 x 7-9.5 μm . Hyphopodia alternate, straight to curved, mostly antrorse, 12-22 μm long; stalk cells cylindrical to cuneate, 3-9.5 μm long; head cells ovate to globose, entire, 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-20 x 9-12.5 μm . Perithecia loosely grouped, up to 240 μm in diam.; surface cells conoid, up to 25 μm long; ascospores obovoidal to cylindrical, 4-septate, constricted, 46-50 x 18-22 μm .

Materials examined: On leaves of *Quercus* sp. (Fagaceae), Darjeeling, West Bengal, August 17, 1977, M.K. Maity IMI 224586.

Distribution: India (Uttar Pradesh, West Bengal), China, Philippines.

53. *Asteridiella resinosi* sp. nov.

Coloniae hypophyllae, densae, crustosae, in maculae brunneae, ad 5 mm diam., raro confluentes. Hyphae anfractuae, opposite vel irregulariter laxe ramosae, laxe vel dense reticulatae, cellulae 27-31 x 6-9.5 μm . Hyphopodia alternata, ad 3% opposita, varie curvata, 18-31 μm longa; cellula basali cylindraceae vel cuneata, recta vel raro anfractua, 6-12.5 μm longa; cellula apicali ovata, globosa, integra, irregulariter sublobata vel lobata, truncata ad apicem, 12-18.5 x 15-22 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 15-22 x 6-8 μm . Perithecia dispersa, ad 217 μm diam.; cellulae peritheciales conoideae, hamatae, ad 18 μm longae; ascosporae cylindratae, rectae vel curvulae, 4-septatae, leniter constrictae, 52-59 x 12-15.5 μm .

Colonies hypophyllous, dense, crustose, seated on brown spots, up to 5 mm in diam., rarely confluent. Hyphae crooked, branching opposite to irregular at wide angles, loosely to closely reticulate, cells 27-31 x 6-9.5 μm . Hyphopodia alternate, about 3% opposite, variously curved, 18-31 μm long; stalk cells cylindrical to cuneate, straight to rarely crooked, 6-12.5 μm long; head cells

ovate, globose, entire, irregularly sublobate to lobate, truncate at the apex, 12-18.5 x 15-22 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 6-8 μm . Perithecia scattered, up to 217 μm in diam.; perithecial cells conoid, hamate, up to 18 μm long; ascospores cylindrical, straight to curved, 4-septate, slightly constricted at the septa, 52-59 x 12-15.5 μm .

Materials examined: On leaves of *Mallotus resinus* (Blanco) Merr. (Euphorbiaceae), Valve House, Kanniyakumari, Tamil Nadu, February 28, 1994, V.B. Hosagoudar HCIO 41580 (type).

Distribution: India (Tamil Nadu).

Hypophyllous colonies on leaf spots; 3% opposite, irregularly curved and entire to irregularly sublobate to lobate head cells of the hyphopodia distinguishes the present species.

54. *Asteridiella sapotacearum* Hansf., Sydowia 10: 50, 1957; Sydowia Beih. 2: 501, 1961; Hosag., Dayal & Goos, Mycotaxon 46: 202, 1993. *Irene sapotacearum* Hansf., Sydowia 5: 7, 1955.

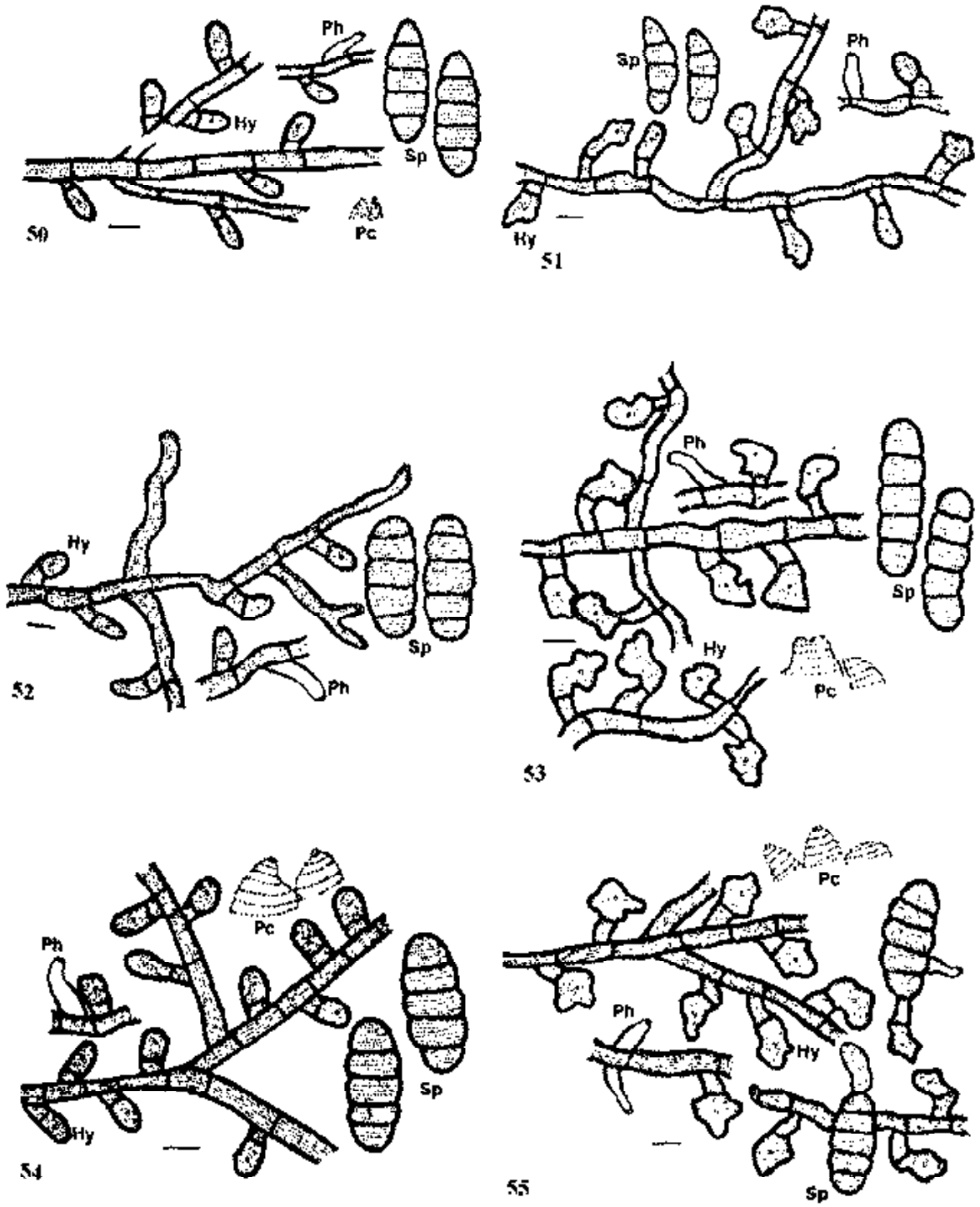
Colonies amphigenous, dense, crustose to velvety, up to 3 mm in diam., rarely confluent. Hyphae substraight, branching alternate, opposite or irregular at acute to wide angles, loosely reticulate, cells 18-34 x 6-9.5 μm . Hyphopodia alternate, antrorse to subantrorse, 18-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, entire, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, conoid to ampulliform, 15-25 x 9-12.5 μm . Perithecia scattered, globose, up to 155 μm in diam.; perithecial wall cells conoid, straight to curved, acute to obtuse at the apex, 10-15 μm long; ascospores obovoid, 4-septate, slightly constricted at the septa, 34-41 x 15-18 μm .

Materials examined: On leaves of seedlings of *Madhuca longifolia* (L.) Macbr. var. *latifolia* (Roxb) A. Chev. (Sapotaceae), Sampaje forest nursery, Sampaje, Kodagu, Karnataka, December 22, 1991, B.R. Dayal HCIO 30829.

Distribution: India (Karnataka), Brazil.

This collection slightly differs from the type in having amphigenous, dense, crustose to velvety colonies. This species was first recorded on an undetermined host of the family Sapotaceae from Brazil.

55. *Asteridiella schlegeliae* (Stev.) Hansf. var. *stereospermi* Hosag. & Raghu in



50. *Asteridiella pothodis* (Hansf. & Thirum.) Hansf. 51. *A. pygei* Hansf. var. *microspora* Hosag. 52. *A. quercina* Hansf. 53. *A. resinosi* Hosag. 54. *A. sapotacearum* Hansf. 55. *A. schlegeliae* (Stev.) Hansf. var. *stereospermi* Hosag. & Raghu

Hosag., Raghu & Pillai, Nova Hedwigia 58: 531, 1994.

Colonies amphigenous, dense, crustose, up to 3 mm in diameter. Hyphae straight to substraight, branching alternate to opposite at acute angles, closely reticulate, cells 12-22 x 6-9.5 μm . Hyphopodia alternate, straight to variously curved, antrorse, 21-31 μm long; stalk cells cylindrical to cuneate, 6-15.5 μm long; head cells ovate, globose, mostly sublobate, rarely entire to angular, 15-18.5 x 12-15.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-21.5 x 6-7 μm . Perithecia scattered, up to 124 μm in diam; perithecial cells conoid to mammiform, straight to curved, up to 25 μm long; ascospores obovoidal, 4-septate, slightly constricted, 40-43.5 x 18-22 μm .

Materials examined: On leaves of *Stereospermum colais* (Buch.-Ham. ex Dillwyn.) Mabb. (Bignoniaceae), Gersoppa, Uttara Kannada, Karnataka, May 24, 1992, P.A. Raghu HClO 40749 (type).

Distribution: India (Karnataka).

In this collection, an ascospore germinated with a single hyphopodium and a phialide.

56. *Asteridiella scolopiae* sp. nov.

Coloniae amphigenae, densae, ad 3 mm diam., dispersae, raro confluentes. Hyphae rectae vel subrectae, plerumque oppositae acutaeque ramosae, laxe vel dense reticulatae, cellulae 12-15.5 x 5-7 μm . Hyphopodia alternata, ad 1% opposita in coloniae laxe reticulatae et ad 5% opposita in coloniae dense reticulatae, antrorsa, 15-18 μm longa; cellula basali cuneata, 3-12.5 μm longa; cellula apicali globosa, ovata, oblonga, plerumque integra, raro angulosa, 12-15.5 x 9-12.5 μm . Phialides illis hyphopodiis commixtae, oppositae vel alternatae, ampullaceae, 15-18.5 x 5-7 μm . Perithecia dispersa, ad 186 μm diam.; cellulae peritheciales mammiformia, rectae vel curvulae, ad 22 μm longae; ascosporae obovoideae, 4-septatae, fortiter constrictae, 43-47 x 17-19 μm .

Colonies amphigenous, dense, crustose, up to 3 mm in diameter, scattered, rarely confluent. Hyphae straight to substraight, branching mostly opposite at acute angles, loosely to closely reticulate, cells 12-15.5 x 5-9 μm . Hyphopodia alternate, about 1% opposite in loosely reticulated colonies while about 5% opposite in densely reticulated colonies, antrorse, 15-28 μm long. Stalk cells cuneate, 3-12.5 μm long; head cells globose, ovate, oblong, mostly entire, rarely angular, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to

alternate, ampulliform, 15-18.5 x 5-7 μm . Perithecia scattered, up to 186 μm in diam.; perithecial cells mammiform, straight to curved, up to 22 μm long; ascospores obovoidal, 4-septate, strongly constricted at the septa, 43-47 x 17-19 μm .

Materials examined: On leaves of *Scolopia crenata* (Wight & Arn.) Clos (Flacourtiaceae), Kakachi Forest, Tirunelveli, Tamil Nadu, February 21, 1994, V.B. Hosagoudar HClO 48235 (type).

Distribution: India (Tamil Nadu).

This species is close to *Asteridiella deightonii* Hansf. in having few opposite hyphopodia but differs from it in having substraight hyphae, entire to angular head cells of hyphopodia and smaller ascospores.

57. *Asteridiella vacciniicola* Hansf., Sydowia 11: 49, 1958.

Colonies epiphyllous, thin to subdense, up to 2 mm in diameter, rarely confluent. Hyphae straight to substraight, branching opposite to alternate at acute to wide angles, loosely to closely reticulate, cells 15-22 x 6-8 μm . Hyphopodia alternate, antrorse to subantrorse, rarely recurved, 15-22 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells ovate, globose, mostly entire, rarely angular to slightly lobate, 9-16.5 x 8-12 μm . Phialides numerous, mixed with ch., alternate to opposite, ampulliform, 24-31 x 9-12.5 μm . Perithecia immature, up to 100 μm in diam.; perithecial cells not distinct; ascospores obovoid, 4-septate, slightly constricted, 37-41 x 15-18.5 μm .

Materials examined: On leaves of *Vaccinum neilgherrense* Wight (Vacciniaceae), Kudremukh, Chikamagalur, Karnataka, April 24, 1993, P.A. Raghu HClO 41113.

Distribution: India (Karnataka), Philippine.

58. *Asteridiella vivekananthanii* Hosag., Sydowia 40: 114, 1987; Hosag. & Goos, Mycotaxon 42: 120, 1991; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 110, 1994.

Colonies epiphyllous, subdense to dense, up to 4 mm in diameter, confluent. Hyphae flexuous to crooked, branching alternate to irregular at acute angles, very closely reticulate, cells 15.5-18.5 x 4-6.5 μm . Hyphopodia alternate to unilateral, straight to mostly curved, antrorse to spreading, 16-31 μm long;

stalk cells cylindrical to cuneate, 3-12.5 μm long; head cells ovate, globose, entire to angulose, 15-18.5 x 12-15.5 μm ; few hyphopodia 46-50 μm long and stalk cells 1-septate, 15-18.5 μm long. Phialides few, mixed with hyphopodia, opposite to alternate, conoid to ampulliform, 15-31 x 6-12.5 μm . Perithecia scattered, up to 250 μm in diam.; perithecial cells conoid to mammiform, up to 22 μm long; ascospores obovoidal, 4-septate, slightly curved, 31-37 x 12.5-18.5 μm .

Materials examined: On leaves of *Clerodendrum viscosum* Vent (Verbenaceae), Pudukadu, Valparai, Tamil Nadu, January 17, 1987, V.B. Hosagoudar HCIO 39303 (type); Sheikalmudy, Valparai, Coimbatore, Tamil Nadu, December 23, 1990, V.B. Hosagoudar HCIO 30519.

Distribution: India (Tamil Nadu).

This species was mixed with *Meliola clerodendricola* Henn.

59. *Asteridiella websteri* Hosag., Nova Hedwigia 52: 498, 1991.

Colonies epiphyllous, dense, crustose, up to 4 mm in diameter, confluent. Hyphae straight, substraight to slightly crooked, branching opposite to irregular at wide angles, loosely to closely reticulate, cells 27-31 x 4.5-6.5 μm . Hyphopodia alternate, mostly antrorse, rarely recurved, 15-22 μm long; stalk cells cylindrical to cuneate, 3-8 μm long; head cells ovoid, entire to rarely angular, straight to curved, 12-15.5 x 9-12.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 12-15.5 x 9-12.5 μm . Perithecia scattered, initially flattened, globose at maturity, up to 115 μm in diam.; perithecial cells conoid, up to 10 μm long; ascospores obovoidal, 4-septate, slightly constricted at the septa, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Olea dioica* Roxb. (Oleaceae), near Cinchona plots, Valparai, Coimbatore, Tamil Nadu, March 24, 1990, V.B. Hosagoudar HCIO 30379 (type); Koyna, Satara, Maharashtra, December 12, 1984, C.R. Patil HCIO 40030; Amboli, Maharashtra, December 3, 1976, M.S. Patil HCIO 32526; Castlerock, Karnataka, October 23, 1970, P.G. Patwardhan & G.T. Joshi HCIO 31274.

Distribution: India (Karnataka, Kerala, Maharashtra).

Irenopsis Stev., Ann. Mycol. 25: 411, 1927; Hansf., Sydowia Beih. 2: 25, 1961.

Mycelium superficial, brown, septate, branched, hyphopodiate. Perithecia borne on the mycelia, globose, non-ostiolate, with true perithecial setae, without perithecial appendages, lacks mycelial setae; asci 2-4 spored, evanescent; ascospores brown, 3-4 septate.

Type: *I. tortuosa* (Wint.) Stev.,

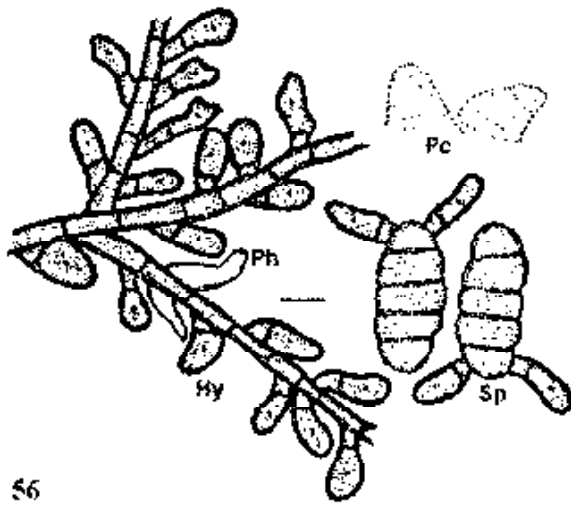
60. **Irenopsis benguetensis** Stev. & Rold. ex Hansf., Sydowia 26: 311, 1963; Hosag. & Goos, Mycotaxon 36: 242, 1989.

Irenopsis benguetensis Stev. & Rold. Philippine J. Sci. 56: 49, 1935; Hansf., Sydowia Beih. 20: 321, 1961.

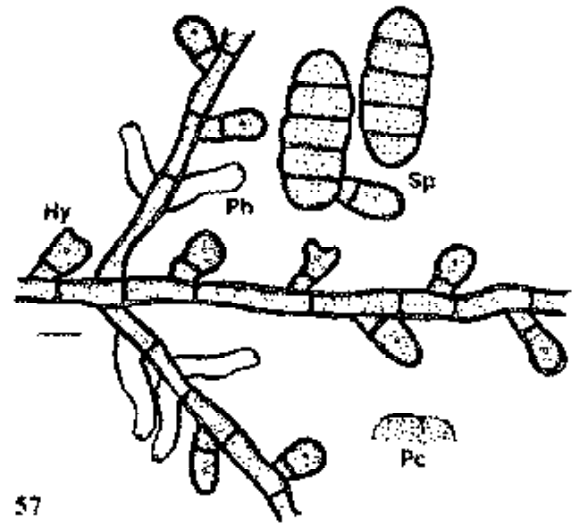
Meliola benguetensis (Stev. & Rold.) Cif., Mycopathologia 7: 87, 1954 (non Stev. & Rold., 1935).

Colonies amphigenous, mostly epiphyllous, subdense to dense, up to 4 mm diameter, rarely confluent. Hyphae straight to undulate, branching alternate at acute angles, loosely to closely reticulate, cells 24-32 x 6-10 μm . Hyphopodia alternate, antrorse, spreading, 30-38 μm long; stalk cells cylindrical to cuneate, 11-18 μm long; head cells globose, angulose, irregularly sublobate, 16-22 x 14-20 μm . Phialides mixed with hyphopodia and also borne on a separate mycelial branch, alternate, ampulliform, 20-26 x 8-10 μm . Perithecia scattered to aggregated, verrucose, up to 144 μm in diam.; perithecial setae 5-8, straight, spreading, dark-brown at base and pale brown at the apex, obtuse and mostly straight at the tip, up to 150 μm long and 8-10 μm thick; ascospores ellipsoidal, 4-septate, constricted, 38-44 x 16-28 μm .

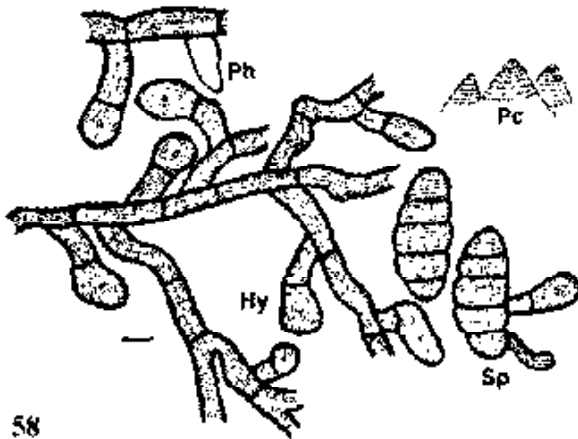
Materials examined: On leaves of *Ficus asperrima* Roxb. (Moraceae), Calvary Mount, Idukki, Kerala, October 12, 1982, V.B. Hosagoudar MH 73639; Idukki, Kerala, October 4, 1983, V.B. Hosagoudar MH 78155; *F. gibbosa* Blume, Calvary Mount, Idukki, Kerala, February 21, 1983, V.B. Hosagoudar MH 75890; Lakshmi Estate, Idukki, Kerala, December 25, 1983, V.B. Hosagoudar MH 79073, 79078; October 12, 1983, V.B. Hosagoudar MH 73639; October 4, 1983, V.B. Hosagoudar MH 78155; *F. hispida* L.f., Idukki, Kerala, October 11, 1983, V.B. Hosagoudar MH 78943; *F. exasperata* Vahl, near Sholayar dam, Valparai, Coimbatore, Tamil Nadu, December 29, 1990, V.B. Hosagoudar HCIO 30520; *F. tinctoria* Forst. f. ssp. *gibbosa* (Blume) Corner var. *cuspidifera* (Miq.) Chitra, Nedungundru, Velonie, Valparai, Coimbatore, Tamil Nadu, December 23, 1990, V.B. Hosagoudar HCIO 30521; *F. nervosa* Heyne ex Roth, Koomati, Anamalai, Coimbatore, Tamil Nadu, March 13, 1994, V.B. Hosagoudar HCIO 41576.



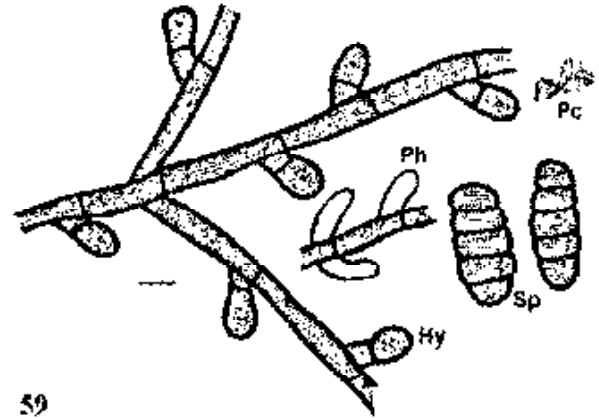
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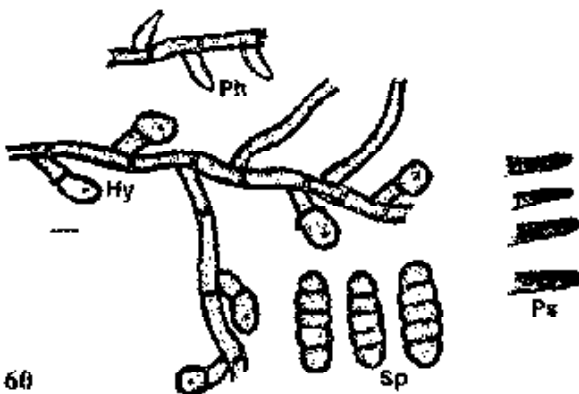
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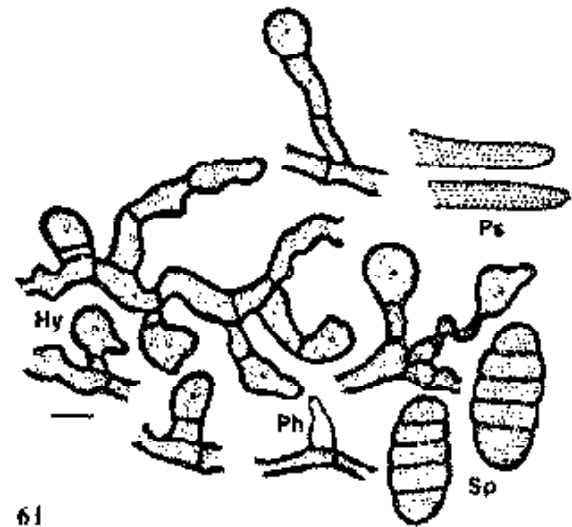
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56. *A. scolopiae* Hosag. 57. *A. vacciniicola* Hansf. 58. *A. vivekananthanii* Hosag.
59. *A. websteri* Hosag. 60. *Irenopsis benguetensis* Stev. & Rold. ex Hansf. 61. *I. chukrasiae* Hosag.

Distribution: India (Kerala, Tamil Nadu), China, Java, Philippines.

This is the only species of the genus *Irenopsis* known to occur on *Ficus* spp.

61. *Irenopsis chukrasiae* Hosag. in Hosag., Raghu & Pillai, Nova Hedwigia 58: 532, 1994.

Colonies hypophyllous, subdense to dense, strongly appressed to the leaf, up to 4 mm in diameter, rarely confluent. Hyphae substraight to crooked, branching alternate to irregular at acute angles, closely reticulate, cells 24-31 x 6-9.5 μm . Hyphopodia closely to distantly placed, alternate, straight, curved to flexuous, antrorse to recurved, 18-46.5 μm long; stalk cells cylindrical to cuneate, straight to flexuous, 1-3 celled, 6-34 μm long; head cells ovate, globose, angular to sublobate to deeply lobate, 9-15.5 x 12-18.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 21-25 x 5-7 μm . Perithecia scattered, verrucose, up to 210 μm in diam.; perithecial setae 5-12, erect to prostrate, simple, straight, acute to obtuse at the tip, bulbous at the base, up to 110 μm long; ascospores oblong, obovate, 4-septate, 40-46.5 x 15-18.5 μm .

Materials examined: On leaves of *Chukrasia tabularis* A. Juss. (Meliaceae), North to Pachaiyar Estate, Seithur Hills, Kamarajar dist., Tamil Nadu, September 9, 1992, V.B. Hosagoudar HCIO 40750 (type).

Distribution: India (Tamil Nadu).

62. *Irenopsis coimbatonica* V.B. Hosagoudar, C.M. Pillai et P.A. Raghu, sp. nov.

Coloniae epiphyllae, tenues vel subdensae, ad 2 mm diam., confluentes. Hyphae subrectae vel anfractuae, opposite acuteque vel laxe ramosae, laxe reticulatae, cellulae 15-46 x 6-8 μm . Hyphopodia alternata, ad 1% opposita, recta vel curvula, antrorsa vel patentia, 12-15.5 μm longa; cellula basali cylindracea vel cuneata, 3-6.5 μm longa; cellula apicali globosa, ovata, integra vel angularia, 9-10 x 8-9.5 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 15-18.5 x 9-10 μm . Perithecia dispersa, ad 100 μm diam.; setae peritheciales paucae, rectae vel curvulae, acutae vel obtusae ad apicem, nigrae ad basio et leniter brunneae ad apicem, ad 120 μm longae; ascosporae obovatae vel cylindraceae, 4-septatae, constrictae, 34-37.5 x 14-15.5 μm .

Colonies epiphyllous, thin to subdense, up to 2 mm in diameter, confluent. Hyphae substraight to crooked, branching opposite at acute to wide

angles, loosely reticulate, cells 15-46.5 x 6-8 μm . Hyphopodia alternate, about 1% opposite, straight to curved, antrorse to spreading, 12-15.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose, ovate, entire to angular, 9-10 x 8-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 9-10 μm . Perithecia scattered, up to 100 μm in diam.; perithecial setae very few, straight to curved, acute to obtuse at the apex, black at the base and pale to brown at the apex, up to 120 μm long; ascospores obovoidal to cylindrical, 4-septate, constricted at the septa, 34-37.5 x 14-15.5 μm .

Materials examined: On leaves of *Grewia* sp. (Tiliaceae), Coimbatore, Tamil Nadu, October 27, 1990, V.B. Hosagoudar HCIO 30988 (type).

Distribution: India (Tamil Nadu).

This species can be compared with *Meliola melanochaeta* Sydow but differs from it in having epiphyllous colonies, straight hyphae, scattered and acute to bi-dentate and smaller mycelial setae and ascospores.

63. *Irenopsis eriolaenae* Hosag. in Hosag. & Goos, Mycotaxon 36: 242, 1989.

Colonies epiphyllous, thin, scattered, up to 3 mm in diameter, confluent. Hyphae substraight to undulate, branching alternate to opposite at wide angles, loosely reticulate, cells 30-34 x 6-8 μm . Hyphopodia alternate to unilateral, straight, antrorse to spreading, 14-16 μm long; stalk cells cylindrical to cuneate, 4-5 μm long; head cells ovate, clavate, entire to slightly angular, 10-12 x 8-10 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 12-20 x 6-9 μm . Perithecia scattered, verrucose, up to 110 μm in diam.; perithecial setae 8-12, straight, simple, septate, olivaceous brown, acute to obtuse at the tip, up to 72 μm long and 6-8 μm broad; ascospores obovoidal, 4-septate, constricted, 32-38 x 10-14 μm .

Materials examined: On leaves of *Eriolaena quinquelocularis* (Wight & Arn.) Wight (Sterculiaceae), Idukki, Kerala, December 23, 1983, V.B. Hosagoudar HCIO 40487 (type); MH 79027 (isotype).

Distribution: India (Kerala).

The present species is close to *I. tjibodense* Hansf. recorded on *Pterospermum javanicum* Fungh. and *P. niveus* Vidal from Java and Philippines but differs from it in having smaller hyphopodia, perithecia and perithecial setae; absence of radiate exhyphopodiate mycelia below the perithecia, phialides mixed

with hyphopodia.

64. *Irenopsis helicteridis* Hosag., Crypt. Bot. 2/3: 184, 1991.

Colonies epiphyllous, dense, up to 2 mm in diameter. Hyphae tortuous, branching irregular at acute angles, closely to loosely reticulate, cells 24-40 x 6-9 μm . Hyphopodia alternate, straight to curved, antrorse, subantrorse to reflexed, 18-29 μm long; stalk cells cylindrical to cuneate, 3-15.5 μm long; head cells ovate, globose, versiform, angular, truncate to slightly lobate, 12-15.5 x 15.5-19 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 40-46.5 x 12-15.5 μm . Perithecia scattered, globose, up to 175 μm in diam.; perithecial setae 4-10, straight to curved, obtuse, up to 120 μm long; ascospores obovoidal, 4-septate, constricted, 31-40.5 x 12-15.5 μm .

Materials examined: On leaves of *Helicteres isora* L. (Sterculiaceae), Sri Madurai, Nilgiris, Tamil Nadu, January 25, 1990, V.B. Hosagoudar HCIO 30358 (type).

Distribution: India (Tamil Nadu).

65. *Irenopsis indica* (Anahosur) Hosag., J. Econ. Tax. Bot. 6: 250, 1985.
250, 1985.

Irene indica Anahosur, Sydowia 23: 58, 1970.

Colonies hypophyllous, subdense to dense, scattered, up to 3 mm in diameter. Hyphae crooked, branching irregular at acute to wide angles, loosely reticulate, cells 24-37 x 6-9.5 μm . Hyphopodia alternate, distantly arranged, straight to variously curved, 15-18.5 μm long; stalk cells cuneate to cylindrical, 3-6.5 μm long; head cells ovate, entire to angular, 9.5-12.5 x 12.5-15.5 μm . Phialides few, mixed with hyphopodia, alternate, ampulliform, 18.5-25 x 9-12.5 μm . Perithecia mostly grouped, up to 233 μm in diam.; perithecial setae 10-15, straight, simple, septate, acute to obtuse at the tip, 108-140 x 6-9.5 μm ; ascospores obovoidal, 4-septate, constricted, 40-43.5 x 18.5-22 μm .

Materials examined: On leaves of *Aphanamixis polystachya* (Wall.) Parker [*Amoora rohituka* (Roxb.) Wight & Arn.] (Meliaceae), Coorg, Karnataka, October 17, 1967, K.H. Anahosur AMH 620 (type).

Distribution: India (Karnataka).

66. *Irenopsis leae* Hansf. var. *indica* Hosag. in Hosag. & Goos, Mycotaxon 36:

243, 1989.

Colonies epiphyllous, very thin, up to 3 mm in diameter. Hyphae straight to undulate, branching opposite to alternate at wide angles, loosely reticulate, cells 18-28 x 6-8 μm . Hyphopodia scattered, alternate to unilateral, closely antrorse, 18-24 μm long; stalk cells cuneate, 6-10 μm long; head cells ovate, globose, entire to irregularly sublobate, 10-18 x 16-20 μm . Phialides numerous, mixed with hyphopodia, alternate to opposite, ampulliform, 16-22 x 8-10 μm . Perithecia scattered to grouped, verrucose, up to 150 μm in diam.; perithecial setae 3-8, straight to flexuous, spreading, dark at the base and paler towards the apex, tip obtuse, 84-150 x 8-10 μm ; ascospores obovoidal, 4-septate, constricted, 30-36 x 12-16 μm .

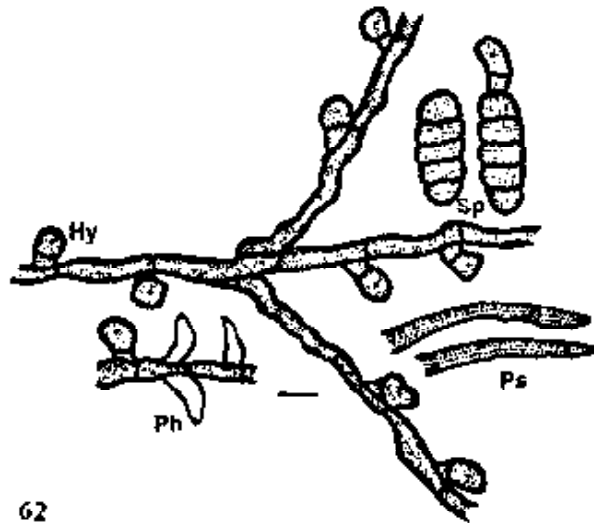
Materials examined: On leaves of *Leea indica* (Burm.f.) Merr. (Leeaceae), Kanchiar Forest, Idukki, Kerala, December 17, 1982, V.B. Hosagoudar HCIO 40488 (type); MH 75795 (isotype); Kanchiar forest, Idukki, Kerala, December 17, 1982, V.B. Hosagoudar MH 75795; Idukki, Kerala, December 23, 1983, V.B. Hosagoudar MH 79032; Reservoir side of Calvary Mount, Idukki, Kerala, December 24, 1983, V.B. Hosagoudar MH 79069; Lakshmi Estate, Idukki, Kerala, December 25, 1983, V.B. Hosagoudar MH 79088.

Distribution: India (Kerala).

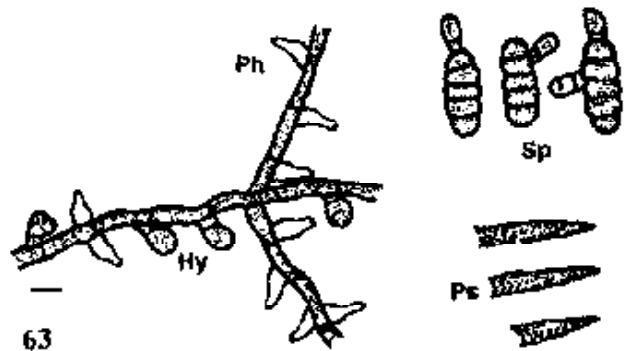
67. *Irenopsis leae* Hansf. var. *javensis* Hansf., Reinwardtia 3: 110, 1954; Sydowia Beih. 2: 370, 1961; Hosag., Nova Hedwigia 52: 499, 1991.

Colonies epiphyllous, dense, rarely amphigenous, up to 2 mm in diam., confluent. Hyphae straight, flexuous to slightly tortuous, branching alternate to irregular at acute angles, loosely reticulate, cells 18-25 x 6-9.5 μm . Hyphopodia alternate, mostly unilateral, about 1% opposite, antrorse, subantrorse to rarely reflexed, 18-25 μm long; stalk cells cylindrical to cuneate, 3-9.5 μm long; head cells globose, slightly and irregularly lobate, 13-15 x 12-15.5 μm . Phialides numerous, mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 9-12.5 μm . Perithecia scattered, up to 95 μm in diam.; perithecial setae straight to tortuous, often perpendicular to the host, obtuse at the tip, up to 80 μm long; ascospores obovoidal, slightly constricted at the septa, 4-septate, 30-37 x 13-15.5 μm .

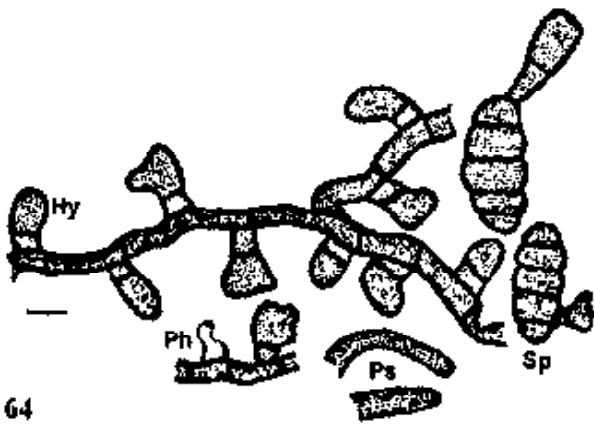
Materials examined: On leaves of *Leea indica* (Burm.f.) Merr. (Leeaceae), Koomati Settlement, near Sholayar Power Station-II, Valparai, Coimbatore, Tamil Nadu, March 28, 1990, V.B. Hosagoudar HCIO 30384.



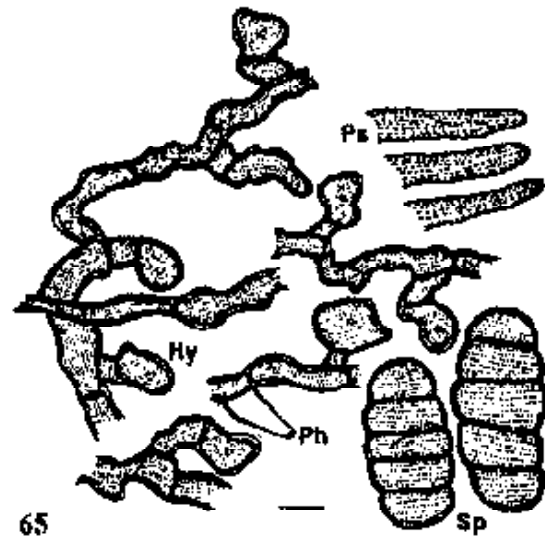
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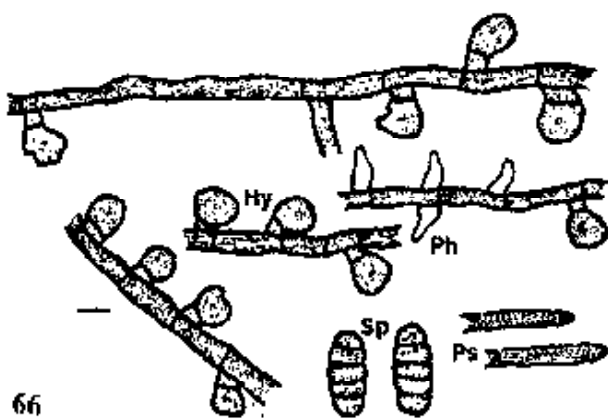
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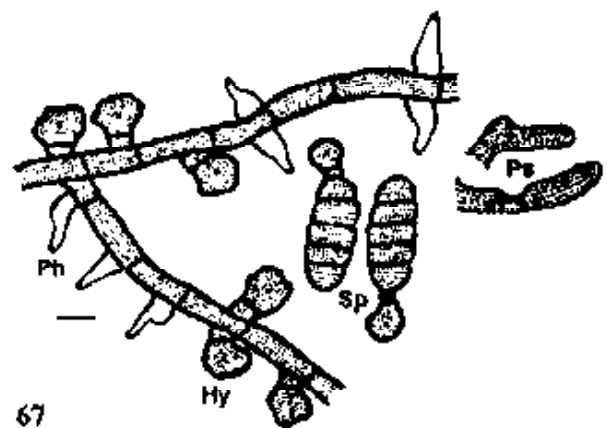
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62. *Irenopsis coimbatonica* Hosag. et al. 63. *I. eriolaenae* Hosag. 64. *I. helicteridis* Hosag. 65. *I. indica* (Anahosur) Hosag. 66. *I. leae* Hansf. var. *indica* Hosag. 67. *I. leae* Hansf. var. *javensis* Hansf.

Distribution: India (Tamil Nadu), Gold Coast, Uganda.

68. *Irenopsis mudumalaiensis* Hosag., *Crypt. Bot.* 2/3: 184, 1991 (*mudumalaiense*).

Colonies epiphyllous, subdense, up to 3 mm in diameter, confluent. Hyphae flexuous to tortuous, branching alternate to irregular at acute angles, loosely reticulate, cells 34-37 x 6-9.5 μm . Hyphopodia alternate, scattered, mostly antrorse, 15-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells globose, ovate, entire to slightly angulose, 9-15.5 x 12-15.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 18-28 x 6-9 μm . Perithecia scattered, verrucose, up to 140 μm in diam.; perithecial setae 4-10, straight to curved, dark, obtuse at apex, up to 110 μm long; ascospores obovoidal, mostly cylindrical, 4-septate, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Kydia calycina* Roxb. (Malvaceae), Sri Madurai, Nilgiris, Tamil Nadu, January 24, 1990, V.B. Hosagoudar HCIO 30359 (type).

Distribution: India (Tamil Nadu).

69. *Irenopsis mysorensis* Hansf. & Thirum., *Farlowia* 3: 287, 1948; Hansf., *Sydowia Beih.* 2: 95, 1961.

Colonies mostly epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae substraight to undulate, branching opposite at wide angles, closely reticulate, cells 20-24 x 6-8 μm . Hyphopodia alternate, usually straight, 15-22 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells globose to wide clavate, entire to slightly angulose, 10-15 x 10-14 μm . Phialides few, mixed with hyphopodia, opposite to alternate, conoid to ampulliform, 14-20 x 6-8 μm . Perithecia mostly grouped in the centre of the colony, up to 200 μm in diam.; perithecial setae 1-5, straight to flexuous, simple, obtuse, 40-60 x 4-7 μm ; ascospores oblong, 4-septate, constricted, 38-44 x 14-18 μm .

Type: On leaves of *Gnidia glauca* (Fresen.) Gilg [*Lasiosiphon eriocephalus* (Meisner) Decne] (Thymeliaceae), Teerthahalli, Karnataka, April 4, 1945, M.J. Thirumalachar HCIO 10855.

Materials examined: Material was not available.

Distribution: India (Karnataka).

70. *Irenopsis paulensis* Hansf., Proc. Linn. Soc. London 165: 167, 1955; Sydowia Beih. 2: 206, 1961; Hosag., Nova Hedwigia 52: 499, 1991.

Colonies epiphyllous, thin, minute, up to 3 mm in diameter. Hyphae straight to flexuous, branching alternate to opposite at wide angles, loosely reticulate, cells 33-43.5 x 4.5-6.5 μm . Hyphopodia alternate, distantly arranged, straight, antrorse to subantrorse, 12-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose, entire, 9-12.5 x 12-15.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-28 x 6-9 μm . Perithecia scattered, verrucose, up to 110 μm in diam.; perithecial setae 4-6, straight, obtuse at the apex, up to 80 μm long; ascospores obovoidal, 4-septate, 27-43.5 x 12-22 μm .

Materials examined: On leaves of *Croton* sp. (Euphorbiaceae), on the way to Nooradi Settlement, Valparai, Coimbatore, Tamil Nadu, March 24, 1990, V.B. Hosagoudar HCIO 30385; *C. zeylanicus* Muell.-Arg. Kutre-vetti, Tirunelveli, Tamil Nadu, February 25, 1994, V.B. Hosagoudar HCIO 41569.

Distribution: India (Tamil Nadu), Brazil.

71. *Irenopsis sidae* (Rehm) Hughes, Mycol. Pap. 48: 44, 1952; Hansf., Sydowia Beih. 2: 187, 1961; Hosag., Crypt. Bot. 2/3: 184, 1991.
Meliola sidae Rehm, Philippine J. Sci. 8: 391, 1913.

Colonies epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae substraight to flexuous, branching irregular at acute angles, closely reticulate, cells 15-46.5 x 6-9 μm . Hyphopodia alternate, about 5% opposite, antrorse to spreading, straight to curved, 15-22 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, angular, straight to curved, 9-12.5 x 8-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, 15-19 x 6-9.5 μm . Perithecia scattered, verrucose, up to 125 μm in diam.; perithecial setae 6-10, straight, acute to obtuse at the apex, black, up to 110 μm long; ascospores cylindrical, 4-septate, 34-37.5 x 12-15.5 μm .

Materials examined: On leaves of *Sida cordata* (Burm.f.) Borssum (Malvaceae), Sri Madurai, Nilgiris, Tamil Nadu, January 25, 1990, V.B. Hosagoudar HCIO 30360.

Distribution: India (Tamil Nadu), New Guinea, Philippines.

Irenopsis sidae Sawada & Yamamoto appears to be a taxonomic

synonym. In the present collection, about 5% of the hyphopodia are opposite and also perithecia and perithecial setae are smaller when compared to the species type.

72. *Irenopsis tenuissima* (Stev.) Stev. var. *major* Kar & Maity, *Sydowia* 24: 66, 1971.

Colonies epiphyllous, thin, up to 5 mm in diameter, confluent. Hyphae mostly straight, branching opposite at wide angles, loosely to closely reticulate, cells 37-40.5 x 6-8 μm . Hyphopodia alternate, straight, subantrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, entire, straight to rarely curved, 9-12.5 x 12-15.5 μm . Phialides mixed with hyphopodia, opposite to alternate, conoid to ampulliform, 12-15.5 x 7-9.5 μm . Perithecia scattered, up to 300 μm in diam.; perithecial setae straight, flexuous at the apical portion, simple, septate, obtuse at the tip, up to 165 μm long; ascospores obovoidal, 4-septate, constricted at the septa, 40-46.5 x 15-18.5 μm .

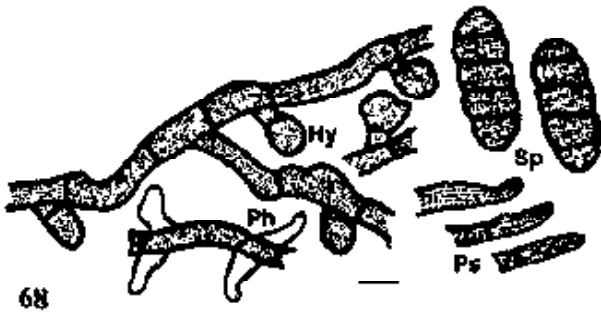
Materials examined: On leaves of *Gouania leptostachya* DC. (Rhamnaceae), Jalpaiguri, West Bengal, India, November 1, 1967, IMI 133539 (type).

Distribution: India (West Bengal).

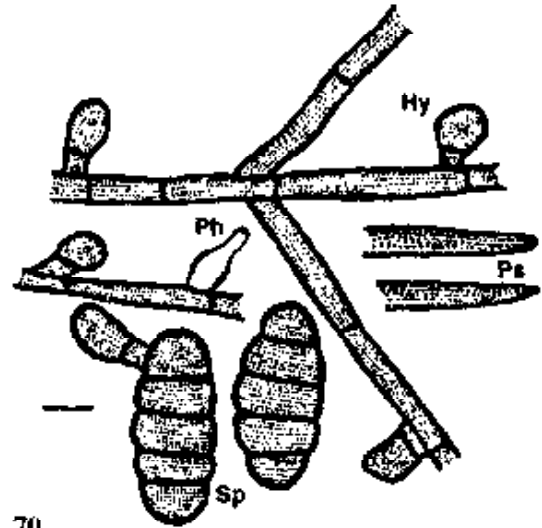
73. *Irenopsis thespesiae* Hansf., *Reinwardtia* 3: 91, 1954; *Sydowia Beih.* 2: 187, 1961; Hosag. & Goos 42: 128, 1991.

Colonies epiphyllous, thin to subdense, up to 2 mm in diameter, confluent. Hyphae straight to flexuous, branching mostly opposite at acute to wide angles, loosely reticulate, cells 18-25 x 6-8 μm . Hyphopodia alternate, about 1% opposite, straight to curved, mostly antrorse, 12-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose, entire to slightly angular, 9-12.5 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-20 x 5-8 μm . Perithecia scattered, up to 150 μm in diam.; perithecial setae 0-5, straight to flexuous, simple, acute to obtuse at the tip, up to 180 μm long; ascospores obovoidal, 4-septate, constricted at the septa, 32-36 x 12-15.5 μm .

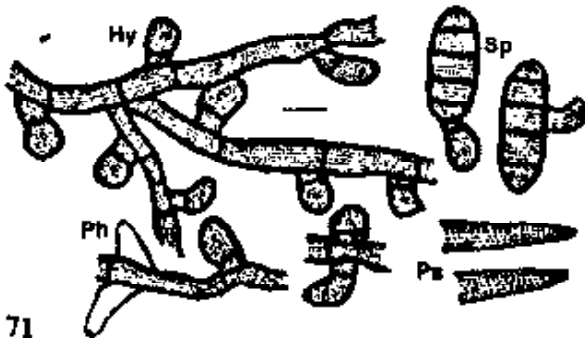
Materials examined: On leaves of *Thespesia lampas* (Cav.) Dalz. ex Dalz. & Gibs. (Malvaceae), Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30523.



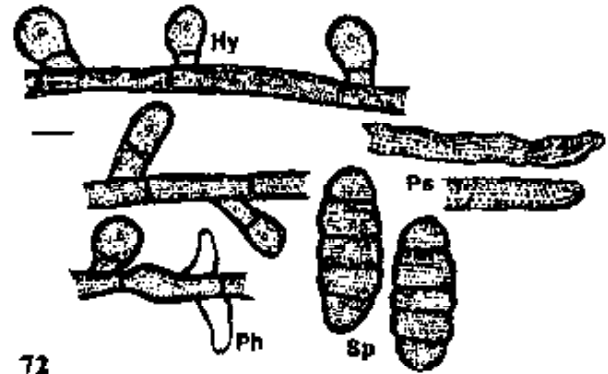
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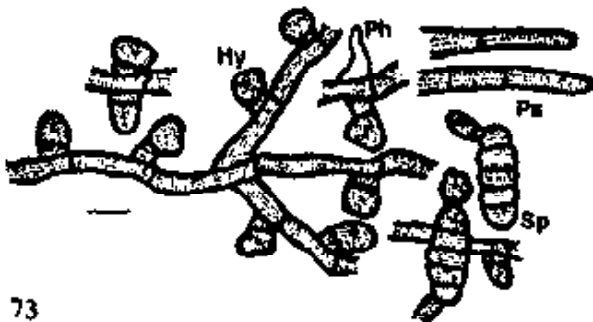
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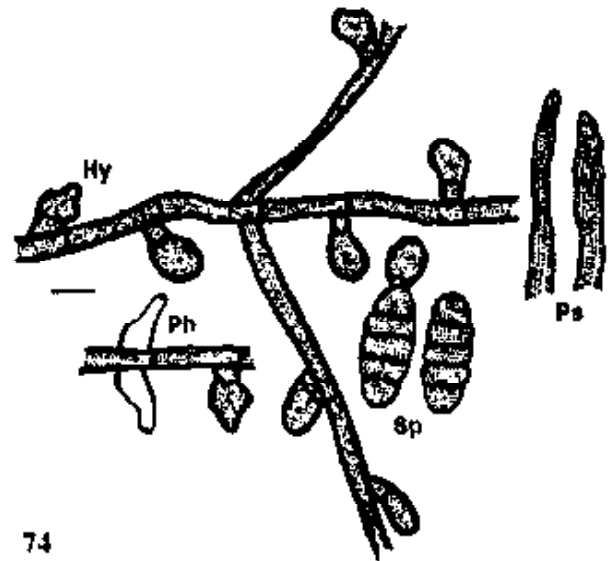
71



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74

68. *Irenopsis mudumalaiensis* Hosag. 70. *I. paulensis* Hansf. 71. *I. sidae* (Rehm) Hughes
 72. *I. tenuissima* (Stev.) Stev. var. *major* Kar & Maity 73. *I. thespesia* Hansf.
 74. *I. tjibodensis* Hansf.

Distribution: India (Tamil Nadu), Java.

74. *Irenopsis tjibodensis* Hansf., Reinwardtia 3: 106, 1954; Sydowia Beih. 2: 176, 1961; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 110, 1994.

Colonies epiphyllous, thin, up to 6 mm in diameter. Hyphae substraight to rarely crooked, branching opposite to irregular at acute angles, loosely reticulate, cells 24-31 x 5-6.5 μm . Hyphopodia alternate, antrorse, straight to rarely curved, 18-26 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells globose to ovoid, entire to angular, 12-15.5 x 12-14 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 12-18.5 x 6-8 μm . Perithecia scattered, seated on loosely reticulate exhyphopodiate mycelia, up to 120 μm in diam.; perithecial setae very few, straight to slightly flexuous, dark, tip obtuse, up to 120 μm long; ascospores obovoidal, 4-septate, slightly constricted, 31-34.5 x 12-15.5 μm .

Materials examined: On leaves of *Pterospermum diversifolium* Blume (Sterculiaceae), Gersoppa, Uttara Kannada, Karnataka, October 22, 1992, P.A. Raghu HCIO 40862.

Distribution: India (Karnataka), Java, Philippines.

75. *Irenopsis triumfettae* (Stev.) Hansf. & Deight., Mycol. Pap. 23: 14, 1948; Hansf., Reinwardtia 3: 107, 1954; Sydowia Beih. 2: 368, 1961; Hosag. & Goos, Mycotaxon 36: 244, 1989; 42: 128, 1991.

Meliola triumfettae Stev., Illinois Biol. Monogr. 2: 30, 1916; Deighton, Mycol. Pap. 9: 17, 1944.

Irenopsis coronata (Speg.) Stev. var. *triumfettae* (Stev.) Stev., Ann. Mycol. 25: 435, 1927; Stev. & Rold., Philippine J. Sci. 56: 51, 1933.

Meliola coronata Speg. var. *triumfettae* (Stev.) Cif., Mycopathologia 8: 117, 1954.

Irenopsis molleriana sensu Kapoor, Indian Phytopathol. 20: 151, 1967.

Colonies amphigenous, mostly epiphyllous, subdense, scattered, up to 3 mm in diameter, rarely confluent. Hyphae undulate to tortuous, branching opposite to alternate at wide angles, loosely to closely reticulate, cells 15-20 x 6-8 μm . Hyphopodia alternate, mostly straight, antrorse, 18-22 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells globose, entire to sublobate, 12-16 x 12-14 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-20 x 6-8 μm . Perithecia scattered to aggregated, up to 207 μm

in diam.; perithecial setae 6-8, straight, spreading, continuous, curved or uncinatate at the apex, apex obtuse, 99-144 x 6-8 μm ; ascospores ellipsoidal, 4-septate, constricted, 36-44 x 12-16 μm .

Materials examined: On leaves of *Triumfetta bartramia* L. (Tiliaceae), Sribadam, Sikkim, April 7, 1962, J.N. Kapoor HClO 18362; *T. pilosa* Roth, Lakshmi Estate, Idukki, Kerala, December 14, 1982, V.B. Hosagoudar MH 75746; Calvary Mount, Idukki, Kerala, December 15, 1982, V.B. Hosagoudar MH 75779; December 28, 1983, V.B. Hosagoudar MH 80322; Lakshmi Estate, Idukki, Kerala, October 6, 1983, V.B. Hosagoudar MH 78175, 78176; *T. rhomboidea* Jacq., Pamba, Kerala, October 10, 1983, V.B. Hosagoudar MH 78933; near Sholayar dam, Valparai, Coimbatore, Tamil Nadu, December 25, 1990, V.B. Hosagoudar HClO 30524, 30525.

Distribution: India (Kerala, Sikkim, Tamil Nadu), Jamaica, Java, Panama, Porto Rico, Trinidad.

76. *Irenopsis xanthophylli* Hosag. in Hosag. & Goos, Mycotaxon 42: 128, 1991.

Colonies epiphyllous, dense, crustose, up to 3 mm in diameter. Hyphae straight, substraight to slightly crooked, branching mostly opposite at acute to wide angles, loosely to closely reticulate, cells 18-25 x 6-9.5 μm . Hyphopodia alternate, antrorse to subantrorse, straight to curved, 21-31 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells globose, ovate, entire to irregularly sublobate, 15-18.5 x 14-18 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15-21 x 9-12.5 μm . Perithecia scattered, globose, up to 155 μm in diam.; perithecial setae 10-12, straight, black, slightly flexuous at the apical portion, obtuse at the tip, up to 155 μm long; perithecial cells protruding, conoid, up to 12 μm long; ascospores obovoidal, 4-septate, slightly constricted at the septa, 34-43.5 x 12-18.5 μm .

Materials examined: On leaves of *Xanthophyllum flavescens* Roxb. (Xanthophyllaceae), Koomati, Valparai, Coimbatore, Tamil Nadu, December 28, 1990, V.B. Hosagoudar HClO 30526 (type).

Distribution: India (Tamil Nadu).

GENUS MELIOLA

Meliola Fr. emend Bornet, Ann. Sci. Nat. III: 16: 267, 1851; Theissen & Sydow,

Ann. Mycol. 15: 441, 1917; Toro, J. Agric. Univ. Porto Rico 36: 56, 1952; Hansf., Sydowia Beih. 2: 25, 1961.

Meliola Fr., Syst. Orb. Veg. 1825, p.p. 111.

Amphitrichum Fr., Syst. Mys. 2: 513, 1823, Pro parte

Myxothecium Kunze ex Fr., Syst. Mycol. 3: 232, 1829

Couturea Cast. in Fr., Summ. Veg. Sand., 1846, p. 407.

Asteridium Sacc., Syll. Fung. 1: 49, 1882.

Mycelium superficial, brown, septate, branched, hyphopodiate. Perithecia borne on the mycelia, globose, non-ostiolate. Mycelial setae present but lacks perithecial appendages and setae. Asci 2-4 spored, evanescent; ascospores brown, 3-4 septate.

Lectotype: *M. trichostroma* (Kunze) Toro.

77. *Meliola acanthacearum* Hansf. var. *occidentalis* Hansf., Sydowia 11: 50, 1957; Sydowia Beih. 2: 681, 1961; Hosag. & Goos, Mycotaxon 37: 218, 1990.

Meliola blepharidis Thite & Patil, Geophytology 15: 82, 1986.

Colonies amphigenous, mostly epiphyllous, dense, scattered, up to 2 mm in diameter, rarely confluent. Hyphae mostly straight, branching mostly opposite at acute angles, closely reticulate, often form dense mycelial mat, cells 10-16 x 8-10 μ m. Hyphopodia alternate, closely arranged, closely antrorse, 18-26 μ m long; stalk cells cuneate, 6-10 μ m long; head cells ovate, entire, attenuated at the apex, 10-16 x 8-10 μ m. Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 16-22 x 8-10 μ m. Mycelial setae few, scattered to grouped around perithecia, simple, straight, acute to obtuse at the tip, up to 360 μ m long. Perithecia scattered to grouped, verrucose, up to 190 μ m in diam.; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 32-36 x 14-19 μ m.

Materials examined: On leaves of *Dicliptera foetida* (Forssk.) Blattcr (*D. zeylanica* Nees) (Acanthaceae), Amboli, Sindhudurg, Maharashtra, December 2, 1978, M.S. Patil HCIO 36744; *Blepharis asperima* Nees (Acanthaceae), Anmode, Maharashtra, October 1976, A.N. Thite HCIO 36390 (type of *M. blepharidis*); *Rungia sisparensis* T. And. (Acanthaceae), Kanchiar forest, Idukki, Kerala, December 29, 1983, V.B. Hosagoudar HCIO 40491.

Distribution: India (Kerala, Maharashtra), Jamaica, Porto Rico.

Closely arranged hyphopodia with apically attenuated head cells are the

distinct characters of this taxon.

78. *Meliola aequatoriensis* Petrak, Sydowia 2: 339, 1948; Hansf., Sydowia Beih. 2: 613, 1961; Hosag., Nova Hedwigia 52: 500, 1991.

Colonies epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae straight, flexuous to slightly crooked, branching irregular at acute angles, loosely to closely reticulate, cells 34-43.5 x 4-6.5 μm . Hyphopodia alternate, closely antrorse to antrorse, straight to curved, 21-25 μm long; stalk cells cylindrical to cuneate, 5-6.5 μm long; head cells ovate, versiform, globose, entire, angular to slightly lobate, 15-18.5 x 12-15.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 18-25 x 12-15.5 μm . Mycelial setae few, grouped around perithecia, straight to curved at the apex, acute to obtuse at the tip, up to 260 μm long. Perithecia scattered, globose, up to 125 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 34-41 x 15-18.5 μm .

Materials examined: On leaves of *Viburnum punctatum* Buch.-Ham. ex D. Don (Caprifoliaceae), M.K. Vayal, Kanniyakumari, Tamil Nadu, August 6, 1977, A.N. Henry HCIO 30386; Veerapuli Reserve Forest, Kanniyakumari, Tamil Nadu, February 22, 1994, V.B. Hosagoudar HCIO 41602.

Distribution: India (Tamil Nadu), Ecuador, Malaya.

79. *Meliola aethiops* Sacc. var. *cassiae* Rao, Mycopath. Mycol. Appl. 33: 163, 1967.

Colonies epiphyllous, thin, confluent. Hyphae sinuous, branching at acute angles, loosely reticulate, cells 6-7.5 μm wide. Hyphopodia alternate and rarely opposite, straight to curved, 12-13 μm long and 9-12 μm wide. Phialides mixed with hyphopodia, opposite, ampulliform, 15-24 x 7-9 μm . Mycelial setae scattered to grouped around perithecia, straight, simple, acute and torulose near the apex, up to 340 μm long. Perithecia scattered, up to 187 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 34-42 x 12-16.5 μm .

Type: On leaves of *Cassia fistula* L. (Caesalpiniaceae), Pakhal forest, Andhra Pradesh, November 24, 1962, P.N. Rao, O.U.B. 181.

Materials examined: Material was not available.

Distribution: India (Andhra Pradesh).

80. *Meliola aethiops* Sacc. var. *longiseta* Deight, *Sydowia* 11: 98, 1958; Hansf., *Sydowia Beih.* 2: 261, 1961.

Colonies amphigenous, mostly epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae straight to flexuous, branching opposite at wide angles, loosely to closely reticulate, cells 21-28 x 4.5-6.5 μm . Hyphopodia alternate and about 5% opposite, straight to curved, antrorse to spreading, 12-22 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, globose, entire, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, 21-31 x 9-12.5 μm . Mycelial setae fairly numerous, straight to curved, not uncinata, simple, acute to obtuse, up to 310 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, slightly constricted, 34-37.5 x 12-15.5 μm .

Materials examined: On leaves of *Mimosa intsia* L. (*M. rubicaulis* Lam.) (Mimosaceae), Boluhati, Howrah, West Bengal, December 1977, M.K. Maity IMI 224604.

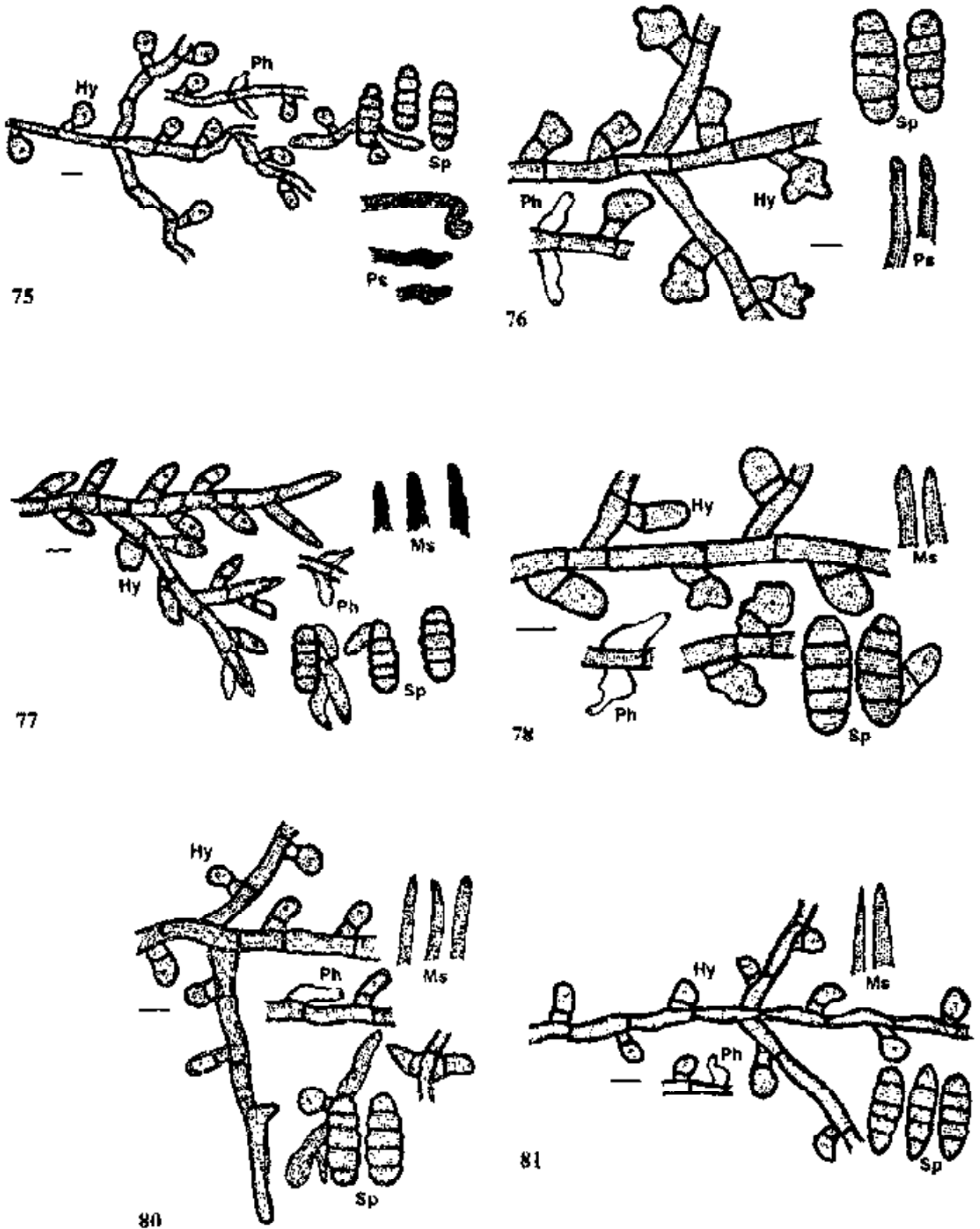
Distribution: India (West Bengal), Sierra Leone.

The Indian collection slightly varies in having smaller perithecia and ascospores.

81. *Meliola aethiops* Sacc. var. *moullavae* Hosag. & Raghu in Hosag., Raghu & Pillai, *Nova Hedwigia* 58: 533, 1994.

Colonies epiphyllous, thin to dense, up to 2 mm in diameter, confluent. Hyphae straight to flexuous, branching opposite to irregular at acute angles, loosely reticulate, cells 21-25 x 5-7 μm . Hyphopodia alternate, 10% opposite, straight to rarely curved, subantrorse, 15-17 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm ; head cells ovate, globose, entire to angular, 9-12.5 x 8-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 9-12.5 μm . Mycelial setae grouped around perithecia, straight, simple, acute, up to 286 μm long. Perithecia scattered, verrucose, up to 124 μm in diam.; ascospores obovoidal to slightly fusiform, 4-septate, slightly to deeply constricted, 31-34.5 x 9-12.5 μm .

Materials examined: On leaves of *Moullava spicata* (Dalz.) Nicolson (Caesalpinaceae), Gersoppa, Uttara Kannada, Karnataka, September 24, 1992, P.A. Raghu HCIO 40751 (type).



75. *Irenopsis triumfettae* (Stev.) Hansf. & Deight. 76. *I. xanthophylli* Hosag. 77. *Meliola acanthacearum* Hansf. var. *occidentalis* Hansf. 78. *M. aequatoriensis* Petrak 80. *M. aethiops* Sacc. var. *longiseta* Deight. 81. *M. aethiops* Sacc. var. *moullavae* Hosag. & Raghu

Distribution: India (Karnataka).

82. *Meliola affinis* Sydow var. *indica* Hosag., Nova Hedwigia 47: 538, 1988.

Colonies hypophyllous, very thin, up to 5 mm in diameter, confluent. Hyphae substraight to undulate, branching opposite to irregular at wide angles, loosely reticulate, cells 21-31 x 6-8 μm . Hyphopodia alternate, rather distantly arranged, straight to curved, mostly antrorse, 15-22 μm long; stalk cells cuneate, 9-12.5 μm long; head cells ovate, pointed towards the apex with broadly rounded ends, entire, 9-12.5 x 6-9.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 21-25 x 6-9.5 μm . Mycelial setae grouped around perithecia, straight, simple, acute, up to 630 μm long. Perithecia scattered, verrucose, up to 120 μm in diam.; ascospores obovoidal, 4-septate, constricted, 37-40.5 x 15-18 μm .

Materials examined: On leaves of *Memecylon edule* - Roxb. (Melastomataceae), Dharmasthala, Karnataka, August 24, 1987, S. Manian HCIO 39392 (type); MH 82160 (isotype).

Distribution: India (Karnataka).

83. *Meliola africana* Hansf., Sydowia 10: 62, 1957; Beih. 2: 593, 1961; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 110, 1994.

Colonies amphigenous, densely velvety, up to 2 mm in diameter, confluent. Hyphae substraight to flexuous, branching opposite to irregular at acute to wide angles, loosely reticulate, cells 18-37.5 x 8-9.5 μm . Hyphopodia alternate, closely antrorse to spreading, 21-31 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells ovoid, oblong, entire, 12-18.5 x 12-15.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform or conoid, 15-18.5 x 9-11 μm . Mycelial setae densely scattered, simple, straight, acute to obtuse at tip, up to 520 μm long. Perithecia scattered, verrucose, up to 186 μm in diam.; ascospores cylindrical to slightly ellipsoidal, 4-septate, constricted, 34-40.5 x 12-18.5 μm .

Materials examined: On leaves of *Canthium angustifolium* Roxb.

(Rubiaceae), Gersoppa, Uttara Kannada, Karnataka, October 24, 1992, P.A. Raghu HCIO 40863.

Distribution: India (Karnataka), Java, Sierra Leone, Uganda.

Both *Meliola africana* Hansf. and *M. longiseta* Hoehnel come under the Beeli formula 3111. 4223. The former species differs from the latter in having entire head cells of the hyphopodia and in having phialides borne on a separate mycelial branch.

84. *Meliola aglaicola* Hansf., Reinwardtia 3: 92, 1954; Sydowia Beih. 2: 419, 1961; Hosag. & Goos, Mycotaxon 37: 218. 1990.

Colonies epiphyllous, diffused to dense, up to 5 mm in diameter, confluent. Hyphae straight to slightly undulate, branching opposite, rarely alternate to irregular at acute to wide angles, loosely to closely reticulate, cells 16-22 x 6-8 μm . Hyphopodia alternate, straight to slightly curved, antrorse to spreading, 14-16 μm long; head cells globose, ovate, versiform, entire, 10-12 x 8-9 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-24 x 6-12 μm . Mycelial setae few, scattered to grouped around perithecia, straight, simple, acute to obtuse at the tip, up to 252 μm long. Perithecia scattered, verrucose, up to 130 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 32-36 x 14-16 μm .

Materials examined: On leaves of *Aglaia minutiflora* Bedd. (Meliaceae), Pamba, Kerala, October 12, 1983, Hosagoudar MH 78955; HCIO 40492.

Distribution: India (Kerala), Borneo.

85. *Meliola agumbensis* (Subhedar & Rao) Hosag., Indian Bot. Repr. 7: 58, 1988.

Irenopsis agumbensis Subhedar & Rao, J. Univ. Poona Sci. Techn. 50: 26, 1977.

Colonies hypophyllous, amphigenous, scattered, subdense to dense, up to 3 mm in diameter, rarely confluent. Hyphae substraight, undulate to crooked, branching opposite at wide angles, loosely reticulate, cells 31-40.5 x 6-9.5 μm . Hyphopodia alternate, unilateral, straight, antrorse to spreading, 18.5-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate to globose, entire to angular, 12-15.5 μm . Phialides borne on a separate mycelial branch, alternate, ampulliform, 15.5-18.5 x 9-12 μm . Mycelial setae few, scattered, straight, simple, acute to obtuse, up to 430 μm long. Perithecia few, scattered, up to 155 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, slightly constricted, 40-46.5 x 12-15.5 μm .

Materials examined: On leaves of *Rourea praineana* Talbot

(Connaraceae), Agumbe, Karnataka, December 16, 1974, A.M. Subhedar AMH 2730 (type); *Connarus monocarpus* L. (Connaraceae), Radhanagari, Kolhapur, Maharashtra, January 21, 1975, M.S. Patil HCIO 31941.

Distribution: India (Karnataka, Maharashtra).

86. *Meliola ailanthi* Sharma, Mohanan & Florence, Kerala Forest Research Institute Report 36: 248, 1985 (*ailanthii*) emend. Hosag. in Hosag., Raghu & Pillai, Nova Hedwigia 58: 524, 1994.

Colonies epiphyllous, scattered, dense, velvety, up to 2 mm in diameter. Hyphae straight, rarely substraight, branching mostly opposite at acute angles, loosely to closely reticulate, cells 24-31 x 5-7 μm . Hyphopodia alternate, straight, antrorse, 15-22 μm long; stalk cells cylindrical to cuneate, 5-7 μm long; head cells ovate to cylindrical, entire, 10-15.5 x 9-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 9-12.5 μm . Mycelial setae numerous, straight to slightly curved but not uncinata, simple, acute to 2-3 dentate at the tip, up to 260 μm long. Perithecia scattered to loosely grouped, verrucose, up to 172 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 37-40.5 x 13-15.5 μm .

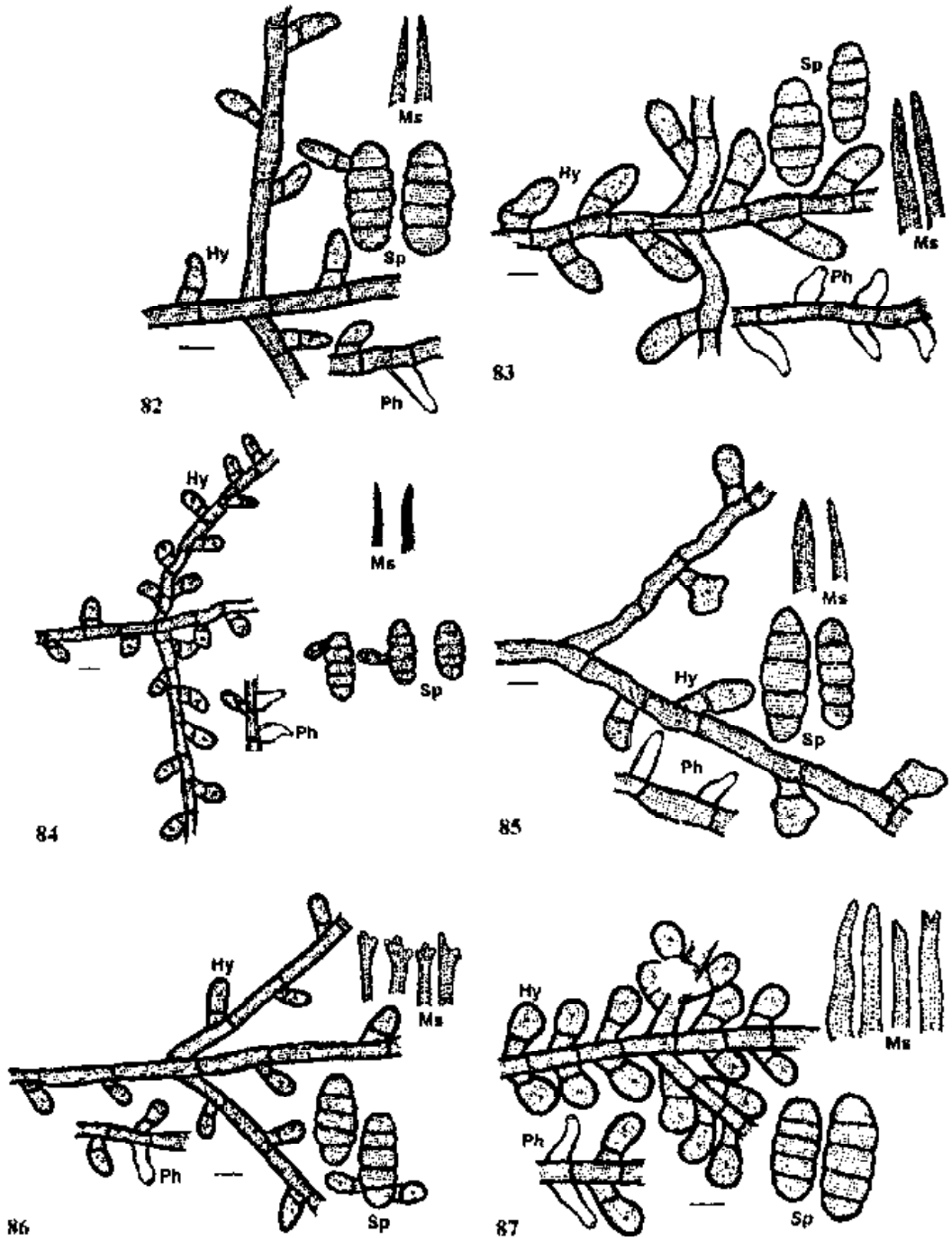
Materials examined: On leaves of *Ailanthus triphyssa* (Dennst.) Alston (Simaroubaceae), Vettiyar, Mavelikara, Kerala, India, September 14, 1992, C.M. Pillai HCIO 40752.

Distribution: India (Kerala).

87. *Meliola allophyli-concanici* Hosag. in Hosag., Raghu & Pillai, Nova Hedwigia 58: 535, 1994.

Colonies epiphyllous, scattered, dense, up to 2 mm in diameter. Hyphae straight, branching opposite at acute angles, loosely to closely reticulate, cells 15-22 x 9-11 μm . Hyphopodia opposite, antrorse to subantrorse, rarely recurved, 18-22 μm long; stalk cells cuneate, 6-7 μm long; head cells globose, rarely cylindrical, entire, 12-15.5 x 12-14 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 9-11 μm . Mycelial setae grouped around perithecia, simple, straight, acute, obtuse to dentate at the tip, up to 550 μm long. Perithecia scattered to loosely grouped, verrucose, up to 155 μm in diam.; ascospores obovoidal, 4-septate, constricted, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Allophyllus concanicus* Radlk. var.



82. *Meliola affinis* Sydow var. *indica* Hosag. 83. *M. africana* Hansf. 84. *M. aglaicola* Hansf. 85. *M. agumbensis* (Subhedar & Rao) Hosag. 86. *M. ailanthi* Sharma et al. emend. Hosag. 87. *M. allophyli-concanici* Hosag.

lanceolatus Gamble (Sapindaceae), North to Pachaiyar estate, Seithur hills, Kamarajar dist., Tamil Nadu, October 9, 1992, V.B. Hosagoudar HCIO 40753 (type); Valve House, Kanniyakumari, Tamil Nadu, February 28, 1994, V.B. Hosagoudar HCIO 41578.

Distribution: India (Tamil Nadu).

88. *Meliola alstoniae* Koord., Verh. Kon. Ned. Akad. Wetensch., Afd. Natuurk., Tweede sect. 13: 170, 1907; Hansf., Sydowia Beih. 2: 556, 1961; Thite & Kulkarni, J. Shivaji Univ.(Sci.) 18: 211, 1978; Hosag. & Goos, Mycotaxon 37: 218, 1990; 42: 129, 1991.

Meliola alstonicola Hansf., Recueil I.N.E.A.C. 2: 35, 1945.

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 4 mm in diameter, confluent. Sometimes colonies alone on lower surface cause yellow lesions around the colonies. Hyphae on upper surface of the leaves substraight, branching opposite at acute angles, loosely reticulate, cells 18-40 x 6-7 μm . Hyphae on the lower surface of the leaves strongly adherent and crooked. Hyphopodia (both on epiphyllous and hypophyllous colonies) alternate, straight, spreading to antrorse, 16-24 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells ovate, angular, entire to sublobate, 12-16 x 8-10 μm . Phialides borne on a separate mycelial branch, opposite to alternate, ampulliform, 13-18 x 6-8 μm . Mycelial setae fairly numerous, scattered to grouped around perithecia, straight, simple, acute at the tip, up to 441 μm long. Perithecia scattered, verrucose, up to 207 μm in diam.; ascospores oblong, 4-septate, slightly constricted, 34-40 x 12-18 μm .

Materials examined: On leaves of *Alstonia scholaris* (L.) R. Br. (Apocynaceae), Lakshmi Estate, Idukki, Kerala, December 15, 1982, V.B. Hosagoudar HCIO 40493; Sundarankudi, Valparai, Coimbatore, Tamil Nadu, October 28, 1990, V.B. Hosagoudar HCIO 30527.

Distribution: India (Kerala, Maharashtra, Tamil Nadu), Congo Belge, Gold Coast, Java, Philippines, Sierra Leone.

89. *Meliola altissimae* Hosag. in Hosag. & Goos, Mycotaxon 42: 129, 1991; Hosag., Raghu & Pillai, Nova Hedwigia 58: 536, 1994.

Colonies caulicolous, epiphyllous, dense, up to 2 mm in diameter, often confluent and covering the entire adaxial leaf surface. Hyphae straight to slightly

flexuous, branching mostly opposite at acute angles, loosely reticulate, cells 34-40.5 x 6-8 μm . Hyphopodia alternate, antrorse, straight to curved, 15-18.5 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, globose, pyriform, entire, 9-12.5 x 12-15.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-25 x 6-8 μm . Mycelial setae mostly grouped around perithecia, simple, straight, obtuse at the apex, up to 360 μm long. Perithecia scattered, up to 124 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 31-34 x 12-14 μm .

Materials examined: On leaves and petioles of *Vitex altissima* L. (Verbenaceae), Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30528 (type); Tellicherry, Kerala, December 1977, L.N. Nair HCIO 33810.

Distribution: India (Karnataka, Kerala, Tamil Nadu).

90. *Meliola anacardii* Zimm., Centralbl. f. Bakt. Abt. 28: 151, 1902; Hansf., Sydowia Beih. 2: 462, 1961; Hosag., Raghu & Pillai, Nova Hedwigia 58: 536, 1994.

Meliola anacardii Zimm. var. *minor* Hansf., Proc. Linn. Soc. London 160: 127, 1948.

Colonies epiphyllous, dense, velvety, up to 3 mm in diameter, confluent. Hyphae straight to substraight, branching alternate to opposite at acute to subacute angles, loosely reticulate, cells 21-30 x 5-7 μm . Hyphopodia alternate, antrorse to subantrorse, mostly straight, 15-18.5 μm long; stalk cells cuneate, 3-6.5 μm long; head cells ovate, attenuate at the apex, entire, 12-15.5 x 6-8 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, neck elongated, 24-28 x 9-12.5 μm . Mycelial setae scattered, simple, straight, acute, obtuse to dentate at the tip, up to 450 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores broadly ovoid to obovoid, 4-septate, slightly constricted, 43-46.5 x 20-22 μm .

Materials examined: On leaves of *Anacardium occidentale* L. (Anacardiaceae), Vettiyyar, Mavelikara, Kerala, September 24, 1992, C.M. Pillai HCIO 40755.

Distribution: India (Kerala), British Guiana, Costa Rica, Java, Malaya, Philippines, San Domingo.

91. *Meliola anceps* Sydow & Sydow, Ann. Mycol. 14: 76, 1916; Stev., Ann.

Mycol. 28: 205, 1928; Hansf., Sydowia Beih. 2: 586, 1961; Hosag. & Goos, Mycotaxon 37: 218, 1990.

Meliola makilingiana Sydow & Sydow, Ann. Mycol. 15: 188, 1917.

Meliola mussaendae Sydow & Sydow, Ann. Mycol. 15: 190, 1917.

Colonies epiphyllous, thin, up to 2 mm in diameter, rarely confluent. Hyphae substraight to undulate, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 24-56 x 4-8 μm . Hyphopodia densely arranged, alternate to unilateral, closely antrorse, 18-24 μm long; stalk cells cylindrical to cuneate, 6-12 μm long; head cells ovate, globose, slightly angular, entire, 10-14 x 8-10 μm . Phialides mixed with hyphopodia, opposite to irregularly placed, ampulliform, 12-24 x 6-10 μm . Mycelial setae scattered to grouped around perithecia, straight to curved but not uncinata, simple, bluntly rounded to bifid, often show knobs in the middle, up to 288 μm long. Perithecia scattered, up to 130 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 28-32 x 10-12 μm .

Materials examined: On leaves of *Mussaenda belilla* Buch.-Ham. (*M. laxa* Hook.f.) Hutch. ex Gamble (Rubiaceae), Idukki, Kerala, October 8, 1983, V.B. Hosagoudar HCIO 40494; MH 78906; December 23, 1983, V.B. Hosagoudar MH 79030.

Distribution: India (Kerala), Costa Rica, Malaya, Philippines, Venezuela.

92. *Meliola ancistrocladi* Hosag. in Hosag. & Goos, Mycotaxon 37: 218, 1990.

Colonies hypophyllous, rarely epiphyllous, dense, up to 10 mm in diameter, confluent. Hyphae substraight to undulate branching mostly opposite at acute to wide angles, loosely reticulate, cells 16-20 x 3-7 μm . Hyphopodia alternate to 10% opposite, straight to curved, antrorse to spreading, 13-20 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate to globose, entire, 10-13 μm in diam. Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 16.5-26.5 x 10-13 μm . Mycelial setae fairly numerous, equally scattered, straight to flexuous, simple, acute to obtuse at the tip, up to 291 μm long. Perithecia few, scattered, up to 165 μm in diam.; ascospores obovate, constricted, 33-36.5 x 13-15 μm .

Materials examined: On leaves of *Ancistrocladus heyneanus* Wall. ex Grah. (Ancistrocladaceae), Idukki, Kerala, October 2, 1983, V.B. Hosagoudar HCIO 40495 (type).

Distribution: India (Kerala).

93. *Meliola angiopteridis* Hansf. var. *indica* Hosag. in Hosag. & Goos, Mycotaxon 37: 219, 1990.

Colonies hypophyllous, thin, up to 5 mm in diameter, confluent. Hyphae straight to undulate, branching opposite to irregular at wide angles, loosely reticulate, cells 20-30 x 6-8 μm . Hyphopodia alternate to unilateral, scattered, antrorse to reflexed, straight to curved, 14-20 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells ovate, entire, often curved, 10-14 x 10-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 20-26 x 6-8 μm . Mycelial setae straight, simple, acute at the tip, up to 460 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 36-40 x 12-16 μm .

Materials examined: On leaves of *Angiopteris evecta* (Forst.) Hoff. (Angiopteridaceae), Idukki, Kerala, February 20, 1984, B. Rajeevan HCIO 40498 (Type).

Distribution: India (Kerala).

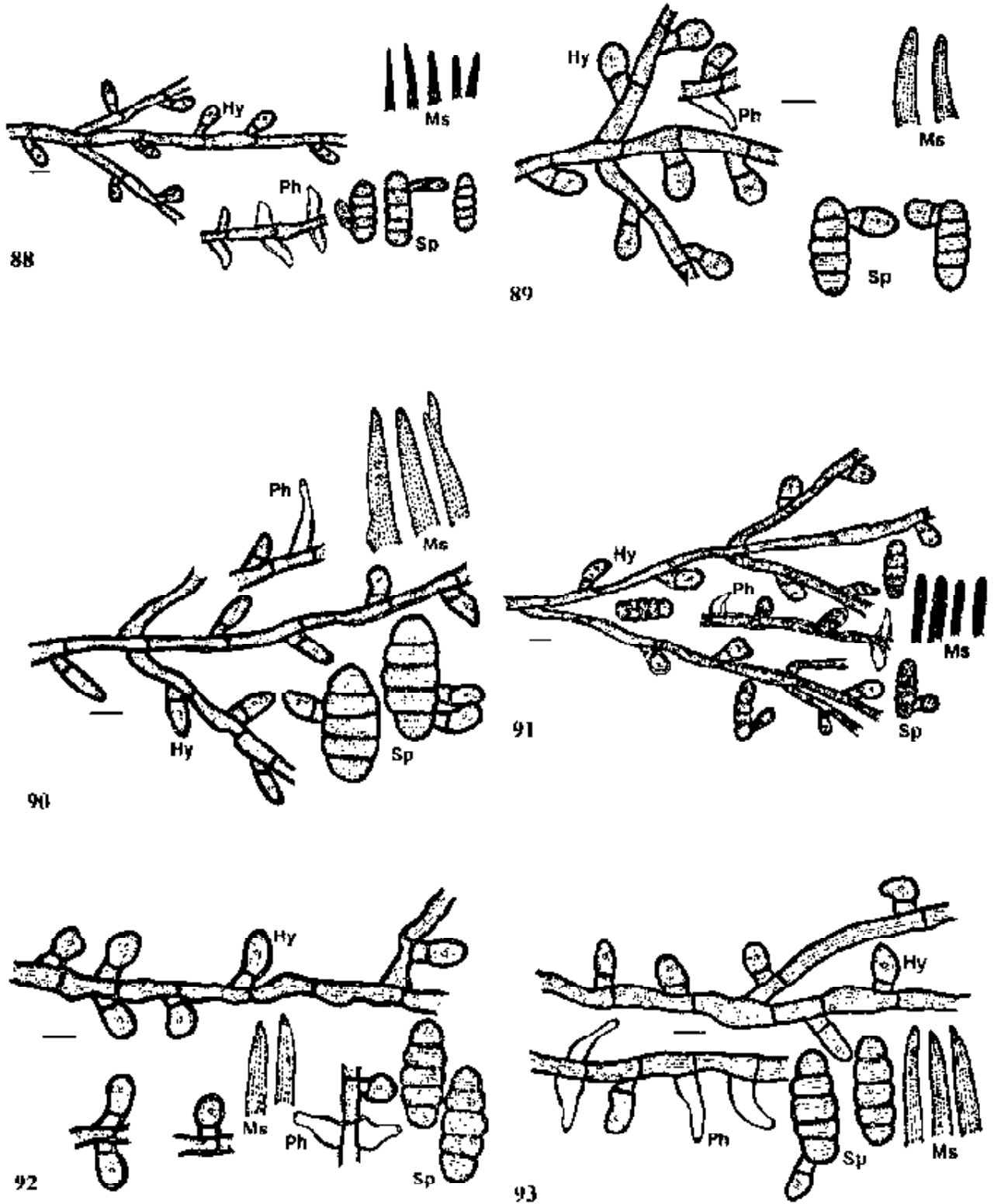
94. *Meliola anisophylleae* Hansf. & Deighton var. *caralliae* Hosag., Siddappa & Udaiyan, Nova Hedwigia 58: 195, 1993.

Colonies amphigenous, mostly hypophyllous, dense, crustose, confluent. Hyphae substraight to crooked, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 24-31 x 9-12.5 μm . Hyphopodia alternate, antrorse to spreading, straight to variously curved, 15.5-22 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells straight to curved, ovate, globose, entire to angular, 9-15.5 x 12-15.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, neck elongated and curved, 21-28 x 12-15.5 μm . Mycelial setae few, simple, straight, erect, acute to obtuse at the tip, up to 1150 μm long. Perithecia scattered, up to 150 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 52-56 x 15-19 μm .

Materials examined: On leaves of *Carallia integrerrhima* DC.

(Rhizophoraceae), Amboli, Maharashtra, February 8, 1975, M.S. Patil HCIO 31945 (type).

Distribution: India (Maharashtra).



88. *Meliola alstoniae* Koord. 89. *M. altissimae* Hosag. 90. *M. anacardii* Zimm. 91. *M. anceps* Sydow 92. *M. ancistrocladi* Hosag. 93. *M. angiopteridis* Hansf. var. *indica* Hosag.

95. *Meliola aphanamixidis* Hosag. in Hosag. & Goos, Mycotaxon 37: 404, 1990.

Colonies epiphyllous, dense, velvety, up to 2 mm in diam., rarely confluent. Hyphae substraight to slightly crooked, branching opposite to irregular at wide angles, loosely to closely reticulate, cells 12-28 x 9-12.5 μm . Hyphopodia opposite, crowded after intervals, rarely solitary, antrorse, subantrorse, recurved, 21-31 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells ovate, globose, angular, truncate, straight to curved, entire, 15-18.5 x 9-15.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-25 x 9-12.5 μm . Mycelial setae mostly grouped around perithecia, simple, straight, acute to obtuse, up to 572 μm long. Perithecia seated on exhyphopodiate mycelium, scattered, verrucose, up to 232 μm ; ascospores obovoidal, 4-septate, constricted, 52-56 x 18-22 μm .

Materials examined: On leaves of *Aphanamixis polystachya* (Wall.) Parker (*Amoora rohituka* Wight & Arn.) (Meliaceae), Devala Rock-wood forest, Nilgiris, Tamil Nadu, November 23, 1972, E. Vajravelu HClO 39435 (type).

Distribution: India (Tamil Nadu).

96. *Meliola artocarpi* Yates, Philippine J. Sci. 12: 362, 1917; Hansf., Sydowia Beih. 2: 328, 1961; Hosag. & Goos, Mycotaxon 42: 130, 1991; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 111, 1994.

Colonies epiphyllous, subdense to dense, velvety, up to 5 mm in diameter, rarely confluent. Hyphae straight to substraight, branching mostly irregular at acute angles, closely reticulate, cells 20-30 x 6-9.5 μm . Hyphopodia alternate, antrorse to subantrorse, straight to curved, 24-42 μm long; stalk cells cylindrical to cuneate, 8-13 μm long; head cells ovate, globose, entire to angulose, 16-27 x 12-20 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-25 x 9-12.5 μm . Mycelial setae numerous, simple, arcuate to uncinata, obtuse at the tip, up to 500 μm long. Perithecia closely scattered, up to 195 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 48-56 x 18-26 μm .

Materials examined: On leaves of *Artocarpus heterophyllus* Lam. (Moraceae), Sundarankudi, Valparai, Coimbatore, Tamil Nadu, December 25, 1990, V.B. Hosagoudar HClO 30530; Vittal, Dakshina Kannada, Karnataka, November 20, 1992, P.A. Raghu HClO 40864; Koomati, Anamalai, March 13, 1994, V.B. Hosagoudar HClO 41571.

Distribution: India (Karnataka, Tamil Nadu), Malaya Philippines.

97. *Meliola artocarpi* Yates var. *indica* V.B. Hosagoudar, C.M. Pillai et P.A. Raghu, var. nov.

Differt a var. *artocarpi* phialides in hyphis distinctis evoluti.

Colonies epiphyllous, dense, velvety, up to 2 mm in diameter, rarely confluent. Hyphae straight to substraight, branching opposite to irregular at acute angles, closely reticulate, cells 15-25 x 9-12.5 μm . Apical portion of the hyphae profusely and closely branched and resemble like netted fingers but devoid of phialides and hyphopodia. At the base also mycelium devoid of hyphopodia but are borne just below the profusely branched apical portion of the hyphae. Hyphopodia alternate, closely antrorse, 31-41 μm long; stalk cells cuneate, 15-18.5 μm long; head cells ovate, globose, entire, angular to slightly lobate, 18-22 x 18-21 μm . Phialides borne on a separate mycelial branch, alternate, conoid to ampulliform, 21-25 x 9-12.5 μm . Mycelial setae densely scattered, simple, arcuate, oblong at the apex, few mycelial setae straight and acute at the tip, up to 390 μm long. Perithecia scattered, verrucose, up to 150 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 49-53 x 15-18.5 μm .

Materials examined: On leaves of *Artocarpus gomezianus* Wall. ex Tree. subsp. *zeylanicus* Jarret (Moraceae), Gersoppa, Uttara Kannada, Karnataka, May 29, 1992, P.A. Raghu HCIO 30989 (type).

Distribution: India (Karnataka).

Of the three species, namely, *Meliola brinkii* Hansf., *M. artocarpicola* Stev. ex Hansf. and *M. artocarpi* Yates, the present collection close to *M. artocarpi* Yates in its morphology and measurements. However, the new variety differs from the var. *artocarpi* in having phialides borne on a separate mycelial branch.

98. *Meliola arundinis* Pat., J. de Bot. 1897, p. 348; Hansf., Sydowia Beih. 2: 740, 1961.

Meliola dolabrata Sydow, Englers Bot. Jahrb. 56: 431, 1921.

Colonies amphigenous, dense, velvety, up to 2 mm in diameter, confluent. Hyphae substraight, branching opposite to irregular at acute angles, closely reticulate and form solid mycelial mat, cells 15-18.5 x 8-10 μm . Hyphopodia alternate, antrorse to subantrorse, 21-28 μm long; stalk cells cylindrical to cuncate, 9-12.5 μm long; head cells ovate, globose, entire, angular and rarely sublobate, 12-15.5 x 12-14 μm . Phialides borne on a separate mycelial branch,

mostly opposite, ampulliform, 15-18.5 x 7-9.5 μm . Mycelial setae numerous, straight, 1-2 times dichotomously branched, up to 214 μm long till branching, up to 70 μm long till the second branching, branchlets up to 45 μm long, tip either entire or dentate. Perithecia densely scattered, verrucose, up to 240 μm in diam.; ascospores slightly ellipsoidal to cylindrical, 4-septate, constricted, 46-53 x 15-18.5 μm .

Materials examined: On leaves and leaf-sheaths of *Phragmatis karka* (Retz.) Trin. ex Steud. (Poaceae), Swarnpur, Sibsagar, Assam, April 19, 1958, S. Chowdhury HCIO 26091.

Distribution: India (Assam), Formosa, Philippines, Queensland, Tonkin, Uganda.

99. *Meliola atalantiae* Hosag. in Hosag. & Goos, Mycotaxon 37: 220, 1990.

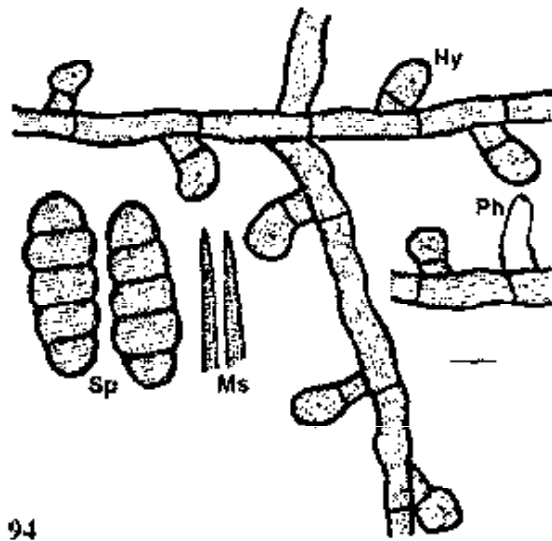
Colonies amphigenous, mostly hypophyllous, crustaceous, up to 8 mm in diameter, rarely confluent. Hyphae straight to substraight to crooked, branching opposite to irregular at acute angles, loosely reticulate, cells 20-28 x 6-8 μm . Hyphopodia alternate, about 20% opposite, straight to curved, subantrorse to spreading, 20-30 μm long; stalk cells cylindrical to cuneate, 4-10 μm long; head cells ovate, conoid, rounded at the apex, entire, 14-20 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 20-26 x 8-12 μm . Mycelial setae scattered, straight, often curved, simple, acute to 2-3 dentate to cristate, up to 765 μm long. Perithecia scattered, immature; ascospores oblong, 4-septate, constricted, 40-44 x 14-16 μm .

Materials examined: On leaves of *Atalantia wightii* Tanaka (Rutaceae), in the forest near Painavu, Idukki, Kerala, February 19, 1983, V.B. Hosagoudar HCIO 40490 (type); MH 75855; in the forest along the road from Painavu to Kulamavu, Idukki, Kerala, December 12, 1982, V.B. Hosagoudar MH 75705; *A. rotundifolia* (Thw.) Tanaka (*A. ceylonica* Olive) near Painavu, Idukki, Kerala, February 22, 1982, M. Ali MH 80369.

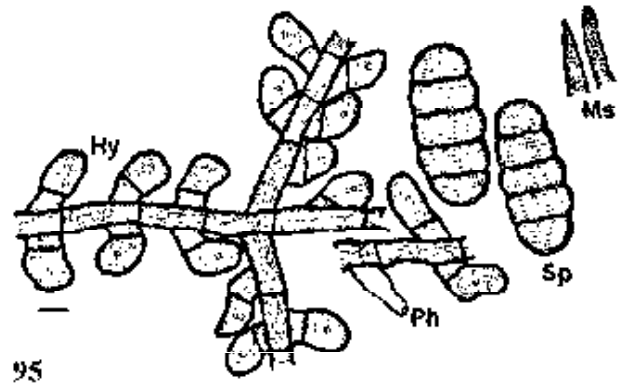
Distribution: India (Kerala).

100. *Meliola atylosiae* Hosag. in Hosag. & Goos, Mycotaxon 37: 220, 1990.

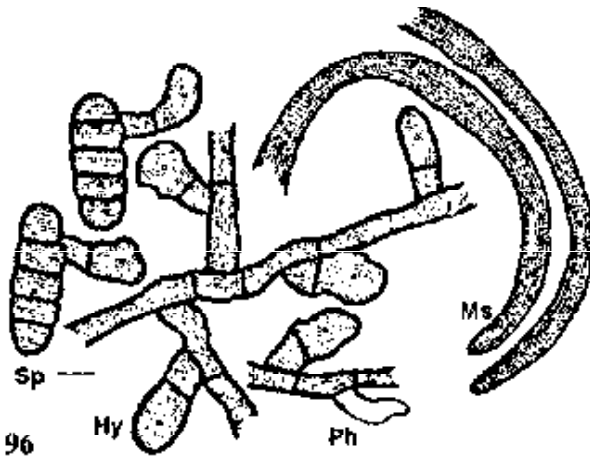
Colonies epiphyllous, subdense to dense, up to 2 mm in diameter. Hyphae undulate, branching opposite to alternate at acute angles, loosely reticulate, cells 12-22 x 4-8 μm . Hyphopodia opposite and alternate (3:1), straight, spreading,



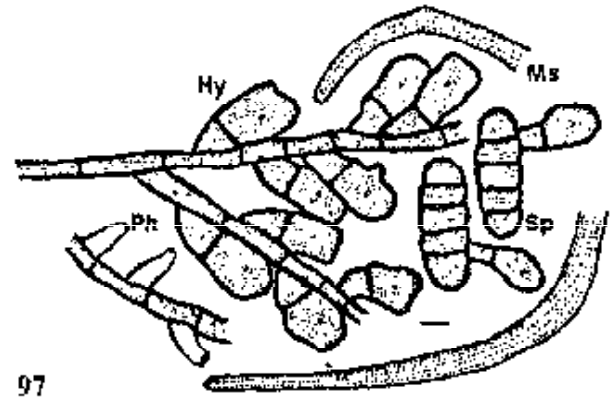
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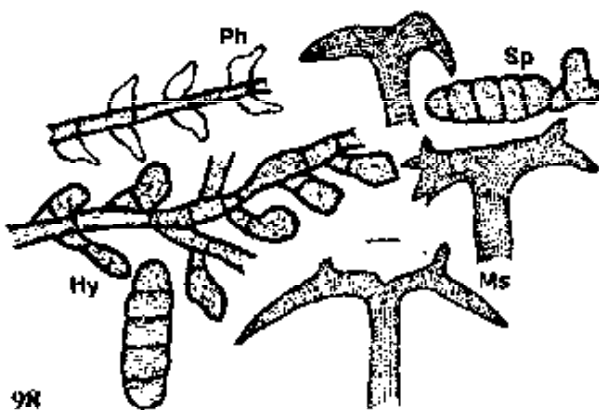
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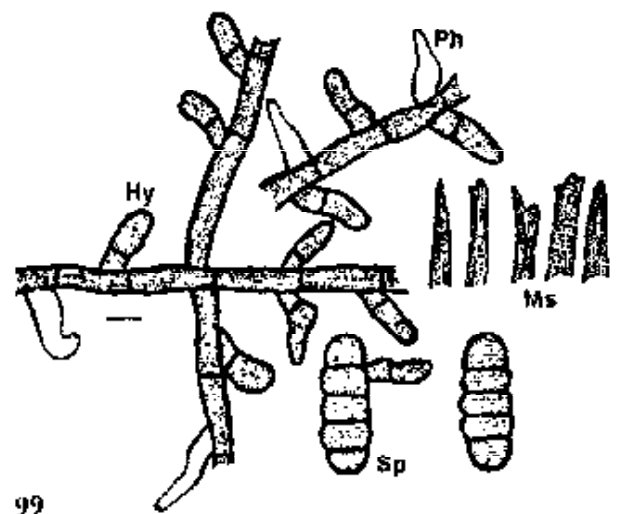
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94. *Meliola anisophylleae* Hansf. & Deight. var. *caralliae* Hosag. et al. 95. *M. aphanixidis* Hosag. 96. *M. artocarpi* Yates 97. *M. artocarpi* Yates var. *indica* Hosag. et al. 98. *M. arundinis* Pat. 99. *M. atalantiae* Hosag.

antrorse, 12-16 μm long; stalk cells cylindrical to cuneate, 4-6 μm long; head cells globose, entire, slightly and bluntly pointed towards the apex, 8-10 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 16-20 x 6-10 μm . Mycelial setae few, sparse, scattered, simple, variously dentate at the apex, up to 270 μm long. Perithecia scattered to grouped, verrucose, up to 140 μm in diam.; ascospores oblong to obovoidal, 4-septate, constricted, 30-40 x 10-14 μm .

Materials examined: On leaves of *Atylosia lineata* Wight & Arn. (Fabaceae), Idukki, Kerala, December 23, 1983, V.B. Hosagoudar HCIO 40497 (type); MH 79035 (isotype).

Distribution: India (Kerala).

101. *Meliola bangalorensis* Hansf. & Thirum., *Farlowia* 3: 290, 1948; Hansf., *Sydowia Beih.* 2: 330, 1961.

Colonies amphigenous, mostly epiphyllous, velvety, up to 5 mm in diameter, confluent and cover the entire upper surface of the leaves. Hyphae straight, flexuous to crooked, branching opposite to irregular at acute angles, closely reticulate, cells 15-25 x 6-8 μm . Hyphopodia alternate, 5% opposite, straight to curved, antrorse to retrorse, 18-22 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose, entire, angular to mostly sublobate, 10-15 x 12-14 μm . Phialides numerous, crowded, borne on a separate mycelial branch, opposite to alternate, ampulliform, 15-18.5 x 6-9.5 μm . Mycelial setae numerous, densely scattered, straight, simple, acute to obtuse at the tip, up to 372 μm long. Perithecia closely scattered, verrucose, up to 155 μm in diam.; ascospores oblong, 4-septate, constricted, 34-41 x 12-14 μm .

Materials examined: On leaves of *Ficus* sp. (Moraceae), Bangalore, Karnataka, August 14, 1945, M.J. Thirumalachar HCIO 10867 (type).

Distribution: India (Karnataka).

102. *Meliola banosensis* Sydow var. *puerariae* Hosag. in Hosag. & Goos, *Mycotaxon* 42: 130, 1991.

Colonies epiphyllous, thin to subdense, up to 2 mm in diameter, widely confluent. Hyphae straight, substraight to slightly crooked, branching opposite to

alternate at acute to wide angles, loosely reticulate, cells 21-25 x 6-8.5 μm . Hyphopodia alternate, antrorse to subantrorse, straight to curved, 12-15.5 μm long; stalk cells cylindrical to cuneate, 3-5 μm long; head cells ovate, globose, straight to curved, entire, 9-11 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 10-12.5 μm . Mycelial setae few, grouped around perithecia, straight to curved but not uncinata, simple, acute, up to 300 μm long. Perithecia loosely grouped, globose, up to 300 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, slightly constricted, 31-37.5 x 9-12.5 μm .

Materials examined: On leaves of *Puereria* sp. (Fabaceae), Erameparai, Top Slip, Coimbatore, Tamil Nadu, December 20, 1990, V.B. Hosagoudar HCIO 30531 (type).

Distribution: India (Tamil Nadu).

103. *Meliola banosensis* Sydow var. *pueraricola* var. nov.

Differt a var. *banosensis* Phialides illis capitatis commixtis et differt a *M. banosensis* Sydow var. *puerariae* Hosag. hyphopodiis 10% oppositis.

Colonies epiphyllous, thin, scattered to confluent. Hyphae flexuous, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 15-22 x 6-8 μm . Hyphopodia alternate, 10% opposite, antrorse to subantrorse, 12-15.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells mostly globose, entire, rarely angular, 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 9-11 μm . Mycelial setae very few, straight, simple, acute at the tip, up to 372 μm long. Perithecia immature, up to 100 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 34-37.5 x 15-18.5 μm .

Materials examined: On leaves of *Pueraria tuberosa* DC. (Fabaceae), Koomati, Anamalai, Coimbatore, Tamil Nadu, March 13, 1994, V.B. Hosagoudar HCIO 41570 (type).

Distribution: India (Tamil Nadu).

Meliola banosensis Sydow and *M. banosensis* Sydow var. *puerariae* Hosagoudar (Hansford, 1961; Hosagoudar & Goos, 1991) have been reported on this host genus. This variety differs from the var. *banosensis* in having phialides mixed with hyphopodia, it differs from latter taxon in having 10% opposite

hyphopodia.

104. *Meliola bantamensis* Hansf. var. *keralensis* Hosag. in Hosag. & Goos, Mycotaxon 37: 221, 1990.

Colonies epiphyllous, rarely caulicolous and amphigenous, thin to subvelvety, up to 3 mm in diameter, confluent. Hyphae tortuous, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 18-36 x 6-8 μm . Hyphopodia alternate to unilateral (very few opposite), spreading, antrorse, 14-20 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells globose to subglobose, angulose to shallowly lobate, often curved, 8-12 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 10-22 x 4-8 μm . Mycelial setae scattered, straight, simple, acute at the tip, up to 288 μm long. Perithecia scattered, verrucose, up to 144 μm in diam.; ascospores oblong, 4-septate, 34-50 x 12-18 μm .

Materials examined: On leaves of *Desmodium gyrans* DC. (Fabaceae), Meenumuttu forest, Idukki, Kerala, December 12, 1982, V.B. Hosagoudar HClO 40499 (type); MH 80354 (isotype); December 12, 1983, V.B. Hosagoudar MH 78988.

Distribution: India (Kerala).

105. *Meliola barleriae* Srinivasulu, Nova Hedwigia Beih. 47: 422, 1974.

Colonies amphigenous, subdense, crustose, up to 4 mm in diameter, confluent. Hyphae undulate, branching alternate at wide angles, closely reticulate, cells 20-44 x 6-8 μm . Hyphopodia alternate, antrorse to spreading, straight to curved, 10-24 μm long; stalk cells cylindrical to cuneate, 5-8 μm long; head cells ovate, cylindrical, entire, 9-15 x 11-14 μm . Phialides on a separate mycelial branch, opposite to alternate, ampulliform, 15-17 x 4-7 μm . Mycelial setae scattered, simple, straight, acute, up to 400 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores oblong, 4-septate, constricted, 30-38 x 13-15 μm .

Type: On leaves of *Barleria strigosa* Willd. (Acanthaceae), Castle Rock, November 1967, Srinivasulu MUH 127.

Materials examined: Material was not available for the present study.

Distribution: India (Maharashtra).

106. *Meliola bataanensis* Sydow & Sydow, Ann. Mycol. 12: 551, 1914; Hansf., Sydowia Beih. 2: 296, 1961; Hosag. & Goos, Mycotaxon 37: 222, 1990.

Colonies amphigenous, caulicolous, thin, up to 4 mm in diameter, confluent. Hyphae on the upper surface of the leaves undulate while crooked on the lower surface of the leaves, branching mostly opposite at wide angles, loosely reticulate, cells 24-30 x 6-8 μm . Hyphopodia scattered, alternate, straight to variously curved, spreading to antrorse, 18-26 μm long; stalk cells cuneate to cylindrical, often long and sinuous, 3-10 μm long; head cells ovate, globose, cylindrical, slightly angulose, mostly curved, entire to slightly lobate, 14-20 x 6-14 μm . Phialides mixed with hyphopodia, alternate, ampulliform, 16-20 x 8-10 μm . Mycelial setae fairly numerous, grouped around perithecia, simple, acute to obtuse to variously dentate at the tip, up to 1220 μm long. Perithecia scattered, up to 140 μm in diam.; ascospores obovoidal 4-septate, constricted, 36-44 x 14-16 μm .

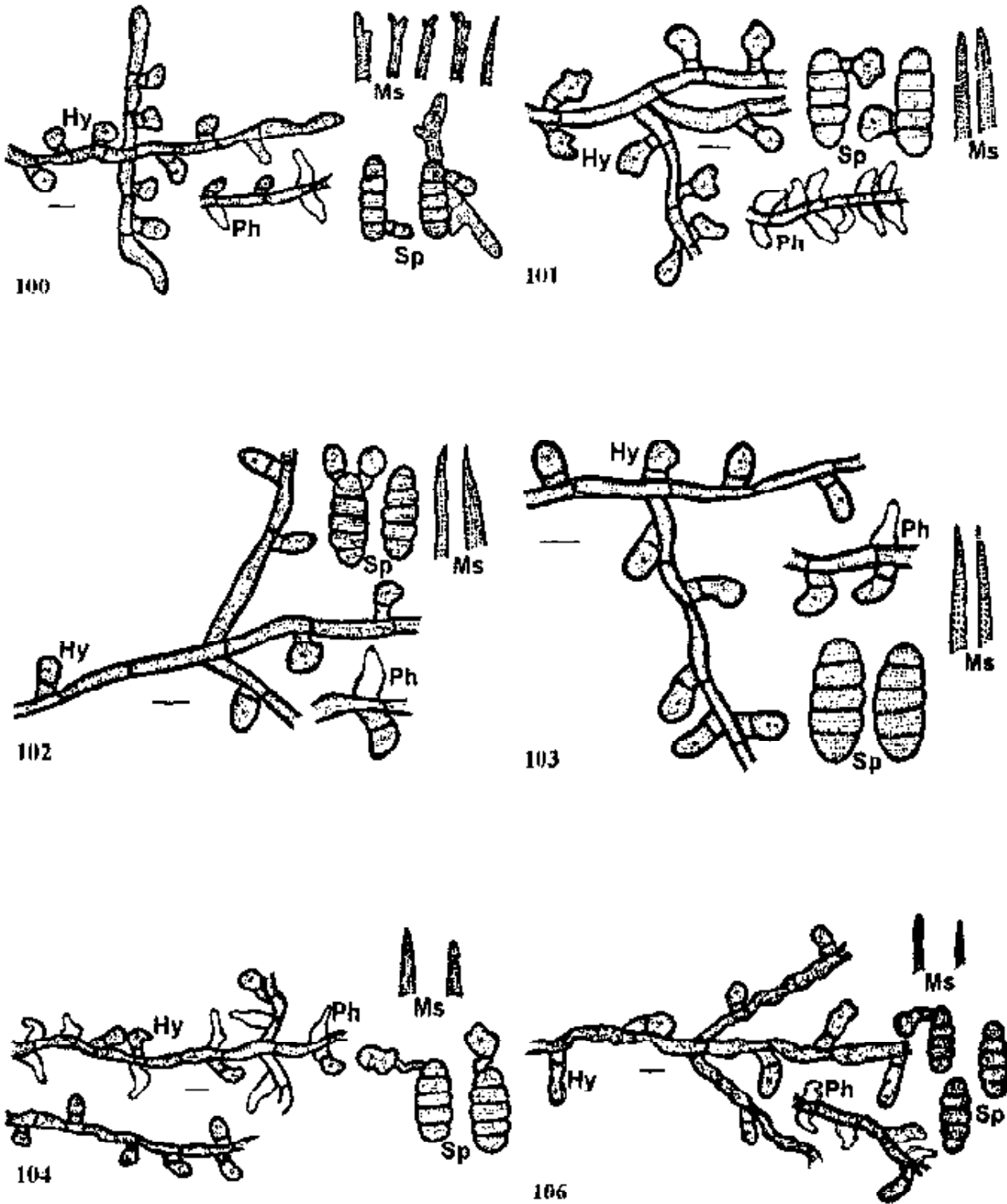
Materials examined: On leaves, stems and petioles of *Milletia rubiginosa* Wight & Arn. (Fabaceae), Idukki, Kerala, April 18, 1982, V.B. Hosagoudar HCIO 40500; MH 73705; Mecnumutty, Idukki, Kerala, April 19, 1982, V.B. Hosagoudar MH 73709; Painavu, Idukki, Kerala, December 22, 1983, V.B. Hosagoudar MH 78996; Idukki, Kerala, February 23, 1984, M. Ali MH 80368.

Distribution: India (Kerala), Philippines.

107. *Meliola bauhiniicola* Yamam., Trans. Nat. Hist. Soc. Formosa 31: 225, 1941; Hansf., Sydowia Beih. 2: 250, 1961; Hosag., Raghu & Pillai, Nova Hedwigia 58: 537, 1994.

Colonies epiphyllous, subdense, spreading, confluent. Hyphae straight, branching mostly opposite at acute angles, loosely reticulate, cells 18-31 x 6-8 μm . Hyphopodia mostly opposite, few alternate and very few solitary or isolated between opposite ones, straight to rarely curved, subantrorse to rarely recurved, 12-15.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose to oblong, entire, 8-10 x 8-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-20 x 6-8 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute, up to 500 μm long. Perithecia loosely grouped, up to 110 μm in diameter; ascospores obovoidal, 4-septate, slightly to deeply constricted, 40-43.5 x 12-15.5 μm .

Materials examined: On leaves of *Bauhinia racemosa* Lam. (Caesalpinaceae), Patgaon, Kolhapur, Maharashtra, February 17, 1984, C.R. Patil



100. *Meliola aylosiae* Hosag. 101. *M. bangalorensis* Hansf. & Thirum. 102. *M. banosensis* Sydow var. *puerariae* Hosag. 103. *M. banosensis* Sydow var. *puerariicola* Hosag. 104. *M. bantamensis* Hansf. var. *keralensis* Hosag. 106. *M. bataanensis* Sydow

HCIO 40002; Geddapalli, West Godavari, Andhra Pradesh, February 22, 1987, D. Narasimhan HCIO 39306; Gersoppa, Uttara Kannada, Karnataka, September 24, 1992, P.A. Raghu HCIO 40756; Maredumilli, East Godavari, Andhra Pradesh, December 23, 1993, M. Mohanan HCIO 41635.

Distribution: India (Andhra Pradesh, Karnataka, Maharashtra), Formosa.

108. *Meliola beilschmiediae* Yamam. var. *cinnamomicola* Hosag. in Hosag. & Goos, Mycotaxon 87: 222, 1990.

Colonies hypophyllous, dense, velvety, up to 3 mm in diameter, rarely confluent. Hyphae flexuous, branching alternate to irregular at acute angles, closely reticulate, form almost solid mycelial mat, cells 20-30 x 6-8 μm . Hyphopodia alternate, straight to variously curved, antrorse to reflexed, 20-24 μm long; stalk cells cylindrical to cuneate, 6-10 μm long; head cells globose, ovate, angular, entire, 14-16 x 12-14 μm . Phialides few, mixed with hyphopodia, opposite to alternate, ampulliform, 18-22 x 8-10 μm . Mycelial setae numerous, evenly scattered, straight, simple, acute to variously dentate at the tip, up to 684 μm long. Perithecia closely scattered, verrucose, up to 216 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 54-60 x 16-20 μm .

Materials examined: On leaves of *Cinnamomum malabattrum* (Burm.f.) Blume (Lauraceae), Calvary Mount, Idukki, Kerala, October 5, 1983, V.B. Hosagoudar HCIO 34973 (type), MH 78160; Calvary Mount, Idukki, Kerala, June 14, 1982, V.B. Hosagoudar MH 79012; Idukki, Kerala, December 13, 1982, V.B. Hosagoudar MH 75741; Calvary Mount, Idukki, Kerala, February 21, 1983, V.B. Hosagoudar MH 75833; Lakshmi Estate, Idukki, Kerala, June 12, 1983, V.B. Hosagoudar MH 75081; Idukki, Kerala, October 3, 1983, V.B. Hosagoudar MH 78159; Pamba, Kerala, October 11, 1983, V.B. Hosagoudar MH 78940; Idukki, Kerala, December 21, 1983, V.B. Hosagoudar MH 78970.

Distribution: India (Kerala).

109. *Meliola beilschmiedicola* sp. nov.

Coloniae amphigenae, densae, velutinae, ad 5 mm diam., confluentes. Hyphae rectae vel flexuosae, alternate vel opposite acuteque ramosae, laxae vel dense reticulatae, cellulae 18-25 x 6-9.5 μm . Hyphopodia alternata, antrorsa, raro retrorsa, 18-25 μm longa; cellula apicali ovata, oblonga, raro clavata, integra, recta vel curvula, 12-15.5 x 6-9.5 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, raro eorum strepto, 21-25 x 8-9.5 μm . Setae

myceliales paucae, simplices, rectae, obtusae ad apicem, ad 400 μm longae. Perithecia dispersa, verrucosa, ad 155 μm diam.; ascosporae oblongae, 4-septatae, fortiter constrictae, 37-43.5 x 15-18.5 μm .

Colonies amphigenous, dense, velvety, up to 5 mm in diameter, rarely confluent. Hyphae straight to flexuous, branching alternate to irregular at acute angles, loosely to closely reticulate, cells 18-25 x 6-9.5 μm . Hyphopodia alternate, antrorse, rarely retrorse, 18-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, oblong, rarely clavate, entire, straight to curved, 12-15.5 x 6-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, rarely neck twisted, 21-25 x 8-9.5 μm . Mycelial setae few, simple, straight, obtuse at the apex, up to 400 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores oblong, 4-septate, deeply constricted, 37-43.5 x 15-18.5 μm .

Materials examined: On leaves of *Beilschmiedia wightii* (Nees) Benth. ex Hook.f. (Lauraceae), Veerapuli Reserve Forest, Kanniyakumari dist., Tamil Nadu, February 22, 1994, V.B. Hosagoudar HCIO 41611 (type).

Distribution: India (Tamil Nadu).

The present new species differs from *Meliola beilschmiediae* Yamam. in having smaller and obtuse mycelial setae.

110. *Meliola bhesae* Hosag. in Hosag. & Goos, Mycotaxon 42. 131, 1992.

Colonies epiphyllous, rarely amphigenous, dense, up to 4 mm in diameter, confluent. Hyphae substraight to crooked, branching alternate to opposite at acute angles, closely reticulate, cells 15.5-40 x 6-9.5 μm . Hyphopodia alternate, about 20% opposite, straight to variously curved, antrorse, subantrorse to spreading, 15-18.5 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, globose, entire, straight to curved, 10-12.5 x 12-15.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 9-12.5 μm . Mycelial setae numerous, simple, straight, acute to obtuse at the apex, up to 660 μm long. Perithecia loosely scattered, up to 200 μm in diam.; perithecial cells protruded; ascospores obovoidal, 4-septate, constricted at the septa, 31-43.5 x 12.5-18.5 μm .

Materials examined: On leaves of *Bhesa indica* (Celastraceae), Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30535 (type).

Distribution: India (Tamil Nadu).

111. *Meliola bicornis* Wint., Hedwigia 23: 99, 1886; Hansf., Sydowia Beih. 2: 630, 1961; Srinivasulu, Nova Hedwigia Beih. 47: 423, 1974; Hosag., J. Econ. Tax. Bot. 11: 157, 1987; Hosag. & Goos, Mycotaxon 42: 132, 1991.

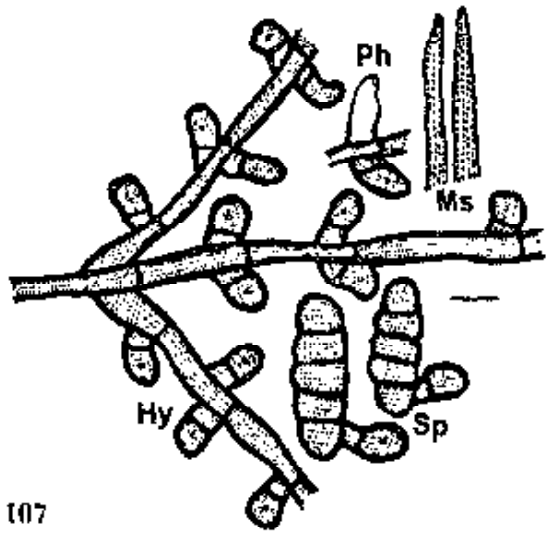
Colonies epiphyllous, thin, up to 3 mm in diameter, confluent. Hyphae substraight to undulate, branching mostly opposite at acute angles, loosely reticulate, cells 21-25 x 7-9.5 μm . Hyphopodia alternate, about 15% opposite straight to curved, antrorse to spreading, 15-18.5 μm long; stalk cells cylindrical to cuneate, 2-3 μm long; head cells globose, entire, 12-14.5 x 12-14 μm . Phialides mixed with hyphopodia, opposite to alternate, 18-25 x 9-12.5 μm . Mycelial setae scattered, straight, simple, acute to obtuse at the tip, up to 233 μm long. Perithecia scattered, verrucose, up to 233 μm in diam.; ascospores obovoidal, 4-septate, constricted, 33-40 x 12-15.5 μm .

Materials examined: On leaves of *Desmodium triquetrum* DC. (Fabaceae), Anmode, Maharashtra, October 11, 1974, A.N. Thite HCIO 31906; *D. velutinum* (Willd.) DC., Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30532; *D. telifolia*, Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30533; *D. triquetrum* (L.) DC., Anmode, Maharashtra, October 1974, A.N. Thite HCIO 3106; *D. triangulare* (Retz.) Merr., Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30534; *Dolichos trilobus* L. (*D. fulcatus* Kein ex Willd.) (Fabaceae), Pudukadu, Valparai, Tamil Nadu, January 17, 1987, V.B. Hosagoudar MH 82669, HCIO 39307.

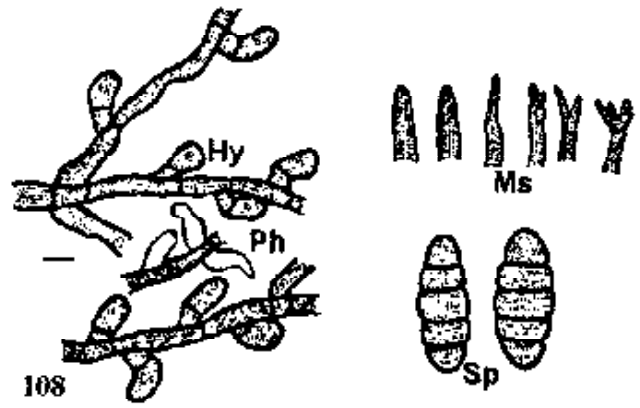
Distribution: India (Kerala, Maharashtra, Tamil Nadu), Amboina, Brazil, Cameroun, Congo Belge, Costa Rica, Ecuador, Gold Coast, Honduras, Jamaica, Java, Panama, Philippines, Porto Rico, San Domingo, Sierra Leone, Surinam, Tonkin, Trinidad, Uganda, Venezuela.

112. *Meliola bosei* sp. nov.

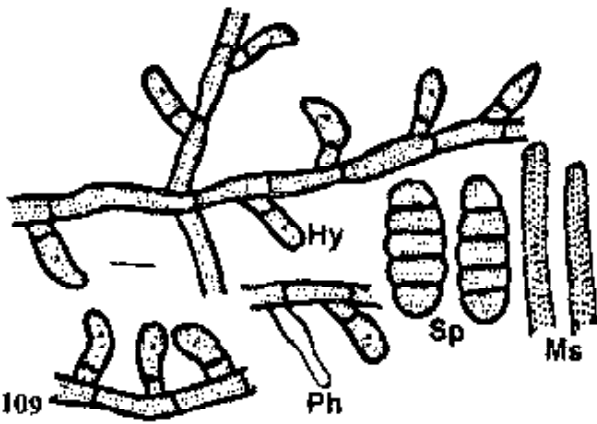
Coloniae epiphyllae, densae, ad 3 mm diam., confluentes. Hyphae rectae vel subrectae, opposite acuteque vel laxe ramosae, laxe reticulatae, cellulae 25-31 x 6-8 μm . Hyphopodia alternata, antrorsa, plerumque recta, 18-20 μm longa; cellula basali cylindracea vel cuneata, 3-6.5 μm longa; cellula apicali plerumque globosa, integra, 12-15.5 x 12-14 μm . Phialides illis hyphopodiis commixta,



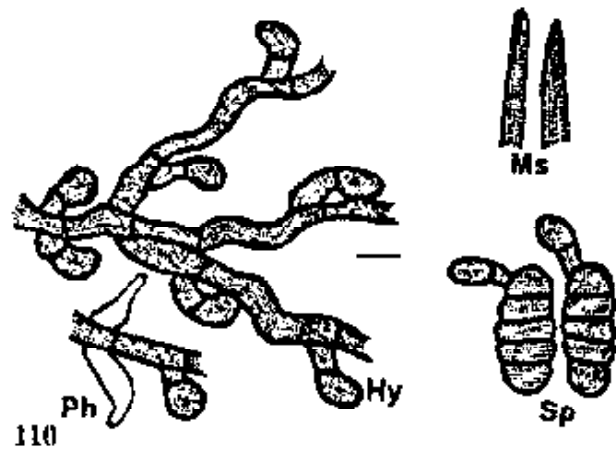
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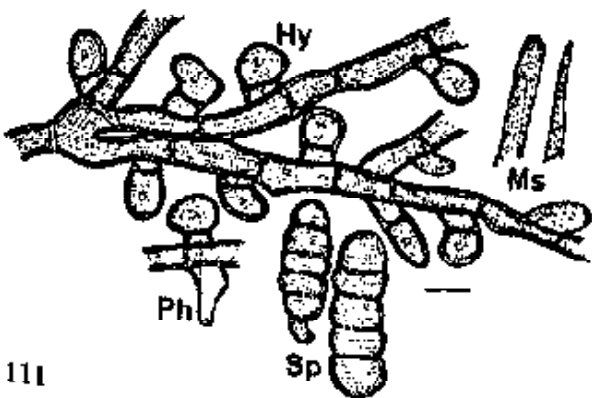
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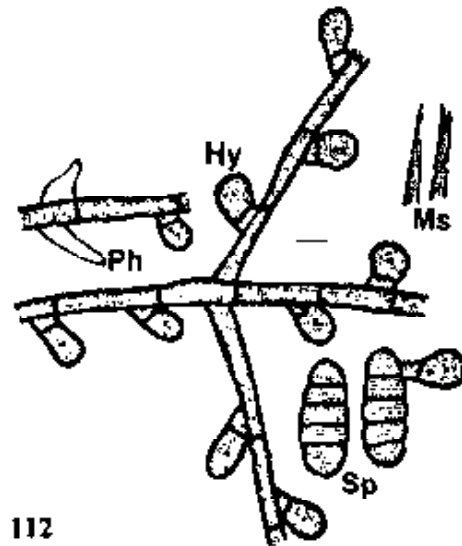
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107. *Meliola bauginicola* Yamam. 108. *M. beilschmiediae* Yamam. var. *cinnamomicola* Hosag. 109. *M. beilschmiedicola* Hosag. 110. *M. bhesae* Hosag. 111. *M. bicornis* Wint. 112. *M. bosei* Hosag.

dispersa, ampullacea, 18-22 x 7-9.5 μm . Setae myceliales paucae, dispersae, simplices, rectae vel leniter curvulae, acutae vel bi-dentatae ad apicem, ad 500 μm longae. Perithecia dispersa, verrucosa, ad 140 μm diam.; ascosporae cylindratae, 4-septatae, constrictae, 40-43.5 x 15-18.5 μm .

Colonies epiphyllous, dense, up to 3 mm in diameter, confluent. Hyphae straight to substraight, branching opposite at acute to wide angles, loosely reticulate, cells 25-31 x 6-8 μm . Hyphopodia alternate, antrorse, mostly straight, 18-20 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells mostly globose, entire, 12-15.5 μm . Phialides mixed with hyphopodia, scattered, ampulliform, 18-22 x 7-9.5 μm . Mycelial setae few, scattered, simple, straight to slightly curved, acute to bi-dentate at the apex, up to 500 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores cylindrical, 4-septate, constricted at the septa, 40-43.5 x 15-18.5 μm .

Materials examined: On leaves of *Quercus leucotrichophora* A. Camus (Fagaceae), Dolighat, Ranikhet, Uttar Pradesh, January 18, 1961, S.K. Bose HClO 29121 (type).

Distribution: India (Uttar Pradesh).

This species can be compared with *Meliola melanochaeta* Sydow but differs from it in having epiphyllous colonies, straight hyphae, scattered and acute to bi-dentate and smaller mycelial setae and ascospores.

This collection was assigned to *Meliola melanochaeta* Sydow but differs in many ways. The occurrence of *M. melanochaeta* Sydow in India is rather doubtful.

113. *Meliola brassaiopsidis* sp. nov.

Coloniae amphigenae, plerumque epiphyllae, subdensae, ad 2 mm diam., confluentes. Hyphae rectae, irregulariter acuteque vel laxe ramosae, laxe vel dense reticulatae, cellulae 24-31 x 5-7 μm . Hyphopodia unilateralia, alternata et ad 15% opposita, antrorsa vel subantrorsa, 15-18.5 μm longa; cellula basali cylindrata vel cuneata, 3-6.5 μm longa; cellula apicali ovata, globosa, integra, 9-12.5 x 19-12 μm . Phialides illis capitatis commixta, alternata vel opposita, ampullacea, 18-20 x 9-11 μm . Setae myceliales dispersae et aggregatae circa perithecia; setae circa perithecia simplices, rectae, flexuosae, curvulae vel uncinatae, obtusae ad apicem, ad 175 μm longae; setae in myceliae 1-4-plo dichotome ramosae, 155 μm longae ad prime ramosae, 60 μm longae ad 2-

ramosae, 46 μm longae ad 3-ramosae, 37 μm longae ad 4-ramosae et ramuli ultimus 22 μm longae, acutae vel obtusae ad apicem. Perithecia dispersa, verrucosa, ad 186 μm diam.; ascosporae oblongae, 4-septatae, leniter constrictae, 43-47 x 17-19 μm .

Colonies amphigenous, mostly epiphyllous, subdense, up to 2 mm in diameter, confluent. Hyphae straight, branching irregular at acute to wide angles, loosely to closely reticulate, cells 24-31 x 5-7 μm . Hyphopodia unilateral, alternate and about 15% opposite, antrorse to subantrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, globose, entire, 9-12.5 x 9-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-20 x 9-11 μm . Mycelial setae scatter to grouped around perithecia; setae around perithecia simple, straight, flexuous, curved, uncinata to obtuse at tip, up to 175 μm long; setae on mycelia 1-4 times dichotomously branched, up to 155 μm long till first branching, up to 60 μm long till second time branching, up to 46 μm long till third time branching, up to 37 μm long till fourth time branching and final branching up to 22 μm long, tip acute to obtuse, branchlets reflexed. Perithecia scattered, verrucose, up to 186 μm in diam.; ascospores oblong, 4-septate, slightly constricted, 43-47 x 17-19 μm .

Materials examined: On leaves of *Brassaiopsis* sp. (Araliaceae), Amboli, Maharashtra, September 28, 1976, M.S. Patil HClO 32524 (type).

Distribution: India (Maharashtra).

Four to five times dichotomously branched mycelial setae and simple, straight to uncinata mycelial setae around perithecia distinguishes this species from others.

The host genus *Brassaiopsis* in India is known only from the Himalayan region and its occurrence in Western Ghats is to be confirmed.

114. *Meliola buchaniicola* Hosag. in Hosag. & Goos, Mycotaxon 37: 223, 1990.

Colonies hypophyllous, subdense to dense, up to 8 mm in diam., confluent. Hyphae tortuous, branching opposite to irregular at acute to wide angles, closely reticulate and form almost solid mycelial mat, cells 20-38 x 6-10 μm . Hyphopodia alternate, straight to variously curved, antrorse to reflexed, 36-50 μm long; stalk cells cylindrical to cuneate, often tortuous, 14-22 μm long; head cells ovate, globose, angulose, sublobate, straight to variously curved, 22-30 x 12-

16 μm . Phialides few, mixed with hyphopodia, opposite to alternate, conoid to ampulliform, 14-22 x 6-8 μm . Mycelial setae numerous, simple, acute to obtuse at the tip, up to 954 μm long. Perithecia scattered, verrucose, up to 234 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 42-50 x 14-18 μm .

Materials examined: On leaves of *Buchanania lanzan* Sprengel (Anacardiaceae), Calvary Mount, Idukki, Kerala, December 14, 1982, V.B. Hosagoudar HCIO 40501 (type); MH 75750 (isotype).

Distribution: India (Kerala).

115. *Meliola buteae* Hafiz, Azmatulla & Kafi, *Biologia* 1: 112, 1955; Hansf., *Sydowia Beih.* 2: 291, 1961; Thite & Patil, *Kavaka* 10: 29, 1982; Hosag. & Goos, *Mycotaxon* 37: 223, 1990.

Colonies epiphyllous, subdense to dense, velvety, up to 4 mm in diameter, confluent. Hyphae substraight to crooked, branching opposite to irregular at wide angles, loosely to closely reticulate, cells 22-38 x 6-8 μm . Hyphopodia alternate, about 5% opposite, antrorse, mostly spreading, straight to curved, 14-20 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells globose to subglobose, mostly curved, truncate, entire, 10-16 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 6-8 μm . Mycelial setae mostly grouped around perithecia, straight, simple, acute to obtuse at the tip, up to 846 μm long. Perithecia scattered to grouped, verrucose, up to 180 μm in diam.; ascospores oblong, 4-septate, constricted, 40-48 x 16-20 μm .

Materials examined: On leaves of *Butea monosperma* (Lam.) Taub. (*B. frondosa* Roxb.) (Fabaceae), Radhanagari, Kolhapur, Maharashtra, November 10, 1974, M.S. Patil HCIO 31940; Idukki, Kerala, October 9, 1982, V.B. Hosagoudar MH 73797; October 4, 1983, V.B. Hosagoudar MH 78145; *B. parviflora* Roxb., Vellakayam, Idukki, Kerala, February 24, 1983, M. Ali & C.N. Mohanan MH 75010.

Distribution: India (Karnataka, Kerala, Maharashtra), Pakistan.

116. *Meliola butleri* Sydow, *Ann. Mycol.* 9: 379, 1911; Hansf., *Sydowia Beih.* 2: 382, 1961; Srinivasulu, *Nova Hedwigia Beih.* 47: 423, 1974; Hosag., *J. Econ. Tax. Bot.* 9: 375, 1987.

Amazonia butleri Stev., *Ann. Mycol.* 25: 415, 1927.

Colonies amphigenous, mostly epiphyllous, subcrustose, dense, up to 4 mm in diameter. Hyphae straight to undulate, branching opposite to irregular at wide angles, closely reticulate, cells 12-24 x 6-8 μm . Hyphopodia alternate to opposite, antrorse, curved, 16-24 μm long; stalk cells cylindrical to cuneate, 4-6 μm long; head cells ovate, clavate, cylindrical, often curved, entire, 12-16 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 16-20 x 6-8 μm . Mycelial setae scattered, straight, acute to dentate, up to 650 μm long. Perithecia closely scattered, verrucose, up to 220 μm in diam.; ascospores oblong to subellipsoid, 4-septate, constricted, 32-44 x 14-18 μm .

Materials examined: On leaves of *Citrus aurantifolia* (Christm.) Swingle (*C. medica* L. var. *acida* (Roxb.) Hook.f. (Rutaceae), West Bengal, August 15, 1906, R. Sen HCIO 10429 type); Maruthamalai, Coimbatore, Tamil Nadu, November 25, 1984, MH 82116; Sikkim, April 4, 1957, J.N. Kapoor HCIO 25444; Tahru, Sikkim, April 5, 1962, J.N. Kapoor HCIO 28366; *Citrus* sp., Calcutta, West Bengal, July 28, 1919, S.N. Bal HCIO 3210; Chouldhari, Port Blair, Andamans, February 8, 1917, M. Mitra HCIO 3211.

Distribution: India (Andaman & Nicobar Isl., Sikkim, Tamil Nadu, West Bengal), Formosa, Philippines.

117. *Meliola cadigensis* Yates var. *glycosmidis* (Kapoor) Hosag., Crypt. Bot. 213: 186, 1991.

Meliola glycosmidis Kapoor, Indian Phytopathol. 20: 153, 1967.

Colonies hypophyllous, thin, scattered, up to 5 mm in diameter. Hyphae straight to undulate, branching opposite to irregular at acute angles, loosely reticulate, cells 18-24 x 6-10 μm . Hyphopodia alternate and opposite, straight to curved, spreading to antrorse, 14-20 μm long; stalk cells cylindrical to cuneate, 4-6 μm long; head cells ovate, globose, opposite to alternate, ampulliform, 18-20 x 8-10 μm . Mycelial setae numerous, straight, simple, acute to dentate at the tip, up to 540 μm long. Perithecia scattered, verrucose, up to 250 μm in diam.; ascospores ellipsoidal, 4-septate, constricted at the septa, 36-42 x 10-12 μm .

Materials examined: On leaves of *Glycosmis mauritiana* (Lam.) Tanaka (*G. pentaphylla* Correa) (Rutaceae), Calcutta, West Bengal, August 9, 1991, S.N. Bal HCIO 3215 (type); *G. macrocarpa* Wight, Painavu, Idukki, Kerala, February 19, 1983, V.B. Hosagoudar MH 75850; HCIO 40528; Benne Forest, Nilgiris, Tamil Nadu, January 24, 1990, V.B. Hosagoudar HCIO 39083; Erameparai, Top Slip, Coimbatore, Tamil Nadu, December 20, 1990, V.B. Hosagoudar HCIO 30548.

Distribution: India (Kerala, Maharashtra, Tamil Nadu, West Bengal).

The variety differs from the species in having dentate mycelial setae.

118. *Meliola canarii* Sydow, Ann. Mycol. 2: 550, 1914; Hansf., Sydowia Beih. 2: 399, 1961; Hosag., Dayal & Goos, Mycotaxon 46: 204, 1993.
Meliola nigro-rufescens Sacc., Att. Acad. Ven.-Trent.-Istr. 10: 60, 1914.

Colonies epiphyllous, thin to thinly velvety, up to 5 mm in diameter, rarely confluent. Hyphae straight to flexuous, branching opposite at wide angles, loosely reticulate, cells 34-50 x 6-8 μm . Hyphopodia alternate, less than 1% opposite, antrorse, 34-40.5 μm long; stalk cells cuneate, 6-12.5 μm long; head cells ovate, tapered and broadly rounded but rarely truncate at the apex, entire, 24-28 x 6-8 μm . Mycelial setae thinly scattered, simple, straight, acute to obtuse at the tip, up to 1050 μm long. Perithecia scattered, globose, up to 140 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, slightly constricted at the septa, 43-46.5 x 18-20 μm .

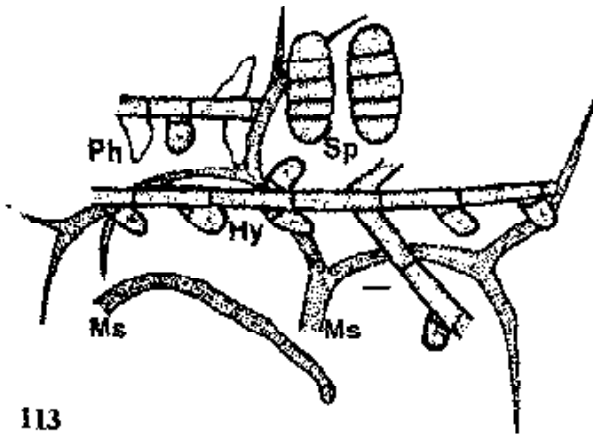
Materials examined: On leaves of seedlings of *Canarium strictum* Roxb. (Burseraceae), Sampaje forest nursery, Sampaje, Kodagu, Karnataka, December 22, 1991, B.R. Dayal HCIO 30838; Kakachi, Tirunelveli, Tamil Nadu, February 23, 1994, V.B. Hosagoudar HCIO 41615.

Distribution: India (Karnataka, Tamil Nadu), Amboina, Malaya, Pakistan, Philippines.

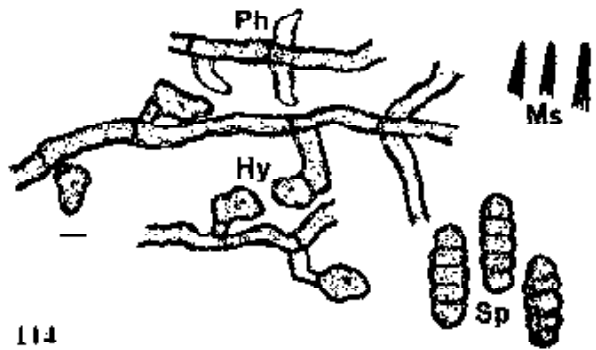
The Indian collections slightly differs from the type species in having only epiphyllous colonies, longer hyphal cells, larger hyphopodia and longer mycelial setae.

119. *Meliola cansjerue* Hansf. & Thirum., Farlowia 3: 290, 1948; Hansf., Sydowia Beih. 2: 315, 1961.

Colonies amphigenous, dense, crustose to velvety, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite at acute angles, closely reticulate and form solid mycelial mat, cells 15-22 x 6-8 μm . Hyphopodia alternate to about 10% opposite, antrorse to spreading, 15-24 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, cylindrical, entire, straight to curved, 9-16.5 x 10-12.5 μm . Phialides few, mixed with hyphopodia, opposite to alternate, ampulliform, 15-25 x 6-8 μm . Mycelial



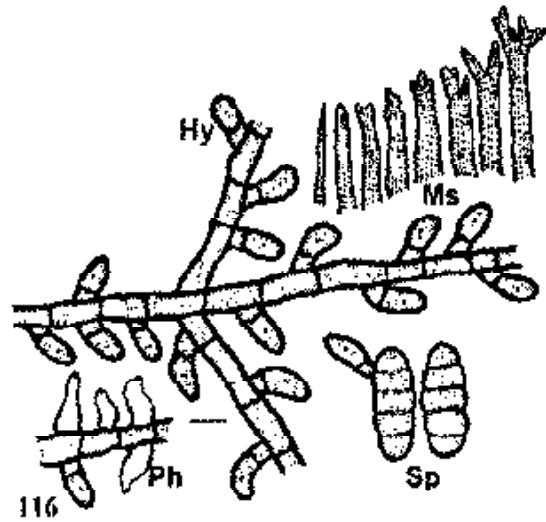
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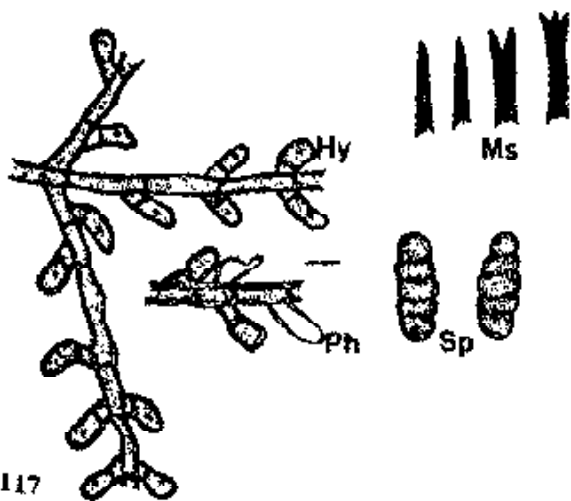
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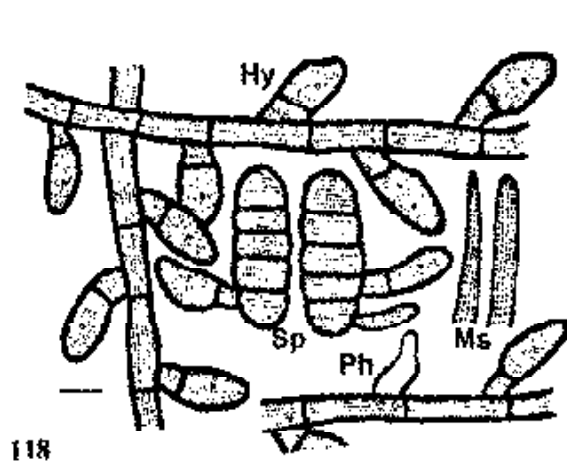
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113. *Meliola brassaiopsidis* Hosag. 114. *M. buchananicola* Hosag. 115. *M. buteae* Hafiz et al. 116. *M. butleri* Sydow 117. *M. cadigensis* Yates var. *glycosmidis* (Kapoor) Hosag. 118. *M. canarii* Sydow

setae numerous, scattered, straight, 2-3 dentate to furcate at the tip, rarely simple and acute, up to 286 μm long. Perithecia grouped, verrucose, up to 190 (-220) μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 43-46.5 x 15-18.5 μm .

Materials examined: On leaves of *Cansjera rheedi* Gmel. (Opiliaceae), Nandi Hills, Karnataka, March 23, 1945, M.J. Thirumalachar HClO 10871 (type).

Distribution: India (Karnataka).

120. *Meliola consjerae* Hansf. & Thirum. var. *indica* Hosag., Siddappa & Udaiyan, Nova Hedwigia 56: 196, 1993.

Colonies amphigenous, dense, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching opposite at acute angles, closely reticulate, cells 9-18.5 x 6-9.5 μm . Hyphopodia alternate and opposite, straight to rarely curved, antrorse, 12.5-19 μm long; stalk cells cuneate, 3-6.5 μm long; head cells ovate, entire, 9-12.5 x 8-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15.5-18.5 x 6-12.5 μm . Mycelial setae grouped around perithecia, simple, straight to curved but not uncinata, acute, obtuse to 2-3 dentate at the tip, up to 465 μm long. Perithecia scattered, up to 214 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted at the septa, 37-43.5 x 12-15.5 μm .

Materials examined: On leaves of *Cansjera rheedii* Gmel. (Opiliaceae), Jammunarai, Kotagiri, Nilgiris, Tamil Nadu, February 18, 1991, V.B. Hosagoudar HClO 30618 (type).

Distribution: India (Tamil Nadu).

121. *Meliola cansjericola* Hosag. in Hosag. & Goos, Mycotaxon 37: 224, 1990.

Colonies amphigenous, subdense to dense, velvety, up to 4 mm in diameter, confluent. Hyphae straight to slightly undulate, branching alternate at acute angles, loosely to closely reticulate, cells 24-32 x 7-8 μm . Hyphopodia alternate, antrorse, spreading, 30-42 μm long; stalk cells cylindrical to cuneate, 10-12 μm long; head cells ovate, globose, sublobate to stellately lobate, 12-24 x 20-26 μm . Phialides few, mixed with hyphopodia, alternate, ampulliform, 18-20 x 8-10 μm . Mycelial setae mostly grouped around perithecia, simple, acute at the tip, up to 835 μm long. Perithecia scattered, verrucose, up to 324 μm in diam.; ascospores fusiform, straight to curved, 3-septate, end cells conoid, 48-60 x 18-22 μm .

Materials examined: On leaves of *Cansjera rheedii* Gmel. (Opiliaceae), Calvary Mount, Idukki, Kerala, January 8, 1982, V.B. Hosagoudar HCIO 40503 (type); MH 72606 (isotype).

Distribution: India (Kerala).

122. *Meliola canthii* Hansf., Proc. Linn. Soc. London 157: 22, 1945; Sydowia Beih. 2: 604, 1961; Kapoor, Indian Phytopathol. 20: 152, 1967.

Colonies amphigenous,, mostly epiphyllous, dense, velvety, up to 3 mm in diam. Hyphae straight, branching irregular at acute angles, closely reticulate and radiate, cells 20-30 x 7-9 μm . Hyphopodia alternate, straight to curved, mostly antrorse, 24-32 μm long; stalk cells cylindrical to cuneate, 2-12 μm long; head cells cylindrical to clavate, entire to angulose, 16-20 x 14-18 μm . Phialides mixed with hyphopodia, ampulliform, 20-28 x 8-12 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute, up to 400 μm long. Perithecia not seen; ascospores oblong, 4-septate, constricted, 42-46 x 14-16 μm .

Materials examined: On leaves of *Canthium parviflorum* Lam. (*Plectronia parviflora* Bedd.) (Rubiaceae), Bhubaneswar, Orissa, October 1920, S.N. Pal HCIO 3115; *C. rheedii* DC., South Kanara, Karnataka, April 27, 1913, T.R. Ranganath HCIO 10397.

Distribution: India (Karnataka, Orissa), Uganda.

123. *Meliola canthii-angustifolii* sp. nov.

Coloniae amphigenae, densae, ad 1 mm diam., dispersae et confluentes. Hyphae rectae, plerumque oppositae acutaeque ramosae, dense reticulatae et crebrae, cellulae 27-37 x 6-9.5 μm . Hyphopodia alternata, antrorsa, 27-31 μm long; cellula basali cuneata, 9-11 μm longa; cellula apicali ovata, integra, raro angularia, 18-22 x 15-18 μm . Phialides producentes in ramis separatam mycelialis, alternata vel opposita, ampullacea, 15-18.5 x 7-9.5 μm . Setae myceliales obtusae ad apicem, ad 357 μm longae. Perithecia aggregata, verrucosa, ad 220 μm diam.; ascosporae obovoideae, 4-septatae, leniter constrictae, 46-53 x 18-22 μm .

Colonies amphigenous, dense, up to 1 mm in diameter, scattered to confluent. Hyphae straight, branching mostly opposite at acute angles, closely reticulate and crowded, cells 21-37 x 6-9.5 μm . Hyphopodia alternate, antrorse, 27-31 μm long; stalk cells cuneate, 9-11 μm long; head cells ovate, entire, rarely angular, 18-22 x 15-18 μm . Phialides borne on a separate mycelial branch,

alternate to opposite, ampulliform, 15-18.5 x 7-9.5 μm . Mycelial setae grouped around perithecia, simple, straight, acute to obtuse at the tip, up to 357 μm long. Perithecia grouped, verrucose, up to 220 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 46-53 x 18-22 μm .

Materials examined: On leaves of *Canthium angustifolium* Roxb. (Rubiaceae), Veerapuli Reserve Forest, Kanniyakumari dist., Tamil Nadu, February 22, 1994, V.B. Hosagoudar HCIO 41629 (type).

Distribution: India (Tamil Nadu).

The present new species is close to *Meliola canthii* Hansf. but differs from it in having antrorse and entire head cells of hyphopodia and phialides borne on a separate mycelial branch.

124. *Meliola capensis* (Kalch. & Cooke) Theiss. var. *allophylicola* Hansf. & Deight., Mycol. Pap. 23: 45, 1948; Hansf., Sydowia Beih. 2: 437, 1961; Kar & Bhattacharya, Indian Phytopathol. 35: 39, 1982.

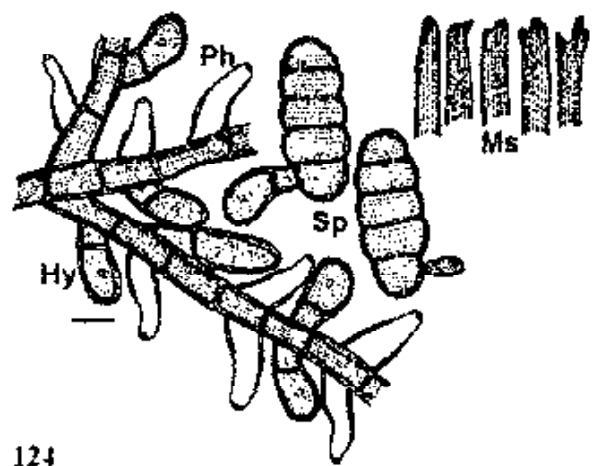
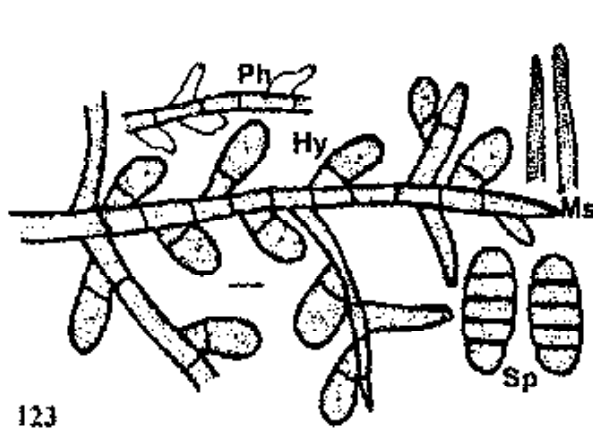
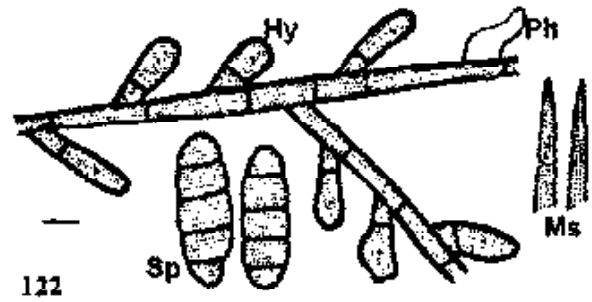
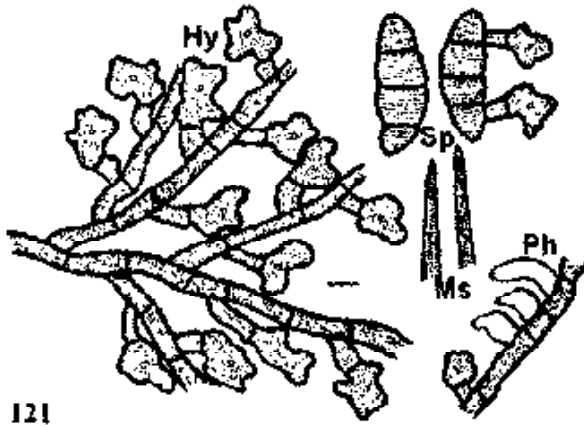
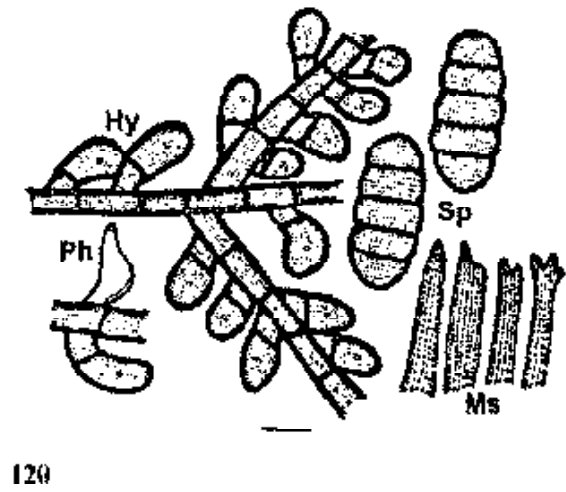
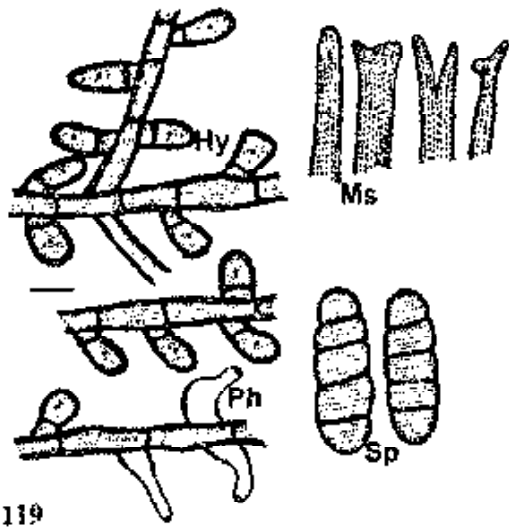
Colonies mostly epiphyllous, rarely amphigenous, dense, velvety, up to 3 mm in diameter, confluent. Hyphae straight to undulate, branching mostly opposite at acute angles, loosely to closely reticulate, cells 18.5-28 x 6-9.5 μm . Hyphopodia alternate and opposite (30-80%), antrorse, straight to curved, 18-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, entire, 12-15.5 x 9-12.5 μm . Phialides numerous, mixed with hyphopodia, opposite to alternate, ampulliform, 18.5-25 x 9-12.5 μm . Mycelial setae numerous, scattered, simple, straight, acute, obtuse to dentate at the tip, up to 750 μm long. Perithecia scattered, verrucose, up to 195 μm in diam.; ascospores obovoidal to ellipsoidal, 4-septate, constricted, 40-46.5 x 15-18.5 μm .

Materials examined: On leaves of *Allophylus cobbe* (L.) Raeusch. (Sapindaceae), Bibirhat, 24-Parghna, January 17, 1980, N. Bhattacharyya IMI 247705.

Distribution: India (West Bengal), Gold Coast, Sierra Leone.

125. *Meliola capensis* (Kalch. & Cooke) Theiss. var. *ermerginati* V.B. Hosagoudar, C.M. Pillai et P.A. Raghu, var. nov.

Differt a *Meliola capensis* (Kalch. & Cooke) Theiss. var. *mataybae* (Stev.) Hansf. in habere hyphopodiis et setae myceliales longiorae, peritheciae breviorae.



119. *Meliola cansjeriae* Hansf. & Thirum. 120. *M. cansjeriae* Hansf. & Thirum. var. *indica* Hosag. et al. 121. *M. cansjericola* Hosag. 122. *M. canthii* Hansf. 123. *M. canthii-angustifolii* Hosag. 124. *M. capensis* (Kalch. & Cooke) Theiss. var. *allophylicola* Hansf.

Colonies amphigenous, dense, velvety, up to 2 mm in diameter, rarely confluent. Hyphae straight, branching opposite at acute angles, loosely to closely reticulate, cells 15-22 x 6-9.5 μm . Hyphopodia opposite, antrorse, 15-22 μm long; stalk cells cuneate, 6-7 μm long; head cells ovate, conoid, straight to curved, rounded at the apex, 9-15.5 x 8-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 9-12.5 μm . Mycelial setae evenly scattered, simple, straight, acute to obtuse at the tip, up to 450 μm long. Perithecia scattered, up to 100 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Sapindus emarginatus* Vahl (Sapindaceae), Gersoppa, Karnataka, May 16, 1992, C.M. Pillai HCIO 30990 (type).

Distribution: India (Karnataka).

This new variety is close to *Meliola capensis* (Kalch. & Cooke) Theiss. var. *mataybae* (Stev.) Hansf. but differs from it in having longer hyphopodia, mycelial setae and smaller perithecia.

126. *Meliola capensis* (Kalch. & Cooke) Theiss. var. **malayensis** Hansf., Sydowia 10: 67, 1951; Sydowia Beih. 2: 439, 1961; Hosag. & Goos, Mycotaxon 37: 224, 1990.

Colonies amphigenous, mostly hypophyllous, dense, velvety, up to 4 mm in diameter, confluent. Hyphae straight, branching opposite to irregular at acute angles, loosely reticulate, cells 18-30 x 6-8 μm . Hyphopodia regularly opposite, subantrorse to antrorse, 16-20 μm long; stalk cells cuneate, 3-4 μm long; head cells conoid, bluntly pointed towards the apex, entire, 10-12 x 7-8 μm . Phialides mixed with hyphopodia, opposite to irregular, conoid, ampulliform, 16-20 x 8-10 μm . Mycelial setae few, scattered to grouped around perithecia, simple, acute to obtuse to variously dentate at the tip, up to 658 μm long. Perithecia scattered, up to 160 μm in diam.; ascospores oblong, 4-septate, constricted, 34-38 x 14-16 μm .

Materials examined: On leaves of *Nephelium longan* Lour (Sapindaceae), Bibirhat, 24-Parganas, West Bengal, January 17, 1980, N. Bhattacharyya IMI 72698; Petland, Sangli, Maharashtra, February 1981, C.R. Patil HCIO 40021; near Painavu, Idukki, Kerala, April 4, 1982, V.B. Hosagoudar HCIO 40504, MH 72698; December 23, 1983, V.B. Hosagoudar MH 79041.

Distribution: India (Kerala, Maharashtra, West Bengal), Malaya,

Philippines, Tonkin.

The *Meliola* species recorded on the members of the family Sapindaceae with cylindric-clavate or more or less conoid head cells have been treated as the varieties of *Meliola capensis* (Kalch. & Cooke) Theiss. Further, Hansford (1961) stated that each variety of this species is limited in its occurrence to a single host species or genus. The Indian collections perfectly match with *M. capensis* (Kalch. & Cooke) Theiss. var. *malayensis* Hansf.

127. *Meliola capensis* (Kalch. & Cooke) Theiss. var. *schleicheriae* Hosag. & Pillai in Hosag., Raghu & Pillai, Nova Hedwigia 58: 583, 1994.

Colonies epiphyllous, rarely amphigenous, dense, velvety, up to 2 mm in diameter, confluent. Hyphae straight, branching opposite at acute angles, loosely to closely reticulate, cells 15-25 x 6-7 μm . Hyphopodia opposite, crowded to sparse, 9-15.5 μm long; stalk cells cuncate, 3-5 μm long; head cells conoid, rarely broadly rounded at the apex, entire, 6-11 x 6-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 12-15.5 x 6-9.5 μm . Mycelial setae scattered, straight, acute to dentate at the tip, up to 320 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 30-35 x 12-15.5 μm .

Materials examined: On leaves of *Schleichera oleosa* (Lour.) Oken (Sapindaceae), Vettiyar, Mavelikara, Kerala, September 14, 1992, C.M. Pillai HCIO 40757 (type); Koomati, Anamalai, Coimbatore, Tamil Nadu, March 13, 1994, V.B. Hosagoudar HCIO 41581.

Distribution: India (Kerala).

128. *Meliola capparidicola* sp. nov.

Coloniae epiphyllae, minutae, densae, ad 1 mm diam. Hyphae rectae vel flexuosae, plerumque opposite acuteque ramosae, dense, reticulatae, cellulae 15-35 x 10-12.5 μm . Hyphopodia alternata, antrorsa vel subantrorsa, recta vel curvula, 24-41 μm longa; cellula basali cylindracea vel cuneata, 12-18.5 μm longa; cellula apicali ovata, oblonga, integra, 12-22 x 12-15.5 μm . Phialides in hyphis separatis, alternatis vel oppositis, ampulliformis, 21-25 x 9-11 μm . Setae myceliales dispersae, simplices, rectae, obtusae ad apicem, ad 360 μm longae. Perithecia dispersa, verrucosa, ad 140 μm diam.; ascosporae obovoideae vel oblongae, 4-septatae, constrictae, 40-43 x 17-20 μm .

Colonies epiphyllous, minute, scattered, up to 1 mm in diameter. Hyphae straight to flexuous, branching mostly opposite at acute angles, closely reticulate, cells 15-35 x 10-12.5 μm . Hyphopodia alternate, antrorse to subantrorse, straight to curved, 24-41 μm long; stalk cells cylindrical to cuneate, 12-18.5 μm long; head cells ovate, oblong, entire, 12-22 x 12-15.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 21-25 x 9-11 μm . Mycelial setae scattered, simple, straight, obtuse at the tip, up to 360 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores obovoidal to oblong, 4-septate, constricted at the septa, 40-43 x 17-20 μm .

Materials examined: On leaves of *Capparis divaricata* Lam. (Capparaceae), Amboli, Sindhudurg, Maharashtra, January 4, 1984, A.B. Pawar HClO 36389 (type).

Distribution: India (Maharashtra).

This collection can be compared with *Meliola capparidis* Hansf. reported from Uganda (HClO 10426) but differs from it in having longer and only alternate hyphopodia, phialides borne on separate mycelial branch and obtuse setae.

129. *Meliola carissae* Doidge var. *spinari* Hosag., Curr. Sci. 58: 145, 1989.

Meliola carissae sensu Kamal, Singh & Singh, Indian J. Mycol. P. Pathol. 12: 71, 1982, non Doidge, 1921.

Meliola carissae Doidge var. *spinari* Hosag., J. Econ. Tax. Bot. 13: 31, 1989.

Colonies epiphyllous, subdense, up to 3 mm in diameter, confluent. Hyphae substraight to undulate, branching opposite to irregular at acute angles, loosely reticulate, cells 24-40 x 6-9.5 μm . Hyphopodia alternate, straight to curved, antrorse to reflexed, 21-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, boat shaped, entire, angulose to shallowly lobate, 15.5-18.5 x 9-12.5 μm . Phialides borne on a separate mycelial branch, opposite to alternate, conoid to ampulliform, 15.5-21 x 9-12.5 μm . Mycelial setae scattered, straight, simple, acute, up to 860 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores obovoidal, straight to slightly curved, 4-septate, constricted, 34-37 x 12-15.5 μm .

Materials examined: On leaves of *Carissa spinarum* L. (Apocynaceae), Uttar Pradesh, January 5, 1976, Kamal IMI 200122 (type).

Distribution: India (Uttar Pradesh).

130. *Meliola cariasae* Doidge var. *indica* Hansf., *Sydowia* 10: 67, 1957; *Sydowia* Beih. 2: 558, 1961; Hosag., *Nova Hedwigia* 47: 539, 1988.

Colonies amphigenous, mostly epiphyllous, dense, scattered, up to 2 mm in diameter. Hyphae substraight to crooked, branching opposite to irregular at acute angles, closely reticulate, cells 9-15.5 x 6-8 μm . Hyphopodia alternate, straight to curved, closely antrorse, 18-28 μm long; stalk cells cuneate, 6-12.5 μm long; head cells ovate to globose, irregularly lobate, 12-15.5 x 9-15.5 μm . Phialides borne on a separate mycelial branch, opposite to alternate, ampulliform, 12-15.5 x 9-12.5 μm . Mycelial setae densely scattered, straight, simple, acute, up to 500 μm long. Perithecia scattered, verrucose, up to 175 μm in diam.; ascospores obovoidal, 4-septate, constricted, 34-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Carissa* sp. (Apocynaceae), Nalur, Thirthahalli, Karnataka, April 4, 1945, M.J. Thirumalachar HCIO 10901; *C. carandas* L., Idukki, Kerala, October 8, 1983, V.B. Hosagoudar HCIO 39393; MH 78903.

Distribution: India (Karnataka, Kerala), Burma.

131. *Meliola caryotae* Srinivasulu, *Nova Hedwigia* Beih. 47: 424, 1974.

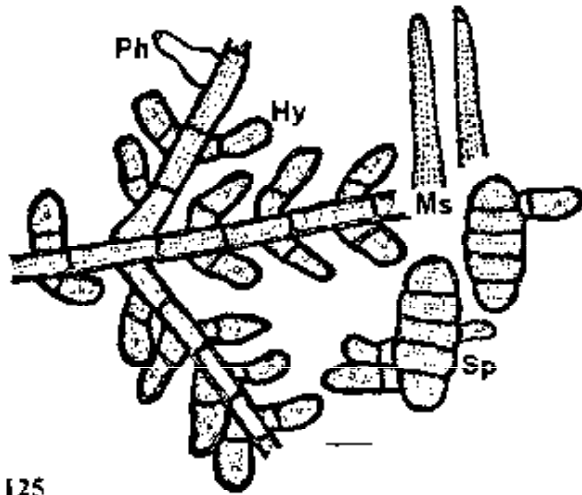
Colonies epiphyllous, dense, velvety, up to 4 mm in diameter. Hyphae slightly undulate, branching opposite to alternate at acute angles, closely reticulate, cells 10-25 x 6-8 μm . Hyphopodia alternate, straight to curved, antrorse to spreading, 27-32 μm long; stalk cells cylindrical to cuneate, 7-12 μm long; head cells cylindrical to clavate, entire, 8-19 x 10-20 μm . Phialides borne on a separate mycelial branch, opposite to alternate, ampulliform, 15-25 x 4-9 μm . Mycelial setae scattered, simple, straight, acute to dentate, up to 530 μm long. Perithecia scattered, verrucose, up to 270 μm in diam.; ascospores oblong, 4-septate, constricted, 45-53 x 19-22 μm .

Type: On leaves of *Caryota urens* L. (Arecaceae), Castle Rock, Maharashtra, November, 1967, B.V. Srinivasulu MUH 130.

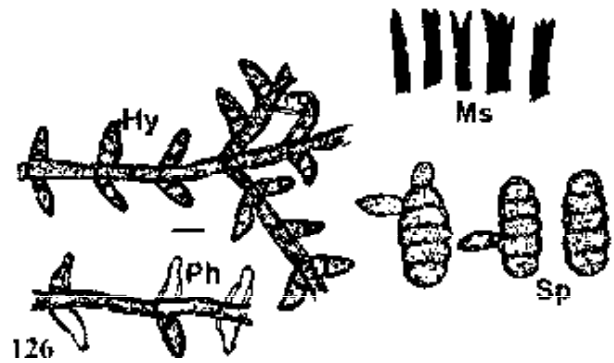
Materials examined: Material was not available for the study.

Distribution: India (Maharashtra).

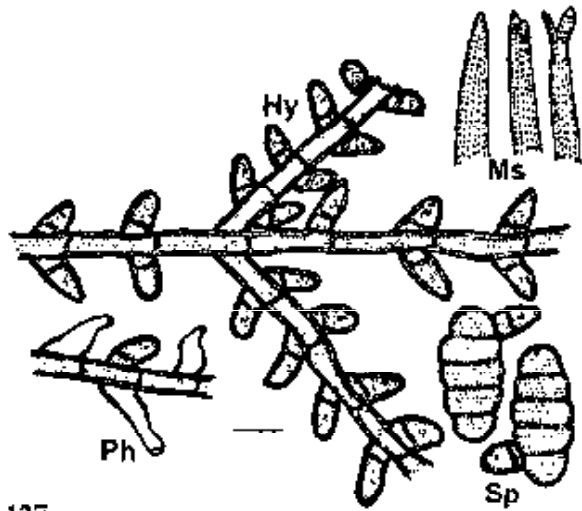
132. *Meliola castlerockensis* Srinivasulu, *Nova Hedwigia* Beih. 47: 425, 1974.



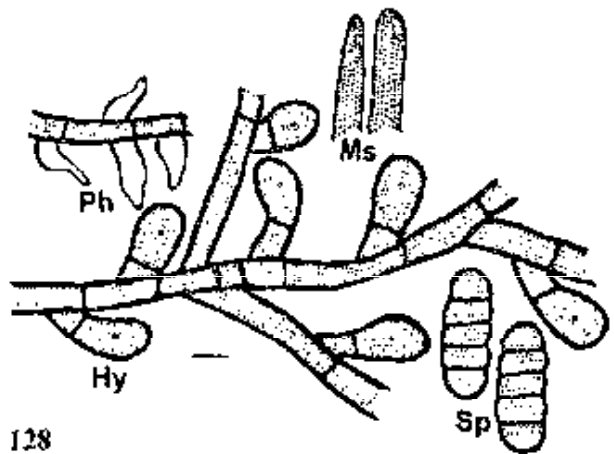
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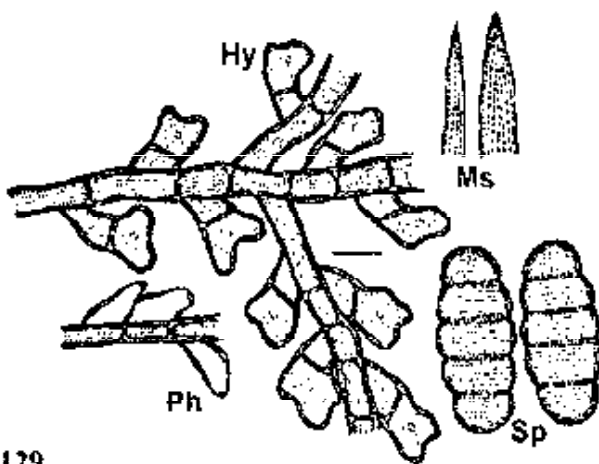
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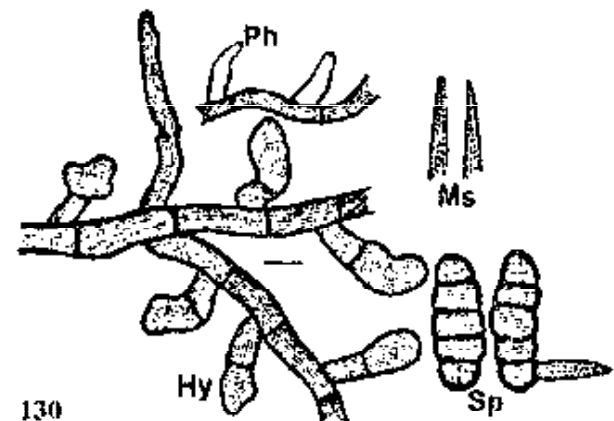
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125. *Meliola capensis* (Kalch. & Cooke) Theiss. var. *emerginati* Hosag. et al. 126. *M. capensis* (Kalch. & Cooke) Theiss. var. *malayensis* Hansf. 127. *M. capensis* (Kalch. & Cooke) Theiss. var. *schleicheriae* Hosag. & Pillai 128. *M. capparidicola* Hosag. 129. *M. carissae* Doidge var. *indica* Hansf. 130. *M. carissae* Doidge var. *spinari* Hosag.

Colonies epiphyllous, crustose, subdense, up to 3 mm in diameter. Hyphae straight to undulate, branching opposite at wide angles, closely reticulate, cells 12-31 x 6-8 μm . Hyphopodia alternate, antrorse to subantrorse, straight to curved, 16-21 μm long; stalk cells cylindrical to cuneate, 5-7.5 μm long; head cells ovate, cylindrical, entire, 11-13.5 x 8-10 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 17-20 x 4-7 μm . Mycelial setae numerous, scattered, straight, acute to clavate at the tip, up to 250 μm long. Perithecia scattered, verrucose, up to 145 μm in diam.; ascospores oblong, 4-septate, constricted, 30-45 x 10-13.5 μm .

Type: On leaves of *Clerodendrum serratum* (L.) Moon, Castle Rock, Maharashtra, November, 1967, Srinivasulu MUH 132.

Materials examined: Material was not available.

Distribution: India (Maharashtra).

133. *Meliola celastracearum* V.B. Hosagoudar et B.R. Dayal, sp. nov.

Coloniae amphigenae, plerumque epiphyllae, subdensae vel densae, velutinae, ad 5 mm diam., raro confluentes. Hyphae subrectae, flexuosae, irregulariter acuteque ramosae, laxe vel dense reticulatae, cellulae 21-37 x 5-6.5 μm . Hyphopodia alternata, ad 10% opposita, antrorsa vel subantrorsa, 12-22 μm longa; cellula basali cylindracea vel cuneata, 3-6 μm longa; cellula apicali oblonga, globosa, ovata, integra, recta vel curvula, 9-15.5 x 9-12.5 μm . Phialides illis hyphopodiis, ampullacea, 18-25 x 6-9 μm . Setae myceliales paucae, rectae, simplices, acutae vel obtusae ad apicem, ad 650 μm longae. Perithecia dispersa, ad 125 μm diam.; ascosporae obovoideae, 4-septatae, constrictae ad septatae, 40-44 x 14-17 μm .

Colonies amphigenous, mostly epiphyllous, subdense to dense, velvety, up to 5 mm in diam., rarely confluent. Hyphae substraight to flexuous, branching irregular at acute angles, loosely to closely reticulate, cells 21-37 x 5-6.6 μm . hyphopodia alternate, about 10% opposite, antrorse to sub-antrorse, 12-22 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; hc. oblong, ovate, globose, entire, straight to curved, 9-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-25 x 6-9 μm . Mycelial setae few, straight, simple, acute to obtuse at the tip, up to 650 μm long. Perithecia scattered, up to 125 μm in diam.; ascospores obovoidal, 4-septate, constricted, 40-44 x 14-17 μm .

Materials examined: On leaves of *Pleurostylia* sp. (Celastraceae), Sringeri,

Chikmagalur, Karnataka, December 2, 1992, B.R. Dayal HCIO 41120 (type).

Distribution: India (Karnataka).

This new species is close to *Meliola lophopetali* Stev. ex Hansf. in having both alternate and opposite hyphopodia but differs from it in not having subconoid head cells of the hyphopodia but having longer setae and larger ascospores.

134. *Meliola ceropegiae* Hosag. & Ramachandran in Hosag. & Goos, Mycotaxon 42: 132, 1991.

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 2 mm in diameter, rarely confluent. Hyphae straight to undulate, branching mostly opposite at acute angles, loosely to closely reticulate, cells 24-37.5 x 6-8 μm . Hyphopodia alternate and about 1% opposite, mostly straight but rarely curved, antrorse to subantrorse, 18-22 μm long; stalk cells cylindrical, 5-6.5 μm long; head cells ovate, globose, entire, angular to slightly lobate, 12-15.5 x 10-15.5 μm . Phialides numerous, mixed with hyphopodia, mostly opposite, ampulliform, 18-22 x 9-12.5 μm . Mycelial setae numerous, mostly grouped around perithecia, straight, simple, acute to obtuse at tip, rarely geniculate to curved at apex, up to 330 μm long. Perithecia scattered, up to 130 μm in diam.; ascospores cylindrical, 4-septate, slightly constricted at septa, 30-35 x 12-15.5 μm .

Materials examined: On leaves of *Ceropegia* sp. (Asclepiadaceae), Agumbe, Shimoga, Karnataka, October 2, 1990, V.S. Ramachandran HCIO 30537 (type).

Distribution: India (Karnataka).

135. *Meliola chandleri* Hansf., Linn. Soc. Bot. 51: 273, 1937; Sydowia Beih. 2: 215, 1961; Hosag. & Goos, Mycotaxon 37: 224, 1990.

Meliola chandleri Hansf. var. *excoecariae* Hosag., Lakshmanan & Viswanathan, Indian J. Bot. 11: 185, 1988.

Colonies epiphyllous, dense, velvety, up to 3 mm in diameter, confluent. Hyphae undulate, branching opposite to irregular at acute angles, closely reticulate, cells 20-30 x 6-10 μm . Hyphopodia antrorse to closely antrorse, straight to curved, 26-38 μm long; stalk cells cylindrical to cuneate, 8-16 μm long; head

cells angulose, sublobate to lobate, 16-22 x 14-20 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 22-30 x 8-12 μm . Mycelial setae numerous, scattered, 2-3 times dichotomously branched, 225 μm long up to branching, primary branch up to 30 μm long, secondary branch up to 14 μm long and the tertiary branch up to 16 μm long, branches spreading, curved, acute at the tip. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores obovoidal, 4-septate, constricted, 38-44 x 16-18 μm .

Materials examined: On leaves of *Excoecaria crenulata* Wight (Euphorbiaceae), Kanchiar forest, Idukki, Kerala, December 29, 1983, V.B. Hosagoudar HCIO 40505; Sanjirayam Koil malai, Singarapettai, North Arcot, Tamil Nadu, April 4, 1987, V.B. Viswanathan AMH 7133; *E. robusta* Hook.f., Manjolai, Tirunelveli, Tamil Nadu, February 24, 1994, V.B. Hosagoudar HCIO 41536.

Distribution: India (Kerala, Tamil Nadu), Uganda.

This species is distinct from rest of the *Meliola* species recorded on the members of the family Euphorbiaceae in having dichotomously branched mycelial setae. Phialides apparently borne on a separate mycelium but careful observation revealed that they are mixed with hyphopodia. Hence, the variety *excoecariae* Hosagoudar *et al.* has been synonymised.

136. *Meliola chandolensis* C.R. Patil ex V.B. Hosagoudar, sp. nov.

Coloniae hypophyllae, densae, velutinae, ad 5 mm diam., raro confluentes. Hyphae subrectae vel anfractuae, alternate vel irregulariter acuteque ramosae, laxae vel dense reticulatae, cellulae 30-37 x 6-8 μm . Hyphopodia alternata, subantrorsa, 21-31 μm longa; cellula basali cylindracea vel cuneata, 6-15.5 μm longa; cellula apicali angularia vel varie lobata, raro integra, versiformia, 15-18.5 x 9-12.5 μm . Phialides producentis in hyphis separatis, alternatis vel oppositis, ampullaceus, 16-25 x 6-8 μm . Setae myceliales numerosae, dense dispersae, rectae vel leniter flexuosae, acutae vel obtusae ad apicem, ad 1145 μm longae. Perithecia dispersa, verrucosa, ad 140 μm diam.; ascosporae subfusiformae, rectae vel curvulae, 4-septatae, leniter constrictae, 43-45 x 11-14 μm .

Colonies hypophyllous, dense, velvety, up to 5 mm in diameter, rarely confluent. Hyphae substraight to crooked, branching reticulate, cells 30-37 x 6-8 μm . Hyphopodia alternate, subantrorse, 21-31 μm long; stalk cells cylindrical to cuneate, 6-15.5 μm long; head cells angular to variously lobate, rarely entire, versiform, 15-18.5 x 9-12.5 μm . Phialides borne on a separate mycelial branch,

alternate to opposite, ampulliform, 18-25 x 6-8 μm . Mycelial setae numerous, densely scattered, straight to slightly flexuous, acute to obtuse at the tip, up to 1145 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores subfusiform, straight to curved, 4-septate, slightly constricted at the septa, 43-45 x 11-14 μm .

Materials examined: On leaves of *Ixora parviflora* (Rubiaceae), Nivale, Sangli, Maharashtra, January 22, 1992, C.R. Patil HCIO 40730 (type).

Distribution: India (Maharashtra).

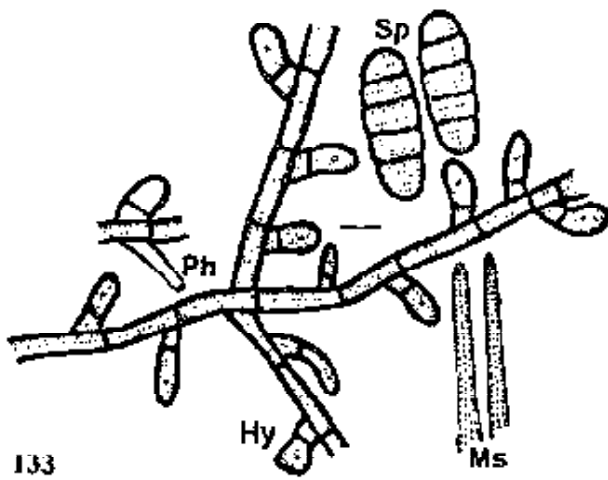
This taxon is close to *Meliola ixorae* Yates var. *macrospora* Hosag. but irregularly lobate head cells of hyphopodia distinguishes this species.

137. *Meliola chandrasekharanii* Hosag. in Hosag. & Goos, Mycotaxon 37: 225, 1990; 42: 133, 1991.

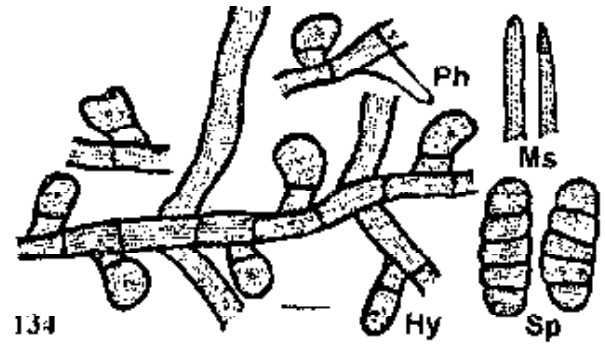
Colonies amphigenous, caulicolous, mostly hypophyllous, subdense, velvety, up to 3 mm diameter, confluent. Hyphae undulate, branching opposite at acute angles, loosely to closely reticulate and form almost solid mycelial mat, cells 16-30 x 6-8 μm . Hyphopodia alternate (few opposite), straight to curved, spreading, mostly antrorse, 16-24 μm long; stalk cells cuneate to cylindrical, 4-10 μm long; head cells subglobose, ovate, angular to sublobate, 12-16 x 14-16 μm . Phialides borne on a separate mycelial branch and also few mixed with hyphopodia, alternate, mostly opposite, ampulliform, 12-20 x 6-10 μm . Mycelial setae fairly numerous, straight, simple, acute to subacute at the tip, up to 477 μm long. Perithecia scattered, verrucose, up to 153 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, 32-42 x 10-16 μm .

Materials examined: On leaves, stems and petioles of *Apodytes dimidiata* E. Meyer ex Arn. (Icacinaceae), Lakshmi Estate, Idukki, Kerala, December 15, 1982, V.B. Hosagoudar HCIO 40506 (type); MH 75781 (isotype); December 25, 1983, V.B. Hosagoudar MH 79089; *Notopodytes nimmoniana* (Graham) Mabblerly, Shankarankudi, Valparai, Coimbatore, Tamil Nadu, December 27, 1990, V.B. Hosagoudar HCIO 30538; Mahabaleshwar, Maharashtra, February 1977, V.P. Kaul HCIO 33811; Bhagamandala, Karnataka, March 1, 1984, C.R. Patil HCIO 40004; Veerapuli Reserve Forest, Kanniyakumari, Tamil Nadu, February 22, 1994, V.B. Hosagoudar HCIO 41532.

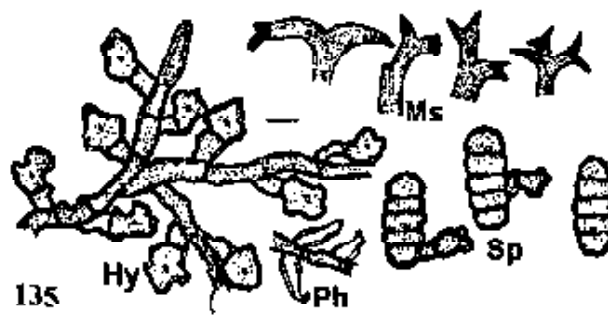
Distribution: India (Karnataka, Kerala, Maharashtra, Tamil Nadu).



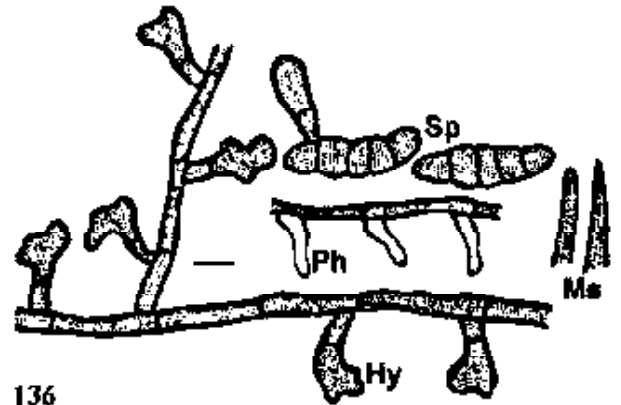
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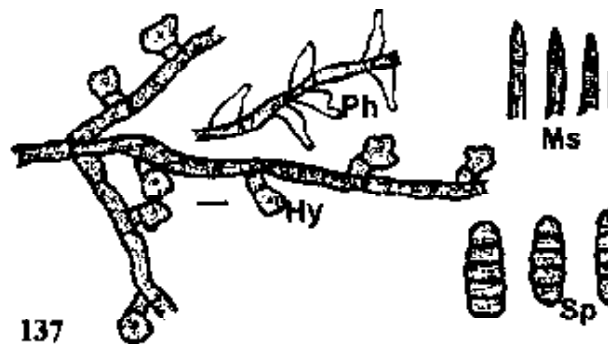
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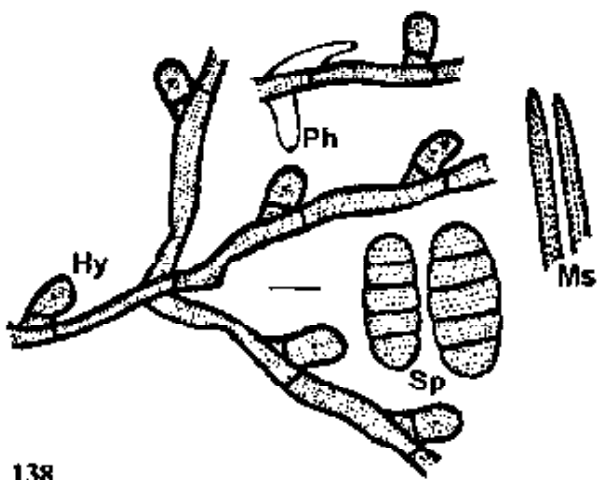
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133. *Meliola celsastracearum* Hosag. & Dayal 134. *M. ceropegiae* Hosag. & Ramachandran 135. *M. chandleri* Hansf. 136. *M. chandolensis* Patil ex Hosag. 137. *M. chandrasekharanii* Hosag. 138. *M. chukrasiae* Hosag.

138. *Meliola chukrasiae* sp. nov.

Coloniae amphigenae, tenues vel subdensae, velutinae, plerumque confluentes. Hyphae flexuosae vel leniter anfractuae, plerumque opposite acuteque ramosae, laxe reticulatae, cellulae 24-31 x 3-4 μm . Hyphopodia alternata, antrorsa, 15-18.5 μm longa; cellula basali cylindracea vel cuneata, 3-6 μm longa; cellula apicali ovata, integra, rotunda ad apicem, 9-12.5 x 9-10 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 18-22 x 5-7 μm . Setae myceliales numerosae, tenuiter dispersae, simplices, rectae vel curvulae et non uncinatae, obtusae ad apicem, ad 430 μm longae. Perithecia dispersa, verrucosa, ad 180 μm diam.; ascosporae rectae vel leniter curvulae, oblongae vel leniter ellipsoideae, 4-septatae, 31-34 x 15-17 μm .

Colonies amphigenous, thin to subdense, velvety, widely confluent. Hyphae flexuous to slightly crooked, branching mostly opposite at acute angles, loosely reticulate, cells 24-31 x 3-4 μm . Hyphopodia alternate, antrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, entire, rounded at the apex, 9-12.5 x 9-10 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 5-7 μm . Mycelial setae numerous, thinly scattered, simple, straight to curved but not uncinatae, obtuse at the tip, up to 430 μm long. Perithecia scattered, verrucose, up to 180 μm diam.; ascospores straight to slightly curved, oblong to slightly ellipsoidal, 4-septate, 31-34 x 15-17 μm .

Materials examined: On leaves of *Chukrasia* sp. (Meliaceae), Castle Rock, Karnataka, November 1969, A.N. Thite HCIO 31625 (type).

Distribution: India (Karnataka).

The present new species is close to *Meliola nairii* Hosagoudar and *M. togonensis* Hughes var. *angulata* Hughes but differs from both in having entire and rounded head cells of hyphopodia and straight to curved mycelial setae.

This host was named as *Alstonia scholaris* and the pathogen named as *Meliola alstoniae* Koord.

139. *Meliola cissampelicola* Hansf. & Thirum., Farlowia 3: 291, 1948; Hansf., Sydowia Beih. 2: 64, 1961.

Colonies mostly epiphyllous, thin, up to 1 mm in diameter, confluent. Hyphae slightly undulate, branching opposite to irregular at wide angles, loosely

reticulate, cells 20-35 x 6-8 μm . Hyphopodia alternate, subantrorse, straight to curved, 20-30 μm long; stalk cells cylindrical to cuneate, 4-11 μm long; head cells ovate, clavate, entire, 13-20 x 9-20 μm . Phialides borne on a separate mycelial branch, opposite and alternate, ampulliform, 14-22 x 6-8 μm . Mycelial setae straight to slightly curved, simple, obtuse, up to 340 μm long. Perithecia mostly grouped at the centre of the colony, verrucose, up to 160 μm in diam.; ascospores oblong to subellipsoidal, 4-septate, constricted, 34-40 x 12-16 μm .

Materials examined: On leaves of *Cissampelos convolvulacea* Willd. (Menispermaceae), Agumbe, Karnataka, April 4, 1945, M.J. Thirumalachar HCIO 10875 (type).

Distribution: India (Karnataka).

140. *Meliola citricola* Sydow & Sydow, Ann. Mycol. 15: 183, 1917; Hansf., Sydowia Beih. 2: 246, 1961; Kar & Maity, Norw. J. Bot. 19: 246, 1972; Hosag. & Goos, Mycotaxon 37: 326, 1990; 42: 133, 1991.

Colonies amphigenous, caulicolous, mostly hypophyllous, dense, velvety, up to 4 mm in diameter, confluent. Hyphae substraight to undulate, branching opposite to irregular at wide to acute angles, closely reticulate, cells 14-24 x 6-10 μm . Hyphopodia alternate, about 15% opposite, antrorse, spreading, straight to curved, 18-24 μm long; stalk cells cylindrical to cuneate, 6-10 μm long; head cells cylindrical, ovate, entire, straight to curved, 12-16 x 8-14 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 16-22 x 6-8 μm . Mycelial setae scattered, straight, simple, obtuse to variously dentate at the tip, up to 576 μm long. Perithecia scattered, verrucose, up to 225 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 32-42 x 14-20 μm .

Materials examined: On leaves, stems and petioles of *Citrus aurantium* L. (Rutaceae), Calvary Mount, Idukki, Kerala, December 14, 1982, V.B. Hosagoudar HCIO 40567, MH 75752; Vazhathope, April 21, 1982, V.B. Hosagoudar MH 73743; Shankarankudi, Valparai, Coimbatore, Tamil Nadu, December 27, 1990, V.B. Hosagoudar HCIO 30539.

Distribution: India (Kerala, Maharashtra, Tamil Nadu, West Bengal), Borneo, Ceylon, Java, New Guinea, Philippines, Singapore, Sumatra, Tonkin

Two species of the genus *Meliola*, namely *M. butleri* Sydow and *M. citricola* Sydow have been recorded on the host genus *Citrus*. However, the latter differs from the former in having opposite and alternate hyphopodia and obtuse

to dentate mycelial setae.

141. *Meliola clausenae* Hosag. in Hosag. & Goos, Mycotaxon 37: 226, 1990; 42: 133, 1991.

Colonies epiphyllous, thin, up to 2 mm in diameter. Hyphae straight to slightly undulate, branching opposite at wide angles, loosely reticulate, cells 10-16 x 6-8 μm . Hyphopodia alternate, 20% opposite, straight to curved, subantrorse to antrorse, 16-24 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells cylindrical, ovate, entire, 10-16 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 12-20 x 6-8 μm . Mycelial setae scattered, straight, simple, acute to 2-3 dentate, up to 747 μm long. Perithecia scattered, verrucose, up to 180 μm in diam.; ascospores obovoidal, 4-septate, constricted, 36-42 x 14-16 μm .

Materials examined: On leaves of *Clausena indica* (Dalz.) Oliver (Rutaceae), Kanchiar forest, Idukki, Kerala, February 23, 1983, V.B. Hosagoudar HCIO 40508 (type), MH 75009 (isotype); Topslip, Coimbatore, Tamil Nadu, December 20, 1990, V.B. Hosagoudar HCIO 30540; M.K. Vayal, Kanniyakumar, Tamil Nadu, February 27, 1994, V.B. Hosagoudar HCIO 41618; *C. dentata* (Willd.) M. Roem., Varagaliar, Anamalai, Coimbatore, Tamil Nadu, March 12, 1994, V.B. Hosagoudar HCIO 41606.

Distribution: India (Kerala, Tamil Nadu).

142. *Meliola clavulata* Wint., Hedwigia 25: 98, 1886; Hansf., Sydowia Beih. 2: 650, 1961; Hosag. & Goos, Mycotaxon 37: 226, 1990.

Meliola densa Cooke var. *convolvuli* Beeli, Bull. Jard. Bot. Etat. 8: 2, 1923, pro parte.

Meliola pentualli Vitar, Biol. Agric. Pernambuco 14: 337, 1947.

Colonies amphigenous, dense, up to 2 mm in diameter. Hyphae sinuous to crooked, branching alternate to irregular at acute angles, densely reticulate, cells 16-22 x 6-10 μm . Hyphopodia alternate, antrorse, spreading, mostly curved, 16-20 μm long; stalk cells cylindrical to cuneate, 4-10 μm long; head cells globose, entire, 10-16 x 10-14 μm . Phialides mixed with hyphopodia and borne on a separate mycelial branch, opposite to alternate, ampulliform, 16-24 x 8-10 μm . Mycelial setae few, scattered to grouped around perithecia, simple, obtuse to clavulate at the tip, up to 360 μm long. Perithecia scattered, verrucose, up to 225 μm in diam.; ascospores oblong, 4-septate, slightly constricted, 28-38 x 12-14 μm .

Materials examined: On leaves of *Ipomoea* sp. (Convolvulaceae), Pullaganur, Kerala, October 8, 1907, E.J. Butler HCIO 1040; *Argyreia hirsuta* Arn. (Convolvulaceae), Balehonnur, Karnataka, September 7, 1903, E.J. Butler HCIO 1041; *A. populifolia* Choisy, Vazhathope, Idukki, Kerala, January 7, 1982, V.B. Hosagoudar MH 71582.

Distribution: India (Karnataka, Kerala), Brazil, British Guiana, Cameroon, Congo Belge, Costa Rica, Formosa, Gold Coast, Honduras, Jamaica, Java, Panama, Porto Rico, San Domingo, San Thome, Sierra Leone, Tanganvika, Trinidad, Uganda, Venezuela.

This species is distinct from rest of the *Meliola* species recorded on the members of the family Convolvulaceae in having sinuous to crooked hyphae, globose head cells and clavulate mycelial setae.

This species was found mixed with many colonies of *M. malacotricha* Speg. var. *major* Beeli in Kerala collection.

143. *Meliola clerodendricola* Henn., Hedwigia 37: 288, 1895; Hansf. Sydowia Bch. 2: 694, 1961; Hosag. & Goos, Mycotaxon 37: 226, 1990; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 111, 1994.

Meliola sakawensis Henn. var. *longispora* Beeli, Bull. Jard. Bot. Etat. 7: 98, 1920.

Meliola sakawensis P. Henn., Hedwigia 43: 141, 1904; Stev., Ann. Mycol. 26: 248, 1928.

Colonies amphigenous, mostly epiphyllous, dense, scattered, up to 2 mm in diameter, confluent. Hyphae undulate to tortuous, branching alternate to opposite at acute to wide angles, loosely reticulate, cells 18-24 x 4-6 μ m. Hyphopodia alternate to unilateral, straight to curved, antrorse to reflexed, 14-18 μ m long; stalk cells cylindrical to cuneate, 6-8 μ m long; head cells ovate, globose, entire, 8-10 x 6-8 μ m. Phialides mixed with hyphopodia, scattered, opposite to alternate, ampulliform, 14-18 μ m, occasionally tip twisted. Mycelial setae very few, grouped around perithecia, simple, acute to obtuse at the tip, up to 207 μ m long. Perithecia grouped, verrucose, up to 130 μ m in diam.; ascospores obovoidal, 4-septate, constricted, 30-34 x 12-14 μ m.

Materials examined: On leaves of *Clerodendrum viscosum* Vent. (Verbenaceae), Idukki, Kerala, December 21, 1983, V.B. Hosagoudar HCIO 40510, MH 78959; February 18, 1983, V.B. Hosagoudar MH 75847; October 24, 1984, A. Diraviadoss MH 82606; Gerosppa, Uttara Kannada, Karnataka,

December 3, 1992, J. Bhandary HCIO 40865.

Distribution: India (Karnataka, Kerala), Amboina, Camaroon, Celebes, Congo Belge, Cuba, Gold Coast, Japan, Penang, Philippines, Samoa, San Domingo, Sierra Leone, Tonkin, Tropical Africa, Uganda.

So far three species and two varieties of the genus *Meliola* have been recorded on the host genus *Clerodendrum*. But, *M. clerodendricola* Henn. differs from the rest in having dense colonies, only alternate hyphopodia and acute to obtuse mycelial setae.

144. *Meliola clerodendricola* Henn. var. *micromera* (Sydow & Sydow) Hansf., Sydowia Beih. 2: 694, 1961; Hosag. & Goos, Mycotaxon 37: 227, 1990. *Meliola micromera* Sydow, Ann. Mycol. 12: 552, 1914.

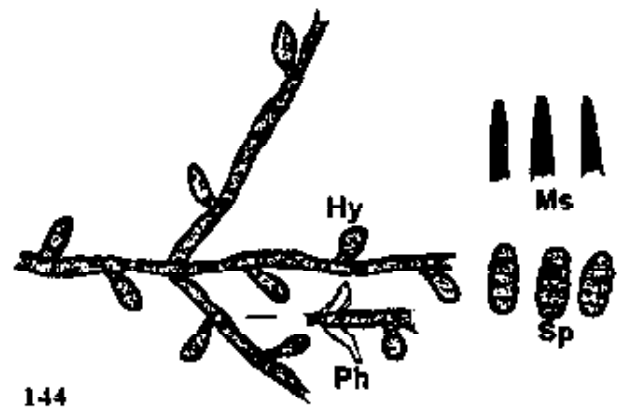
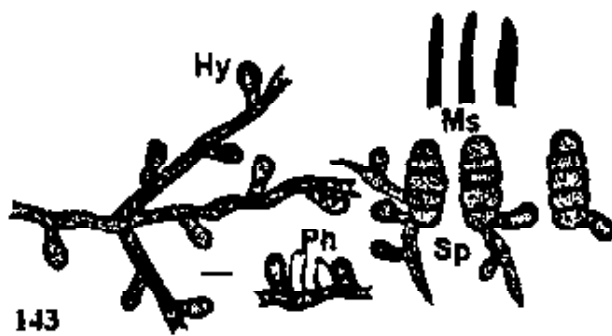
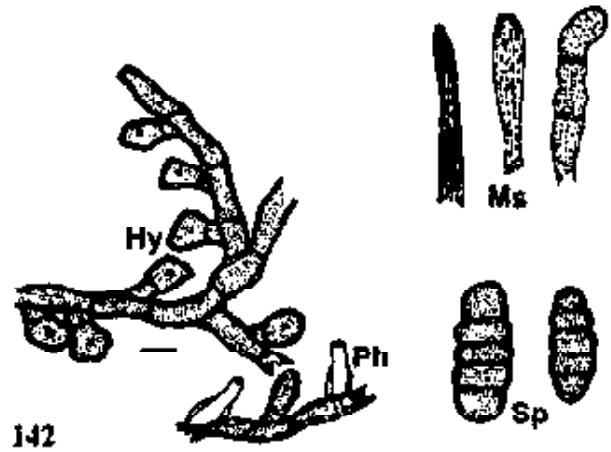
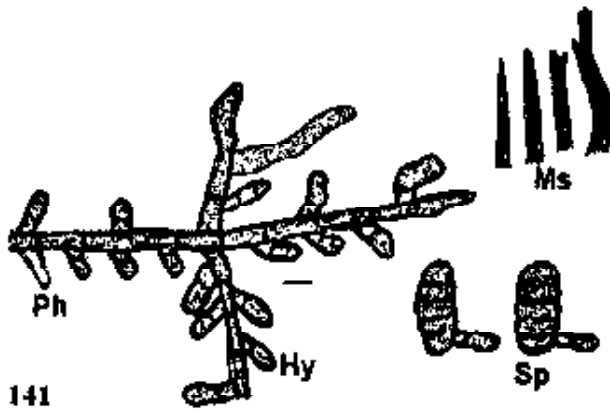
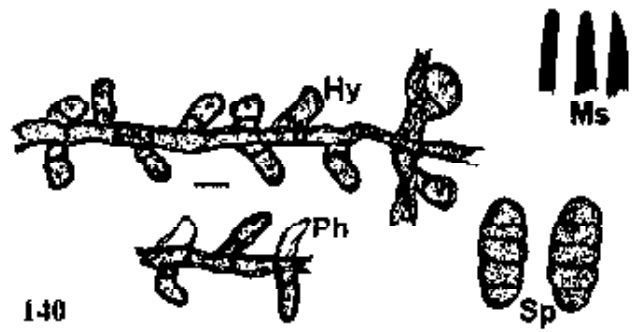
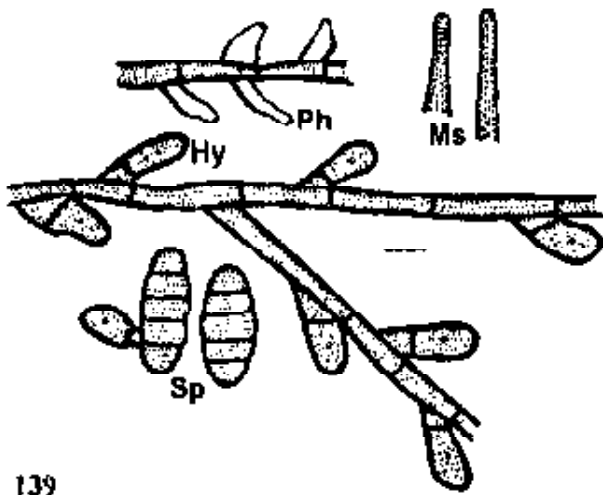
Colonies epiphyllous, subdense, velvety, up to 2 mm in diameter, confluent. Hyphae straight to sinuous, branching opposite at acute angles, loosely to closely reticulate, cells 18-34 x 6-8 μm . Hyphopodia alternate, antrorse, rarely spreading, mostly straight, 16-20 μm long; stalk cells cuneate, 5-8 μm long; head cells ovate, globose, entire, 11-14 x 10-12 μm . Phialides numerous, mixed with hyphopodia, opposite to alternate, ampulliform, 12-20 x 6-10 μm . Mycelial setae few, grouped around perithecia, straight, simple, obtuse at the tip, up to 190 μm long. Perithecia scattered, up to 189 μm in diam.; ascospores oblong, 4-septate, constricted, 30-32 x 10-14 μm .

Materials examined: On leaves of *Gmelina arborea* Roxb. (Verbenaceae), Meenumutty, Idukki, Kerala, December 12, 1982, V.B. Hosagoudar HCIO 40511, MH 73690; near Painavu, Idukki, Kerala, December 12, 1983, V.B. Hosagoudar MH 78979; October 3, 1983, V.B. Hosagoudar MH 78126; *G. asiatica* L., Mundandurai, Tamil Nadu, December 7, 1987, A. Rajendran HCIO 39285.

Distribution: India (Kerala, Tamil Nadu), Java, Philippines.

145. *Meliola clitoriae* Hosag. in Hosag. & Goos, Mycotaxon 37: 927, 1990.

Colonies amphigenous, mostly epiphyllous, subdense, up to 2 mm in diameter, confluent. Hyphae substraight to slightly undulate, branching opposite at acute angles, loosely reticulate, cells 24-38 x 6-8 μm . Hyphopodia alternate, unilateral to 5% opposite, straight to curved, spreading, antrorse to reflexed, 12-20 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells globose, entire, straight to curved, 8-12 μm . Phialides mixed with hyphopodia and borne



139. *Meliola cissampelicola* Hansf. & Thirum. 140. *M. citricola* Sydow 141. *M. clausenae* Hosag. 142. *M. clavulata* Wint. 143. *M. clerodendricola* Henn. 144. *M. clerodendricola* Henn. var. *micromera* (Sydow) Hansf.

on a separate mycelial branch, alternate to opposite, ampulliform, 16-24 x 8-10 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute at the tip, up to 450 μm long. Perithecia scattered, verrucose, up to 150 μm in diam.; ascospores oblong, 4-septate, constricted, 36-42 x 12-14 μm .

Materials examined: On leaves, stems and petioles of *Clitoria ternatea* L. (Fabaceae), Puliyanmala Tea Estate, Idukki, Kerala, December 15, 1983, V.B. Hosagoudar HCIO 40519 (type), MH 79093 (isotype).

Distribution: India (Kerala).

146. *Meliola commixta* Sydow, Leaflet. Philippine Bot. 9: 3117, 1925; Stev., Ann. Mycol. 26: 209, 1928; Hansford, Sydowia Beih. 2: 434, 1961; Hosag. & Goos, Mycotaxon 37: 228, 1990.

Colonies hypophyllous, thin, up to 4 mm in diameter. Hyphae crooked, branching mostly opposite at wide angles, loosely to closely reticulate, cells 22-24 x 8-10 μm . Hyphopodia opposite and alternate, straight to curved, spreading, antrorse to reflexed, 12-14 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells ovate, globose, angular, truncate to slightly lobate, contorted, 8-10 x 6-8 μm . Phialides mixed with hyphopodia, opposite to alternate, 16-20 x 8-10 μm . Mycelial setae numerous, mostly grouped around perithecia, simple, straight, acute, up to 315 μm long. Perithecia scattered, verrucose, up to 150 μm in diam.; ascospores obovoidal, 4-septate, constricted, 34-40 x 14-16 μm .

Materials examined: On leaves of *Nephelium longan* Lour. (Sapindaceae), Idukki, Kerala, October 9, 1982, V.B. Hosagoudar HCIO 40514, MH 73601.

Distribution: India (Kerala), Philippines.

So far, three species of the genus *Meliola* (not of *M. capensis* (Kalch. & Cooke) Theiss. group) namely *M. nephelii* Sacc., *M. nephelicola* Stev. & Rold. and *M. commixta* Sydow are recorded on the host genus *Nephelium*. The present species differs from the rest in having crooked mycelia, straight but not flexuous hyphopodia and smaller mycelial setae.

147. *Meliola connari* Yates, Philippine J. Sci. 12: 364, 1917 (*connariae*); Hansf., Sydowia Beih. 2: 476, 1961; Hosag. & Goos, Mycotaxon 37: 228, 1990.

Colonies hypophyllous, thin, up to 6 mm in diameter, confluent. Hyphae undulate, branching opposite at acute to wide angles, loosely reticulate, cells 30-

34 x 8-10 μm . Hyphopodia distantly placed, alternate, unilateral, antrorse to reflexed, spreading, straight to curved, 26-32 μm long; stalk cells cylindrical to cuneate, 6-10 μm long; head cells subglobose, clavate, entire to sublobate, often flexuous, 20-24 x 10-14 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 20-30 x 8-10 μm . Mycelial setae numerous, mostly grouped around perithecia, straight, simple, acute at the tip, up to 675 μm long. Perithecia seated on exhyphopodia mycelium, scattered, verrucose, up to 225 μm in diam.; ascospores cylindrical, 4-septate, constricted, 44-48 x 18-20 μm .

Materials examined: On leaves of *Connarus sclerocarpus* (Wight & Arn.) Schell. (Connaraceae), Idukki, Kerala, February 25, 1983, V.B. Hosagoudar HCIO 40515, MH 75020; February 20, 1983, V.B. Hosagoudar MH 75866.

Distribution: India (Kerala), Philippines.

This species is distinct from rest of the *Meliola* spp. recorded on *Connarus* spp. in having variable morphological characters of head cells of the hyphopodia and the perithecia seated on an exhyphopodiate mycelia.

The Indian collections slightly vary from the type in hypophyllous colonies, smaller hyphopodia and mycelial setae.

148. *Meliola connari* Yates var. *indica* Hosag. in Hosag. & Goos, Mycotaxon 42: 133, 1991.

Colonies epiphyllous, thin, up to 2 mm in diameter, rarely confluent. Hyphae straight, branching alternate to opposite at wide angles, loosely reticulate, cells 12-46.5 x 6-9.5 μm . Hyphopodia alternate, antrorse, subantrorse to rarely spreading, 24-46 μm long; stalk cells cylindrical to cuneate, 6-15.5 μm long; head cells ovate, globose, cylindrical, often curved, entire to angular to slightly lobate, 15-31 x 12-18.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-28 x 9-12.5 μm . Mycelial setae few, mostly grouped around perithecia, simple, straight, acute, up to 672 μm long. Perithecia scattered, up to 140 μm in diam.; ascospores obovoidal, 4-septate, constricted, 45-50 x 21-25 μm .

Materials examined: On leaves of *Connarus sclerocarpus* Schell. (Connaraceae), Shankarankudi, Valparai, Coimbatore, December 27, 1990, V.B. Hosagoudar HCIO 30541 (type).

Distribution: India (Tamil Nadu).

149. *Meliola cookeana* Speg., Anal. Soc. Cient. Argentina 12: 41, 1881.

M. rizalensis Sydow, Ann. Mycol. 12: 551, 1914.

Colonies epiphyllous, dense, up to 3 mm in diameter, confluent. Hyphae flexuous, branching mostly opposite at wide angles, loosely reticulate, cells 27-34 x 3-5 μm . Hyphopodia alternate, antrorse to subantrorse, 15-22 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells mostly globose, entire, 9-12.5 x 9-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 6-9.5 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, flexuous to crooked, obtuse at the apex, up to 286 μm long. Perithecia scattered, verrucose, up to 124 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 31-35 x 12-15.5 μm .

Materials examined: On leaves of *Vitex leucoxyton* L.f. (Verbenaceae), North Canara, Karnataka, October 1919, L.J. Sedgwick HCIO 1984.

Distribution: India (Karnataka), Congo Belge, Florida, Formosa, Java, Philippines, Sierra Leone.

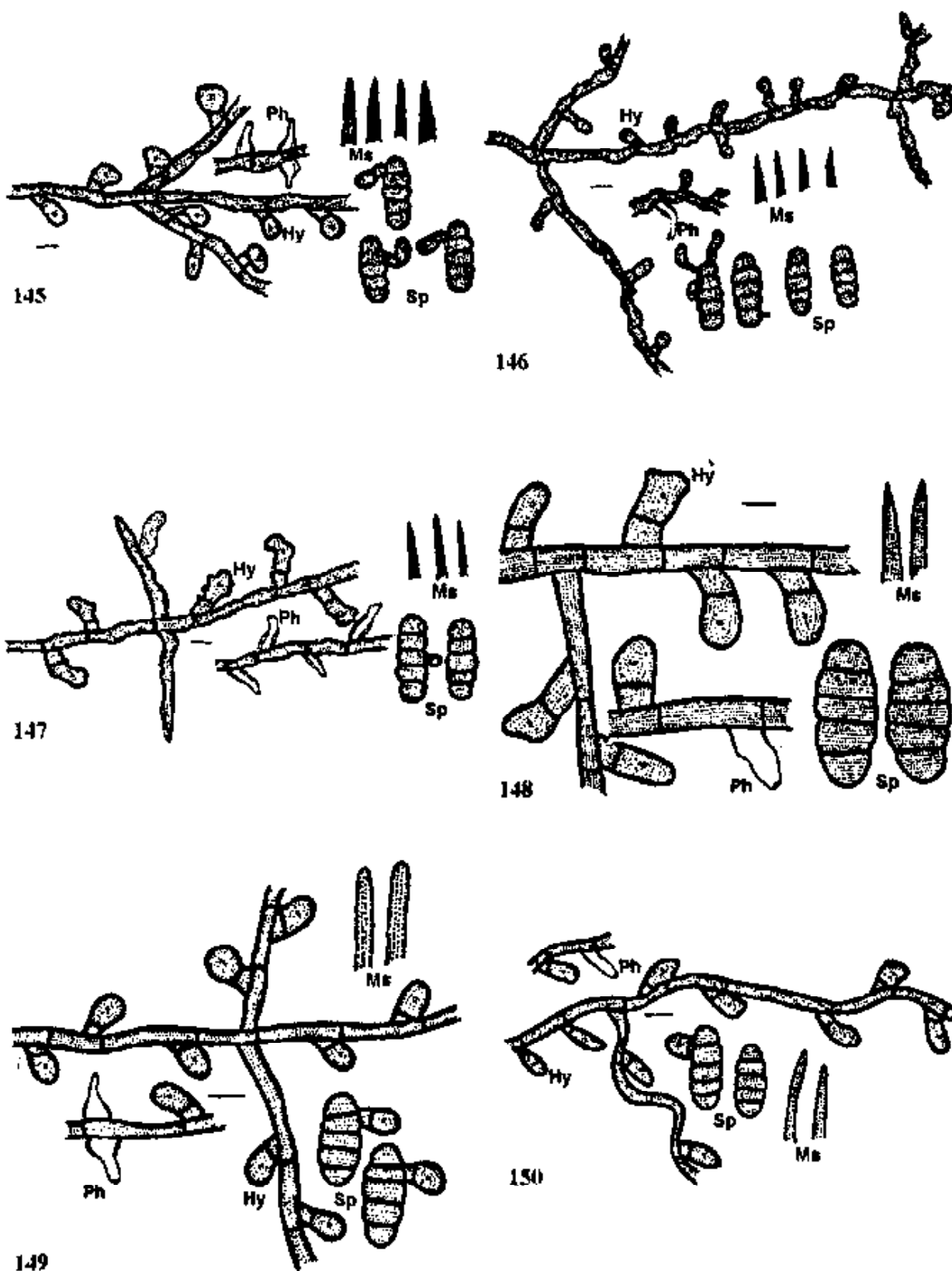
150. *Meliola coreopsidis* Thite & Kulkarni, J. Shivaji Univ. (Sci.) 18: 209, 1978 (*caereopsidis*).

Colonies epiphyllous, minute, dense, up to 1 mm in diameter. Hyphae flexuous, branching alternate to opposite at acute angles, loosely to closely reticulate, cells 12-15.5 x 5-7 μm . Hyphopodia alternate, antrorse to closely antrorse, 15-18.5 μm long; stalk cells cuncate, 5-6.5 μm long; head cells ovate, globose, entire to slightly angular, rounded to slightly pointed at the apex, 12-15 x 9-11 μm . Phialides mixed with hyphopodia, scattered, alternate to opposite, conoid to ampulliform, 12-15.5 x 6-9.5 μm . Mycelial setae few, grouped around perithecia, straight to curved, obtuse at the apex, up to 200 μm long. Perithecia scattered, verrucose, up to 145 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 30-33 x 12-14 μm .

Materials examined: On leaves of *Coereopsis auristosa* Michx. (Asteraceae), Anmode, Maharashtra, November 1969, A.N. Thite HCIO 31622 (type).

Distribution: India (Maharashtra).

151. *Meliola crescentiae* Stev., Ann. Mycol. 26: 240, 1928; Hansf., Sydowia Beih. 2: 673, 1961.



145. *Meliola clitoriae* Hosag. 146. *M. commixta* Sydow 147. *M. connari* Yates 148. *M. connari* Yates var. *indica* Hosag. 149. *M. cookeana* Speg. 150. *M. coreopsidis* Thite & Kulkarni

Colonies epiphyllous, dense, subvelvety, up to 3 mm in diameter, confluent. Hyphae substraight to flexuous, branching mostly opposite at acute angles, loosely to closely reticulate, cells 15-22 x 6-8 μm . Hyphopodia alternate, antrorse to closely antrorse, 15-22 μm long; stalk cells mostly cuneate, 6-9.5 μm long; head cells ovate, globose, entire, 9-12.5 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 12-18.5 x 6-9.5 μm . Mycelial setae scattered to mostly grouped around perithecia, straight to slightly curved, simple, obtuse at the tip, up to 275 μm long. Perithecia scattered, up to 125 μm in diameter, ascospores obovoidal, 4-septate, constricted, 27-31 x 12-13 μm .

Materials examined: On leaves of *Heterophragma roxburghii* DC. (Bignoniaceae), Dharward, Karnataka, December 1912, L.J. Sedgwick HCIO 1993; *Pagenelia longifolia* (Willd.) K. Schum. (*P. rheedii* DC.) (Bignoniaceae), Kasaragod, Kerala, August 11, 1993, K. Ratnakaran HCIO 41121.

Distribution: India (Karnataka, Kerala), Brazil, Honduras, Malaya, San Domingo, Trinidad, Venezuela.

152. *Meliola cryptocariicola* Hosag. & Raghu, New Botanist 20: 67, 1993.

Colonies hypophyllous, dense, crustose, spreading, confluent. Hyphae tortuous, branching opposite to irregular at acute to wide angles, closely reticulate and form solid mycelial mat, cell 12-22 x 5-6.5 μm . Hyphopodia alternate, about 10% opposite, straight to variously curved, antrorse to recurved, 18-28 μm long; stalk cells cylindrical to cuneate, 4-6.5 μm long; head cells ovate, globose to oblong, entire, angular to slightly sublobate, 13-18.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 12-15.5 x 9-12.5 μm . Mycelial setae very few in some colonies but numerous in others, scattered to grouped around perithecia, simple, straight, acute, obtuse to dentate at the tip, up to 300 μm long. Perithecia scattered, up to 150 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 43-46.5 x 18-22 μm .

Materials examined: On leaves of *Cryptocarya bourdillonii* Gamble (Lauraceae), Gersoppa, Karnataka, October 21, 1992, P.A. Raghu HCIO 40886 (type).

Distribution: India (Karnataka).

153. *Meliola cycleae* Hosag. in Hosag. & Goos, Mycotaxon 37: 228, 1990.

Colonies amphigenous, mostly epiphyllous, subdense to dense, up to 3

mm in diameter, confluent. Hyphae substraight to slightly undulate, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 16-28 x 6-8 μm . Hyphopodia alternate to unilateral, straight, antrorse, 20-28 μm long; stalk cells cuneate, 6-12 μm long; head cells ovate, versiform, slightly and bluntly pointed at the apex, entire, 14-18 x 12-14 μm . Phialides borne on a separate mycelial branch, alternate to opposite, conoid to ampulliform, 14-22 x 6-8 μm . Mycelial setae scattered to grouped around the perithecia, simple, acute at the tip, up to 432 μm long. Perithecia scattered, verrucose, up to 160 μm in diam.; ascospores oblong, 4-septate, slightly constricted, 34-40 x 16-20 μm .

Materials examined: On leaves, stems and petioles of *Cyclea peltata* Cooke (Menispermaceae), Meenumutty, Idukki, Kerala, December 12, 1982, V.B. Hosagoudar HCIO 40516 (type); Castle Rock, Karnataka, January 10, 1984, C.R. Patil HCIO 40014.

Distribution: India (Kerala, Maharashtra).

154. *Meliola cymbopogonis* Kapoor, Indian Phytopathol. 20: 152, 1967; Hosag. & Goos, Mycotaxon 37: 229, 1990.

Colonies epiphyllous, rarely amphigenous, subdense to dense, velvety, up to 3 mm in diameter. Hyphae straight to tortuous, straight hyphae run along the veins and tortuous hyphae cross the straight hyphae, branching mostly opposite at wide to acute angles, loosely to closely reticulate, cells 14-22 x 6-8 μm . Hyphopodia alternate, unilateral, antrorse, spreading, 10-24 μm long; stalk cells cuneate to cylindrical, 4-12 μm long; head cells ovate, globose, angular to sublobate, 10-14 x 12-14 μm . Phialides few, mixed with hyphopodia, opposite to alternate, ampulliform, 12-18 x 10-12 μm . Mycelial setae straight, dichotomously branched at the tip, up to 176 μm long till branching, primary branch up to 20 μm long, while tertiary up to 10 μm long, branchlets reflexed, acute to obtuse at the tip. Perithecia scattered, verrucose, up to 120 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 38-44 x 12-14 μm .

Materials examined: On leaves of *Cymbopogon nardus* (L.) Rendle (Poaceae), Wynaad, Kerala, November 13, 1909, W. McRae HCIO 28213 (type); *C. flexuous* (Nees ex Steud.) Wats., Vazhathope, Idukki, Kerala, March 26, 1983, V.B. Hosagoudar HCIO 40517, MH 75038; Meenumutty, Idukki, Kerala, August 20, 1983, V.B. Hosagoudar MH 75879; Idukki, Kerala, October 4, 1983, V.B. Hosagoudar MH 781521 HCIO No. 34972.

Distribution: India (Kerala).

155. *Meliola daviesii* Hansf., Proc. Linn. Soc. London 157: 176, 1946; Sydowia Beih. 2: 536, 1961; Kapoor, Indian Phytopathol. 20: 153, 1967.

Colonies epiphyllous, thin, up to 3 mm in diameter. Hyphae straight to slightly tortuous, branching opposite at wide angles, loosely reticulate, 20-40 x 6-8 μm . Hyphopodia alternate, antrorse, straight to slightly curved, 20-30 μm long; stalk cells cylindrical to cuneate, 6-12 μm long; head cells clavate, cylindrical, entire, 12-16 x 8-10 μm . Phialides few, mixed with hyphopodia, alternate to opposite, conoid to ampulliform, 12-20 x 6-8 μm . Mycelial setae mostly grouped around perithecia, straight, simple, acute, up to 400 μm long. Perithecia scattered, verrucose up to 150 μm in diam.; ascospores oblong, 4-septate, 34-40 x 14-16 μm .

Materials examined: On leaves of *Jasminum* sp. (Oliaceae), Palampur, Himachal Pradesh, May 16, 1963, V.S. Sharma HCIO 27855.

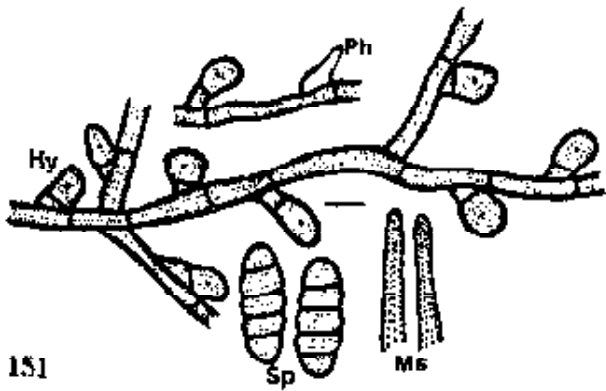
Distribution: India (Himachal Pradesh), Burma, Congo Belge, Uganda.

This collection was associated with rust fungus.

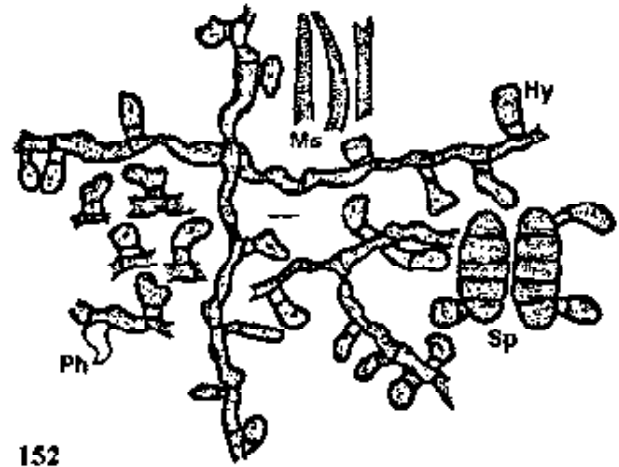
156. *Meliola densa* Cooke, Grevillea 12: 85, 1884; Hansf., Sydowia Beih. 2: 141, 1961; Hosag. & Goos, Mycotaxon 37: 229, 1990; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 111, 1994.

Colonies hypophyllous, dense, velvety, up to 5 mm in diameter, confluent. Hyphae substraight to tortuous, branching opposite to irregular at wide angles, closely reticulate, cells 18-40 x 8-10 μm . Hyphopodia alternate, straight to variously bent, antrorse, spreading, 18-24 μm long; stalk cells cylindrical to cuneate, 6-14 μm long; head cells curved, ovate, cylindrical, angulose, entire, 12-16 x 8-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, neck elongated and twisted, 22-30 x 8-10 μm . Mycelial setae fairly numerous, simple, broadly uncinuate to arcuate above, very few are straight, acute to obtuse at the tip, up to 540 μm long. Perithecia scattered, verrucose, up to 180 μm in diam.; ascospores obovoidal, 4-septate, constricted, 46-48 x 18-20 μm .

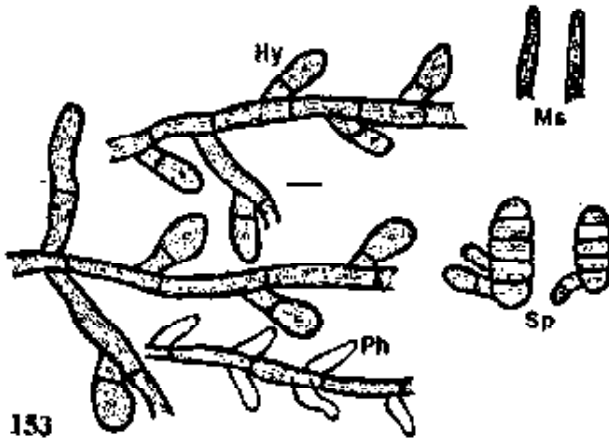
Materials examined: On leaves of *Syzygium munroni* (Walp.) Chandr. (Myrtaceae), Idukki, Kerala, February 18, 1983, V.B. Hosagoudar HCIO 40518, MH 75027; February 25, 1983, V.B. Hosagoudar MH 79028; *S. laetum* (Buch.-Ham.) Gandhi, Idukki, Kerala, December 12, 1982, V.B. Hosagoudar MH 75715; *Eugenia* sp., Hosmatta, Dakshina Kannada, Karnataka, August 31, 1991, H.S.P. Shenoy HCIO 40866.



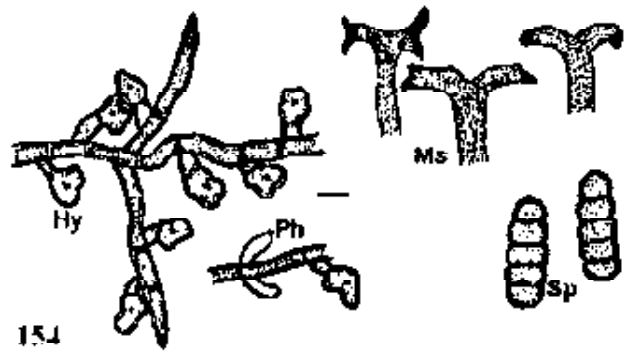
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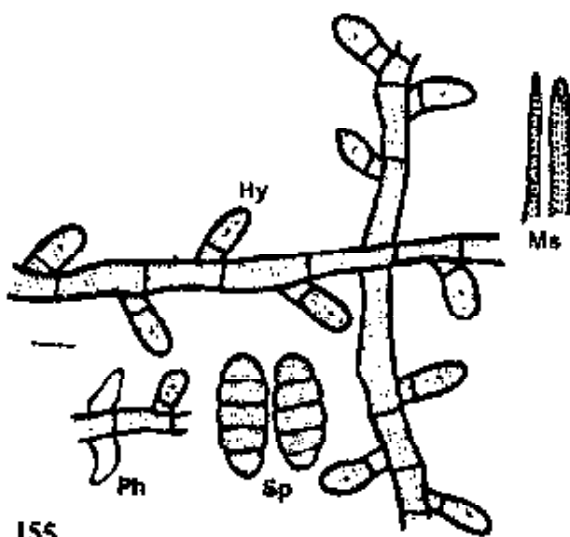
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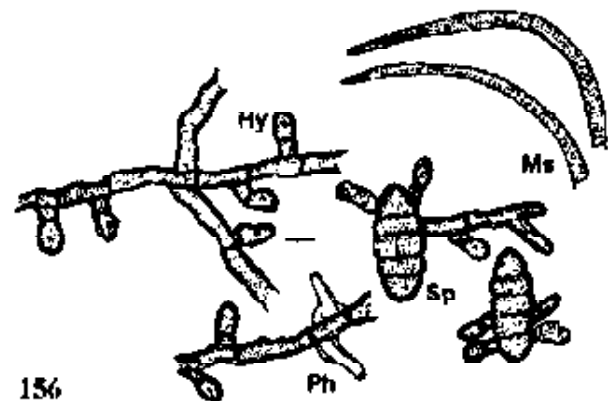
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151. *Meliola crescentiae* Stev. 152. *M. cryptocariicola* Hosag. & Raghu 153. *M. cycloae* Hosag. 154. *M. cymbopogonis* Kapoor 155. *M. daviesii* Hansf. 156. *M. densa* Cooke

Distribution: India (Karnataka, Kerala), New Guinea, Queensland, Sierra Leone.

Cooke (*l.c.*) described this species on *Eucalyptus* sp. from Queensland and also added the species of *Meliola* parasitized the host *Ilex* sp. from Khasia hills, India. However, he has expressed his doubt regarding the identity of the host *Ilex*. So far this species is known to occur only on the members of the family Myrtaceae.

157. *Meliola dichapetali* Hansf. & Thirum., Farlowia 3: 292, 1948; Hansf., Sydowia Beih. 2: 240, 1961.

Colonies epiphyllous, dense, velvety, up to 3 mm in diameter. Hyphae substraight, branching opposite at acute to wide angles, loosely to closely reticulate and almost solid, cells 10-20 x 6-8 μ m. Hyphopodia opposite and alternate, more or less antrorse, crowded, 15-20 μ m long; stalk cells cylindrical to cuncate, 2-9 μ m long; head cells ovate to pyriform, slightly curved, entire, 10-14 x 9-12 μ m. Phialides mixed with hyphopodia, alternate to opposite, conoid to ampulliform, 14-20 x 8-10 μ m. Mycelial setae numerous, scattered, straight, dentate, up to 280 μ m long. Perithecia loosely aggregated in the centre of the colony, up to 180 μ m in diam.; ascospores cylindrical, 4-septate, slightly constricted, 40-44 x 14-16 μ m.

Materials examined: On leaves of *Dichapetalum gelonioidea* (Roxb.) Engl. (Dichapetalaceae), Balehonnur, Karnataka, April 29, 1945, M.J. Thirumalachar HClO 10858 (type).

Distribution: India (Karnataka).

158. *Meliola dichotoma* Burk & Curt. var. *kusanoi* (Henn.) Hansf., Sydowia Beih. 2: 484, 1961.

Meliola kusanoi Henn., Englers Bot. Jahrb. 28: 272, 1901.

Colonies amphigenous, subdense to dense, up to 5 mm in diam. Hyphae straight to flexuous, branching opposite to alternate at acute to wide angles, loosely to closely reticulate, cells 21-30 x 8-9.5 μ m. Hyphopodia alternate and about 15% opposite, antrorse to subantrorse, 12-25 μ m long; stalk cells cylindrical to cuneate, 3-9.5 μ m; head cells ovate, cylindrical to globose, entire, 9-15.5 x 9-12.5 μ m. Phialides mixed with hyphopodia, alternate to opposite, ampulliform,

21-25 x 9-12.5 μm . Mycelial setae two types: around perithecia simple, unbranched, mostly straight, acute to obtuse at the tip, up to 350 μm long; on mycelia evenly scattered, 1-2 times dichotomously branched, straight, up to 155 μm long up to 1st branch from the base, up to 80 μm long first to second branch and final branchlets up to 80 μm long, tip obtuse, all branching and branchlets spreading. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 43-46.5 x 15-18.5 μm .

Materials examined: On leaves of *Schefflera venulosa* (Wight & Arn.) Harms (Araliaceae), Kudremukh, Chikmagalore, Karnataka, April 24, 1993, P.A. Raghu HCIO 41122.

Distribution: India (Karnataka), Japan.

This taxon stands distinct from its allied taxa in having dichotomously branched mycelial setae on the mycelium and simple, unbranched setae around perithecia.

The present collection differs from the type in having longer ascospores.

159. *Meliola dimidiatae* Hosag. in Hosag. & Goos, Mycotaxon 37: 229, 1990.

Colonies epiphyllous, subdense, subvelvety, scattered, up to 3 mm in diameter, rarely confluent. Hyphae flexuous, branching opposite to irregular at acute angles, loosely reticulate, cells 16-24 x 6-8 μm . Hyphopodia alternate and unilateral (few opposite), straight to curved, antrorse to reflexed, spreading, 16-20 μm long; stalk cells cylindrical to cuneate, 4-6 μm long; head cells mostly globose, ovate, curved, entire, 12-14 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 20-26 x 8-10 μm . Mycelial setae numerous, scattered, often grouped around perithecia, straight, simple, acute, up to 540 μm long. Perithecia scattered, verrucose, up to 130 μm in diam.; ascospores cylindrical, 4-septate, constricted, 42-44 x 16-18 μm .

Materials examined: On leaves of *Apodytes dimidiata* E. Meyer ex Arn. (Icacaceae), Idukki, Kerala, October 4, 1983, V.B. Hosagouar HCIO 40519 (type), MH 78141 (isotype); Lakshmi Estate, Idukki, Kerala, December 15, 1982, V.B. Hosagoudar MH 75781.

Distribution: India (Kerala).

160. *Meliola diospyri* Sydow & Sydow in Sydow & Butler, Ann. Mycol. 9: 281,

1911; Hansf., *Sydowia Beih.* 2: 498, 1961; Thite & Kulkarni, *J. Shivaji Univ. (Sci.)* 6: 162, 1973; Srinivasulu, *Nova Hedwigia Beih.* 47: 426, 1974; Maity, *Indian J. Mycol. Res.* 16: 25, 1978; Hosag. & Goos, *Mycotaxon* 37: 230, 1990; Hosag., Siddappa & Udaiyarn, *Nova Hedwigia* 56: 197, 1993; Hosag., Raghu & Pillai, *Nova Hedwigia* 58: 538, 1994.

Colonies amphigenous, mostly hypophyllous, subdense to dense, up to 5 mm in diameter, confluent. Hyphae straight to slightly undulate, branching opposite at wide to acute angles, loosely reticulate, cells 20-36 x 6-10 μm . Hyphopodia alternate, about 40% opposite, antrorse, spreading, 18-26 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells ovate, versiform, entire, rarely angular, 14-18 x 8-10 μm . Phialides numerous, mixed with hyphopodia, alternate to opposite, ampulliform, 20-28 x 8-10 μm . Mycelial setae scattered, straight, simple, acute to obtuse at the tip, up to 774 μm long. Perithecia scattered to grouped, up to 200 μm in diam.; ascospores obovoidal, 4-septate, constricted, 42-50 x 16-18 μm .

Materials examined: On leaves of *Diospyros montana* Roxb. (Ebenaceae), Koppa, Karnataka, September 15, 1903, E.J. Butler HCIO 1044; *D. nigrescens* (Dalzel) Saldhana, Radhanagari, Kolhapur, Maharashtra, November 10, 1974, M.S. Patil HCIO 31944; *D. pruriens* Dalz., Petlond, Sangli, Maharashtra, April 20, 1984, C.R. Patil HCIO 40003; *Diospyros* sp., Anmode, Maharashtra, oct. 1974, A.N. Thite HCIO 31905; *D. sylvatica* Roxb., Calvary Mount, Idukki, Kerala, October 5, 1983, V.B. Hosagoudar HCIO 40520, MH 78169; Anmode, Maharashtra, October 17, 1974, A.N. Thite HCIO 31905; *D. malabarica* (Desr.) Kostel., Bekur, Kasaragod, Kerala, September 13, 1992, P. Ram Bhat HCIO 40758.

Distribution: India (Karnataka, Kerala, Maharashtra).

161. *Meliola diospyri* Sydow & Sydow var. *yatesiana* (Trott.) Hansf. & Deight., *Mycol. Pap.* 23: 50, 1948; Hansf., *Sydowia Beih.* 2: 499, 1961.
Meliola yatesiana Trott. in Sacc., *Syll. Fung.* 24: 284, 1926.
Meliola diospyriae Yates, *Philippine J. Sci.* 12: 364, 1917.

Colonies hypophyllous, dense, up to 3 mm in diameter. Hyphae straight, branching opposite at acute angles, closely reticulate, cells 21-25 x 9-11 μm . Hyphopodia opposite, 2-5% alternate, closely arranged, antrorse, straight, 15-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells globose, ovate to oblong, rounded to slightly narrowed towards the apex, mostly straight

but rarely curved, entire, 9-15.5 x 12-15.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-25 x 9-11 μm . Mycelial setae scattered, simple, straight, acute at the apex, up to 572 μm long. Perithecia loosely grouped, verrucose, up to 155 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 49-52 x 20-22 μm .

Materials examined: On leaves of *Diospyros nigrescens* (Dalzel) Saldhana (*Maba nigriscens* Dalzel) (Ebenaceae), Castle Rock, Karnataka, December 1971, A.N. Thite HCIO 31911.

Distribution: India (Karnataka), Formosa, Philippines.

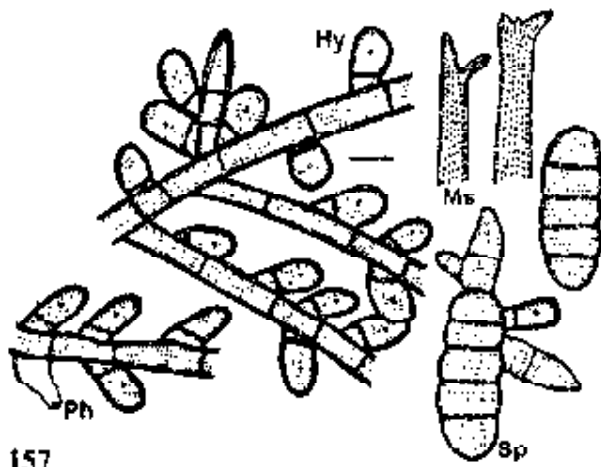
162. *Meliola dracena-terniflorae* sp. nov.

Coloniae amphigenae, densae, ad 3 mm diam. Hyphae rectae vel subrectae, plerumque opposite acuteque vel laxe ramosae, laxe vel dense reticulatae, cellulae 15-18.5 x 6-8 μm . Hyphopodia alternata, antrorsa vel subantrorsa, 15-18.5 μm longa; cellula basali cylindracea vel cuneata, 5-6.5 μm longa; cellula apicali recta vel curvula, ovata vel globosa, integra, 10-12.5 x 10-12 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 18-25 x 5-7 μm . Setae myceliales plerumque circa perithecia aggregatae, simplices, rectae, acutae ad apicem, ad 500 μm longae. Perithecia laxe dispersa, verrucosa, ad 250 μm diam.; ascosporae ellipsoideae vel cylindraceae, rectae vel curvulae, 4-septatae, constrictae, 37-41 x 12-15.5 μm .

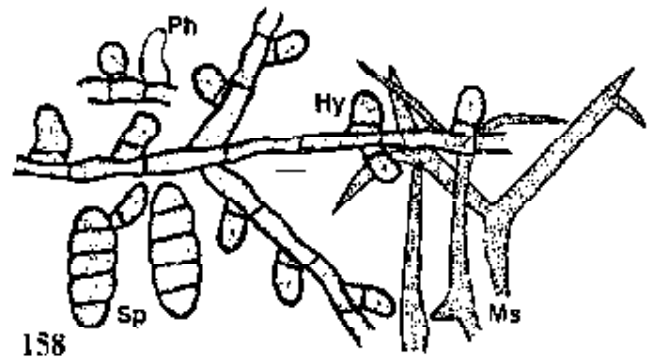
Colonies amphigenous, dense, up to 3 mm in diameter. Hyphae straight to substraight, branching mostly opposite at acute to wide angles, loosely to closely reticulate, cells 15-18.5 x 6-8 μm . Hyphopodia alternate, antrorse to subantrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 5-6.5 μm long; head cells straight to curved, ovate to globose, entire, 10-12.5 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-25 x 5-7 μm . Mycelial setae mostly grouped around perithecia, simple, straight, acute at the apex, up to 500 μm long. Perithecia loosely scattered, verrucose, up to 250 μm in diam.; ascospores ellipsoidal to cylindrical, straight to curved, 4-septate, constricted, 37-41 x 12-15.5 μm .

Materials examined: On leaves of *Dracena terniflora* Roxb. (Agavaceae), Amboli, Sindhudurg, Maharashtra, March 6, 1980, M.S. Patil HCIO 36747 (type).

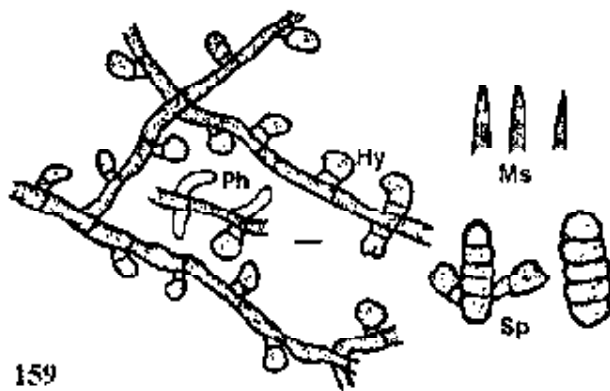
Distribution: India (Maharashtra).



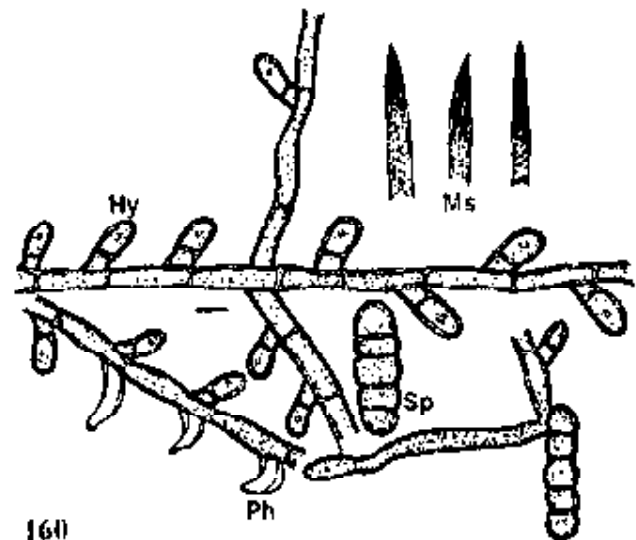
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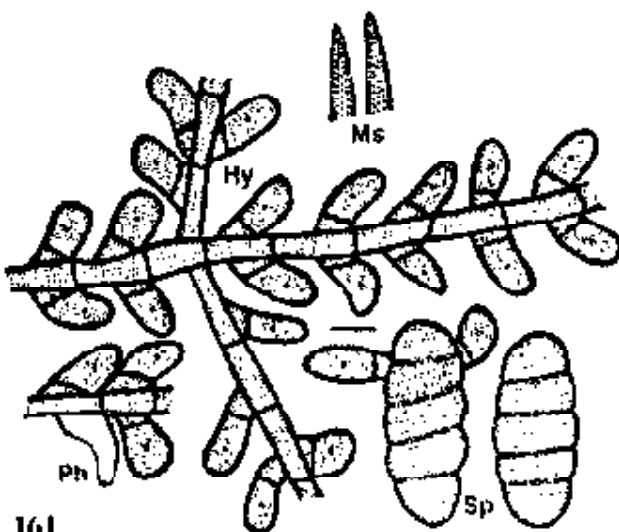
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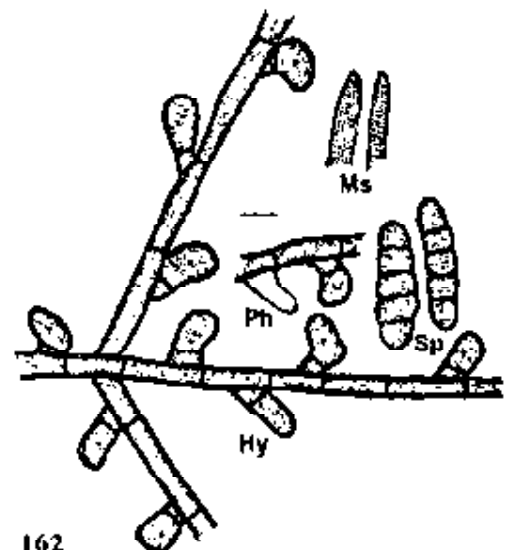
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157. *Meliola dichapetali* Hansf. & Thirum. 158. *M. dichotoma* Berk. & Curt. var. *kusanoi* (Henn.) Hansf. 159. *M. dimidiatae* Hosag. 160. *M. diospyri* Sydow 161. *M. diospyri* Sydow var. *yatesiana* (Trott.) Hansf. & Deight. 162. *M. dracena-terniflorae* Hosag.

The present new species is close to *Meliola agavicola* Rodriguez & Camino but differs from it in having smaller hyphopodia, mycelial setae, perithecia and ascospores.

163. *Meliola drepanochaeta* Sydow var. *insignis* Hosag., J. Econ. Tax. Bot. 11: 157, 1987.

Colonies hypophyllous, dense, up to 4 mm in diameter. Hypnae crooked, branching irregular at acute angles, loosely to closely reticulate, cells 20-25 x 5-8 μm . Hyphopodia alternate, distantly placed, spreading, 24-31 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, angulose to irregularly sublobate, straight to variously curved, 18-21.5 x 12-18.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15.5-25 x 6-9.5 μm . Mycelial setae numerous, mostly grouped around perithecia, simple, acute to obtuse at the tip, arcuate to hamate, up to 860 μm long. Perithecia scattered, verrucose, up to 264 μm in diam.; ascospores fusiform, 4-septate, constricted, 40-45 x 12.5-18.5 μm .

Materials examined: On leaves of *Litsea insignis* Gamble (Lauraceae), Pudukadu (Lower Sheikalmudi), Valparai, Tamil Nadu, January 17, 1987, V.B. Hosagoudar HCIO 39308 (type).

Distribution: India (Tamil Nadu).

164. *Meliola drypeticola* Hosag. in Hosag. & Goos, Mycotaxon 37: 230, 1990.

Colonies hypophyllous, scattered, dense, velvety up to 10 mm in diameter, confluent. Hyphae substraight to undulate, branching opposite to irregular at wide angles, loosely reticulate, cells 24-30 x 6-8 μm . Hyphopodia alternate, unilateral to 10% opposite, straight, spreading, antrorse to reflexed, 12-16 μm long; stalk cells cylindrical to cuneate, 2-6 μm long; head cells globose, entire, curved, 10-12 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-20 x 8-10 μm . Mycelial setae numerous, scattered, straight, simple, acute at the tip, up to 315 μm long. Perithecia scattered, verrucose, up to 160 μm in diam.; ascospores obovoidal, 4-septate, constricted, 36-40 x 14-16 μm .

Materials examined: On leaves of *Drypetes macrophylla* (Bl.) Pax & Hoffm. (Euphorbiaceae), Idukki, Kerala, India, February 18, 1983, V.B. Hosagoudar, HCIO 40521 (type); MH 75834 (isotype); *Epiprinus mallotiformis* (Muell.-Arg.) Croizat (Euphorbiaceae), Veerapuli Reserve Forest, Kanniyakumari

dist., Tamil Nadu, February 22, 1994, V.B. Hosagoudar HClO 41542 (*M. epiprini*).

Distribution: India (Kerala).

This species differs from *Meliola hymenocardiae* Hansf. in having hypophyllous colony formation; 10% opposite, not crowded hyphopodia and smaller setae.

165. *Meliola ehretiicola* sp. nov.

Coloniae amphigenae, plerumque epiphyllae, densae, velutinae, ad 5 mm diam. Hyphae rectae, alternatae, oppositae vel irregulariter acuteque ramosae, dense reticulatae et solidae, cellulae 15-18.5 x 9-11 μm . Hyphopodia alternata, 20% opposita, antrorsa, 18-22 μm longa; cellula basali cuneata, 9-11 μm longa; cellula apicali globosa, 2-3 toties irregulariter sublobata, 9-12.5 x 12-15.5 μm . Phialides illis hyphopodiis commixtae, dispersae, ampullaceae, 15-22 x 9-11 μm . Setae myceliales dense dispersae, simplices, rectae, acutae vel obtusae ad apicem, ad 500 μm longae. Perithecia dense dispersae, ad 155 μm diam.; ascosporae obovoideae, 4-septatae, leniter constrictae, 37-40.5 x 15-17 μm .

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 5 mm in diameter. Hyphae straight, branching alternate, opposite to irregular at acute angles, closely reticulate and form solid mycelial mat, cells 15-18.5 x 9-11 μm . Hyphopodia predominantly alternate, about 20% opposite, antrorse, 18-22 μm long; stalk cells cuneate, 9-11 μm long; head cells globose, 2-3 times irregularly sublobate, 9-12.5 x 12-15.5 μm . Phialides mixed with hyphopodia, scattered, ampulliform, 15-22 x 9-11 μm . Mycelial setae densely scattered, simple, straight, acute to obtuse at the tip, up to 500 μm long. Perithecia closely scattered, up to 155 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 37-40.5 x 15-17 μm .

Materials examined: On leaves of *Ehretia canarensis* (Clarke) Gamble (Boraginaceae), Verapuli Reserve forest, Kanniyakumari dist., Tamil Nadu, February 22, 1994, V.B. Hosagoudar HClO 41560 (type).

Distribution: India (Tamil Nadu).

The present new species differs from the three species of the genus *Meliola* reported on the members of the family Boraginaceae in having 20% opposite hyphopodia with sublobate head cells.

166. *Meliola elaeagni* Hansf. & Thirum., Farlowia 3: 292, 1948; Hansf., Sydowia Beih. 2: 369, 1961.

Colonies epiphyllous, thin, crustose, up to 2 mm in diam., rarely confluent. Hyphae straight, branching mostly opposite at acute to wide angles, loosely reticulate, cells 8-22 (-62) x 6-8 μ m. Hyphopodia alternate, antrorse to subantrorse, 15-25 μ m long; stalk cells cylindrical to cuneate, 6-8 μ m long; head cells globose, ovate, elongate-ovate, entire to angular, broadly rounded to truncate at the apex, 9-18.5 x 9-12.5 μ m. Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 6-8 μ m, neck elongated. Mycelial setae not many, simple, straight, acute at the apex, up to 572 μ m long. Perithecia scattered, verrucose, up to 124 μ m in diam.; ascospores oblong, 4-septate, slightly constricted at the septa, 37-40.5 x 15-18.5 μ m.

Materials examined: On leaves of *Elaeagnus kologa* Schlecht (*E. latifolia* L.) (Elaeagnaceae), Balehonnur, Karnataka, April 29, 1945, M.J. Thirumalachar HCIO 10856 (type); *E. indica* Servetta, Veerapuli Reserve forest, Kanniyakumari dist., Tamil Nadu, February 22, 1994, V.B. Hosagoudar HCIO 41641.

Distribution: India (Karnataka, Tamil Nadu).

This species was associated with *Asterina* sp.

167. *Meliola entadicola* Deighton, Sydowia 11: 104, 1958; Hansf., Sydowia Beih. 2: 260, 1961; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 111, 1994.

Colonies amphigenous, mostly epiphyllous, thin, confluent. Hyphae straight to substraight, branching alternate to opposite at acute to wide angles, loosely to closely reticulate, cells 24-34 x 4-6.5 μ m. Hyphopodia alternate and opposite, straight to curved, antrorse to recurved, 12-15.5 μ m long; stalk cells cylindrical to cuneate, 4-6.5 μ m long; head cells ovoid, globose to oblong, entire to rarely angular, 7-9.5 x 6-8 μ m. Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 6-9.5 μ m. Mycelial setae fairly numerous, scattered, straight to rarely and slightly flexuous at the upper portion, acute, obtuse to dentate at the tip, up to 430 μ m. Perithecia scattered, up to 126 μ m in diameter; ascospores oblong to cylindrical, 4-septate, slightly constricted at the septa, 34-37.5 x 12-15.5 μ m.

Materials examined: On leaves of *Entada rheedii* Sprengel (*E. persaetha* DC.) (Mimosaceae), Gersoppa, Uttara Kannada, Karnataka, October 24, 1992,

P.A. Raghu HICIO 40867.

Distribution: India (Karnataka), Sierra Leone.

168. *Meliola ervatamiae* Hosag., *Sydowia* 40: 115, 1987.

Colonies epiphyllous, rarely amphigenous, thin, up to 4 mm in diameter, confluent. Hyphae undulate, branching mostly opposite at wide angles, loosely reticulate, cells 24-31 x 4.5-6 μm . Hyphopodia alternate, straight to curved, antrorse, reflexed, spreading, 12-18 μm long; stalk cells cuneate to cylindrical, 2-3 μm long; head cells ovate, globose, slightly angular to sublobate, straight to curved, 13.5-15.5 x 9-10.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 12-16.5 x 6-8 μm . Mycelial setae few, grouped around perithecia, straight, simple, acute to obtuse, up to 208 μm long. Perithecia scattered, verrucose, up to 93 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 27-31 x 11-12.5 μm .

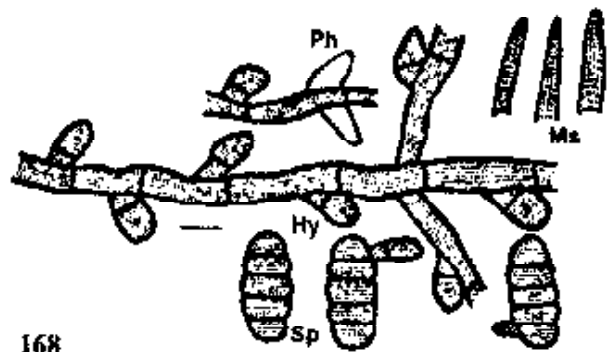
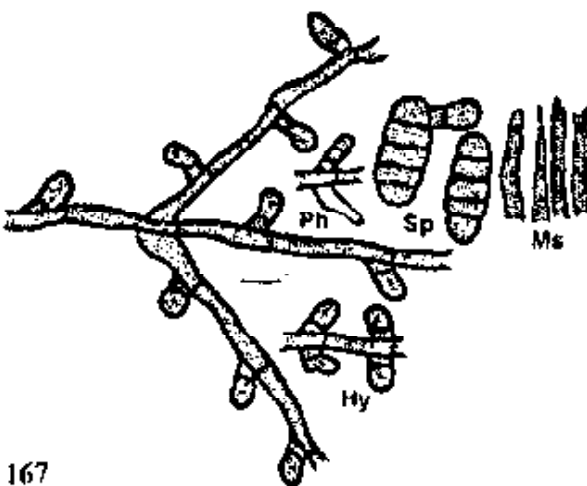
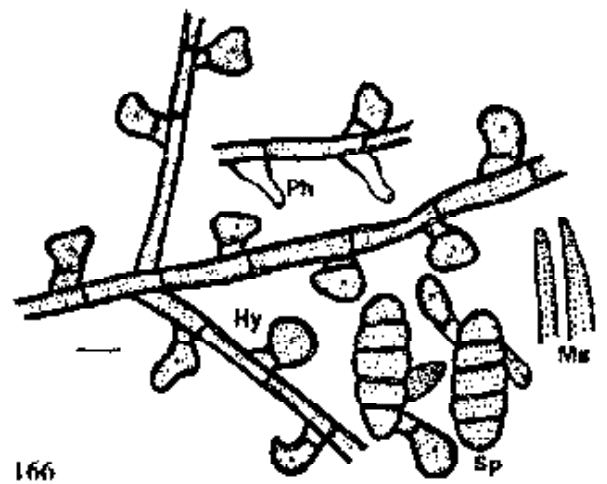
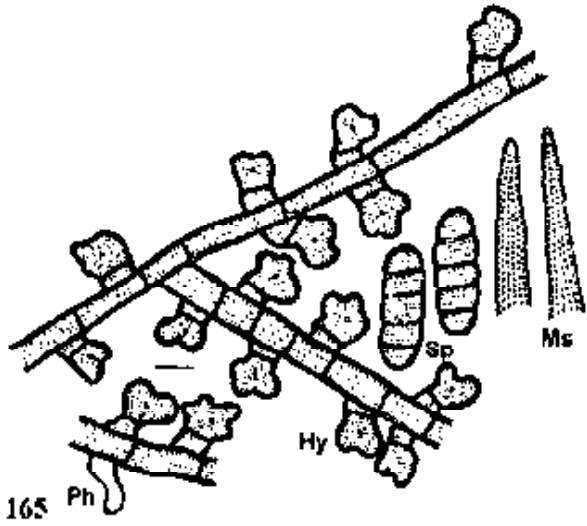
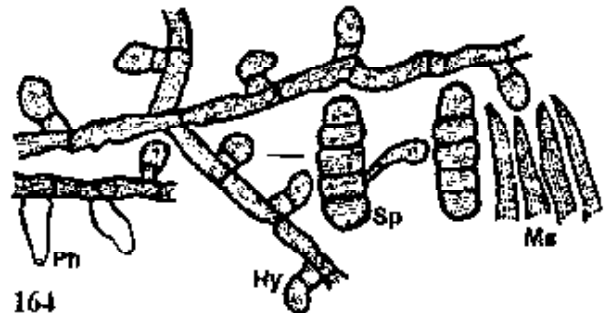
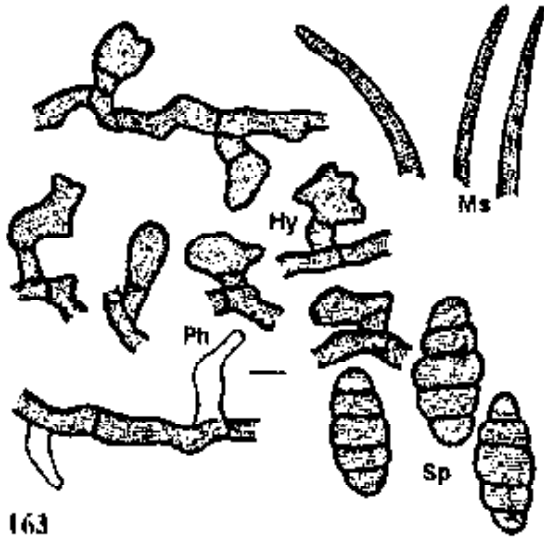
Materials examined: On leaves of *Tabernaemontana heyneana* Wall. (*Ervatamia heyneana* T. Cooke) (Apocynaceae), Pudukadu, Valparai, Coimbatore, Tamil Nadu, January 17, 1987, V.B. Hosagoudar HICIO 39309 (type).

Distribution: India (Tamil Nadu).

169. *Meliola erycibes-paniculatae* Hosag. in Hosag. & Goos, *Mycotaxon* 37: 231, 1990; Hosag., Raghu & Pillai, *Nova Hedwigia* 58: 528, 1994.

Colonies amphigenous, mostly hypophyllous, often show yellow haloes around the colonies, subdense, up to 4 mm in diameter, rarely confluent. Hyphae substraight, branching mostly opposite at acute angles, closely reticulate, cells 16-24 x 6-10 μm . Hyphopodia closely arranged, mostly opposite, closely antrorse, straight to curved, 20-26 μm long; stalk cells cuneate, 6-10 μm long; head cells ovate to obovate, entire, 12-18 x 10-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 16-22 x 8-10 μm . Mycelial setae scattered to grouped around perithecia, arcuate, simple, acute to obtuse at the tip, up to 378 μm long. Perithecia scattered, verrucose, up to 225 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 45-52 x 14-20 μm .

Materials examined: On leaves of *Erycibe paniculata* Roxb. (Convolvulaceae), Idukki, Kerala, December 12, 1982, V.B. Hosagoudar HICIO 40522 (type), MH 73700 (isotype); Gersoppa, Uttara Kannada, Karnataka, May 24, 1992, P.A. Raghu HICIO 40758.



163. *Meliola drepanochaeta* Sydow var. *insignis* Hosag. 164. *M. drypeticola* Hosag.
 165. *M. ehretiicola* Hosag. 166. *M. elaeagni* Hansf. & Thirum. 167. *M. entadicola*
 Deight. 168. *M. ervatamiae* Hosag.

Distribution: India (Karnataka, Kerala).

Two species of *Meliola* namely *Meliola eycibes* Hansf. and *M. erycibicola* Sawada & Yamam. have been recorded on *Erycibe rheedii* Blume and *E. henryi* Prain from Java and Taiwan. But the present species is distinct in having alternate and opposite hyphopodia, phialides mixed with hyphopodia, smaller and arcuate mycelial setae and smaller ascospores.

170. *Meliola erythrinae* Sydow, Ann. Mycol. 15: 185, 1917; Hansf., Sydowia Beih. 2: 296, 1961; Srinivasulu, Nova Hedwigia 47: 426, 1974; Hosag. & Goos, Mycotaxon 42: 134, 1991; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 112, 1994.

Colonies epiphyllous, thin, up to 3 mm in diameter, confluent. Hyphae substraight to slightly undulate, branching opposite at wide angles, loosely reticulate, cells 30-35 x 5-7 μm . Hyphopodia alternate, subantrorse, usually straight, 15-23 μm long; stalk cells cylindrical to cuneate, 4-11 μm long; head cells cylindrical, clavate, subglobose, entire to rounded angulose, 12-16 x 10-16 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 13-19 x 7-9 μm . Mycelial setae few, scattered, straight to curved, simple, obtuse, up to 500 μm long. Perithecia scattered to loosely grouped, verrucose, up to 160 μm in diam.; perithecial cells conoid and up to 30 μm long; ascospores cylindrical, 4-septate, slightly constricted, 35-42 x 11-15 μm .

Materials examined: On leaves of *Erythrina variegata* L. (*E. indica* Lam.) (Fabaceae), near Manambuli Power House, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30545; *E. stricta* Roxb., Vettiyar, Mavelikkara, Kerala, November 15, 1992, C.M. Pillai HCIO 40868.

Distribution: India (Kerala, Maharashtra, Tamil Nadu), Java, New Guinea, Philippines.

171. *Meliola erythropali* Hosag. in Hosag. & Goos, Mycotaxon 37: 232, 1990.

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 4 mm in diameter, confluent. Hyphae slightly undulate, branching opposite to irregular at acute angles, loosely reticulate, cells 12-32 x 5-8 μm . Hyphopodia alternate to unilateral, straight, antrorse, spreading, 18-20 μm long; stalk cells cylindrical to cuneate, 4-6 μm long; head cells ovate, globose, entire, 12-14 x 10-12 μm . Phialides few, mixed with hyphopodia, alternate to opposite, ampulliform, 14-20

x 8-10 μm . Mycelial setae scattered, simple, straight, acute at the tip, up to 315 μm long. Perithecia scattered, verrucose, up to 180 μm in diam.; ascospores oblong, 4-septate, slightly constricted, 38-44 x 10-16 μm .

Materials examined: On leaves of *Erythralum populifolium* (Arn.) Mast. (Erythralaceae), Idukki, Kerala, December 13, 1982, V.B. Hosagoudar HClO 40523 (type); Pudukadu, Lower Sheikalmudi, Tamil Nadu, January 17, 1987, V.B. Hosagoudar MH 82656.

Distribution: India (Kerala, Tamil Nadu).

172. *Meliola erythroxyliifolii* Batista & Vital, Ann. IV. Congr. Soc. Bot. Brazil, p. 105, 1953 (*erythroxyliifoliae*); Hansf., Sydowia Beih. 2: 199, 1961; Hosag. & Goos, Mycotaxon 37: 232, 1990.

Colonies epiphyllous, dense, scattered, up to 3 mm in diameter, confluent. Hyphae substraight, branching opposite at wide angles, loosely reticulate, cells 14-28 x 6-10 μm . Hyphopodia alternate to unilateral, straight to slightly curved, antrorse, spreading, 24-28 μm long; stalk cells cylindrical to cuneate, 6-10 μm long; head cells ovate, entire, 18-20 x 12-14 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-20 x 8-10 μm . Mycelial setae scattered to grouped around perithecia, simple, acute at the tip, up to 459 μm long. Perithecia scattered, verrucose, up to 116 μm in diam.; ascospores obovoidal, 34-44 x 14-22 μm .

Materials examined: On leaves of *Erythroxyllum obtusifolium* (Wight) Hook.f. (Erythroxyllaceae), Idukki, Kerala, December 28, 1983, V.B. Hosagoudar HClO 40524.

Distribution: India (Kerala), Brazil.

So far only one species, *M. erythroxyliifolii* Batista & Vital is known on the host *Erythroxyllum* sp. from Brazil (Hansf., 1961). The Indian collection slightly varies from it in having longer mycelial setae, smaller perithecia and slight variation in the ascospore size.

173. *Meliola eugeniae-jamboloidis* Hansf., Reinwardtia 3: 98, 1954; Sydowia Beih. 2: 144, 1961; Hosag., J. Econ. Tax. Bot. 11: 157, 1987.

Colonies hypophyllous, subdense, up to 4 mm in diameter, rarely confluent. Hyphae substraight to crooked, branching irregular at acute to wide

angles, loosely to closely reticulate, cells 28-31 x 9-11 μm . Hyphopodia alternate to unilateral, occasionally distantly placed, antrorse to spreading, 18.5-25 μm long; stalk cells cylindrical to cuneate, rarely tortuous, 3-6.5 μm long; head cells ovate, globose, entire to angular, variously curved, 12.5-18.5 x 12.5-15.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18.5-28 x 9-12.5 μm . Mycelial setae straight, simple, very few curved, acute to obtuse, up to 687 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores obovoidal, 4-septate, constricted, 52-56 x 18.5-21.5 μm .

Materials examined: On leaves of *Syzygium munroni* (Walp.) Chandr. (Myrtaceae), Pudukadu, Valparai, Tamil Nadu, January 17, 1987, V.B. Hosagoudar HCIO 39311; *Eugenia floccosa* Bedd. (Myrtaceae), Kakachi, Tirunelveli, Tamil Nadu, February 25, 1994, V.B. Hosagoudar HCIO 41603.

Distribution: India (Tamil Nadu).

174. *Meliola eugeniae-jamboloidis* Hansf. var. *amphigena* Kar & Maity, Nytt. Mag. Bot. 17: 87, 1970.

Colonies amphigenous, thin, up to 4 mm in diameter, confluent. Hyphae substraight, branching opposite at wide angles, loosely reticulate, cells 13-26.5 x 6-7 μm . Hyphopodia alternate, unilateral, mostly antrorse, straight to curved, 20-31 μm long; stalk cells cuneate to cylindrical, 6-11.5 μm long; head cells ovate, globose, cylindrical, entire to angular, 13-20 x 8-10 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-26.5 x 6-7 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute, up to 938 μm long. Perithecia mostly grouped, verrucose, up to 211 μm in diam.; ascospores oval to ellipsoidal, 4-septate, constricted, 42-46 x 11-17 μm .

Type: On leaves of *Syzygium jambos* (L.) Alst. (Myrtaceae), Gairkata, Jalpaiguri, West Bengal, M.K. Maity PCC 1484.

Materials examined: Material was not available for the study.

Distribution: India (West Bengal).

175. *Meliola eugeniae-stocksii* sp. nov.

Coloniae hypophyllae, densae, velutinae, ad 5 mm diam., raro confluentes. Hyphae subrectae vel anfractuae, opposite vel irregulariter laxe ramosae, laxe vel dense reticulatae, cellulae 24-31 x 5-7 μm . Hyphopodia alternata, recta vel

curvula, antrorsa, subantrorsa vel patentia, 21-25 μm longa; cellula basali cylindracea vel cuneata, 9-12.5 μm longa; cellula apicali ovata vel globosa, irregulariter sublobata vel lobata, 12-15.5 x 12-15 μm . Phialides producentes in hyphis separatis, alternatis vel oppositis, conoidis vel ampullaceus, 12-25 x 5-7 μm . Setae myceliales numerosae, simplices, rectae, curvulae vel uncinatae, acute vel obtusae ad apicem, ad 715 μm longae. Perithecia dispersa et occultus in setae myceliales, verrucosa, ad 170 μm diam.; ascosporae ellipsoideae, rectae vel leniter curvulae, 4-septatae, leniter constrictae, 40-47 x 11-13 μm .

Colonies hypophyllous, dense, velvety, up to 5 μm in diameter, rarely confluent. Hyphae substraight to crooked, branching opposite to irregular at wide angles, loosely to closely reticulate, cells 24-31 x 5-7 μm . Hyphopodia alternate, straight to curved, antrorse, subantrorse to spreading, 21-25 μm long; stalk cells cylindrical to cuneate, 9-12.5 μm long; head cells ovate to globose, irregularly sublobate to lobate, 12-15.5 x 12-15 μm . Phialides borne on a separate mycelial branch, alternate to opposite, conoid to ampulliform, 12-25 x 5-7 μm . Mycelial setae numerous, simple, straight, curved to uncinatae, acute to obtuse at the tip, up to 715 μm long. Perithecia scattered and hidden in the dense mycelial setae, verrucose, up to 170 μm in diam.; ascospores ellipsoidal, straight to slightly curved, 4-septate, slightly constricted at the septa, 40-47 x 11-13 μm .

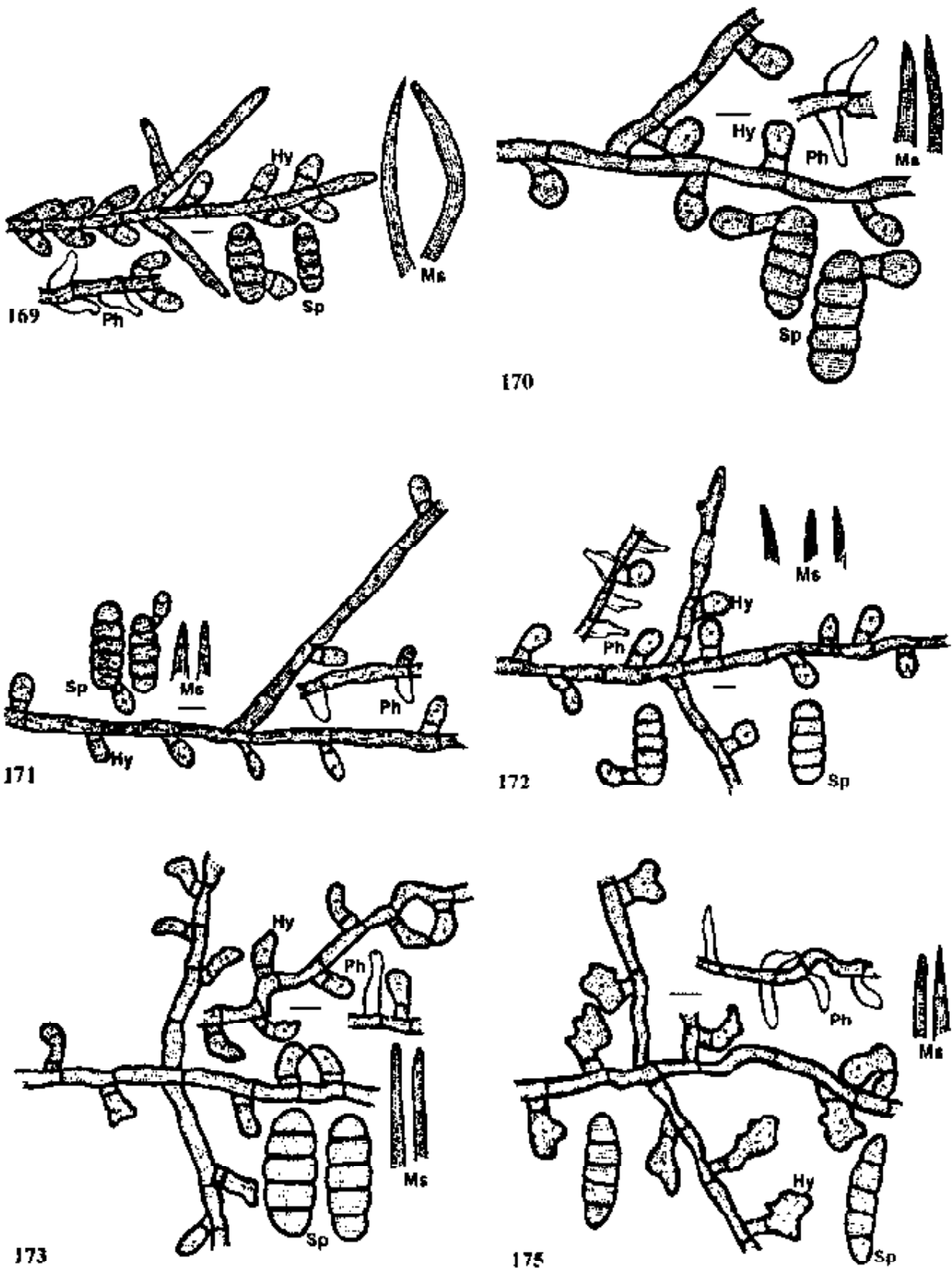
Materials examined: On leaves of *Eugenia stocksii* Duthie (Myrtaceae), Nival, Sangli, Maharashtra, January 23, 1992, C.R. Patil HCIO 40732 (type; p.p.).

Distribution: India (Maharashtra).

This species can be compared with *Meliola megalopoda* Sydow having irregularly lobate head cells of hyphopodia but differs from it in having phialides borne on a separate mycelial branch, ellipsoid and very narrower ascospores.

176. *Meliola eugeniicola* Stev., Mem. Dept. Agric. India 15: 107, 1928; Hansf., Sydowia Beih. 2: 143, 1961.

Colonies amphigenous, thin, up to 5 mm in diameter. Hyphae straight, branching opposite at wide angles, loosely reticulate, cells 18-28 x 5-7 μm . Hyphopodia opposite, about 2% alternate or solitary, closely placed, antrorse to subantrorse, 12-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, entire, 9-12.5 x 6-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 6-8 μm . Mycelial setae many, simple,



169. *Meliola erycibes-paniculatae* Hosag. 170. *M. erythrinae* Sydow 171. *M. erythropali* Hosag. 172. *M. erythroxyliifolii* Batista & Vital 173. *M. eugeniae-jamboloidis* Hansf. 175. *M. eugeniae-stocksii* Hosag.

straight, acute at the tip, up to 1072 μm long. Perithecia scattered, up to 170 μm in diam.; ascospores oblong to cylindrical, 4-septate, strongly constricted at the septa, 43-47 x 18-22 μm .

Materials examined: On leaves of *Eugenia eucalyptoides* F. Muell. (Myrtaceae), Panchanadi, Mangalore, Karnataka, April 16, 1913, L.S. Money HCIO 1989 (type); *E. stocksii*, Nival, Sangli, Maharashtra, January 23, 1992, C.R. Patil HCIO 40732 (p.p.).

Distribution: India (Karnataka, Maharashtra).

177. *Meliola euonymicola* sp. nov.

Coloniae hypophyllae, pertenues, patentiae et confluentes. Hyphae rectae, plerumque opposite laxae ramosae, laxae reticulatae, cellulae 18-22 x 6-8 μm . Hyphopodia alternata et 5% opposita, antrorsa vel subantrorsa, 15-18.5 μm longa; cellula basali cylindracea vel cuneata, 5-6.5 μm longa; cellula apicali ovata vel globosa, integra, 10-12.5 x 9-11 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 12-22 x 6-9.5 μm . Setae myceliales plerumque circa perithecia aggregatae, simplices, rectae, obtusae vel 2-3 cristatae ad apicem, ad 300 μm longae. Perithecia dispersa vel laxae aggregata, verrucosa, ad 155 μm diam.; ascosporae oblongae vel ellipsoideae, 4-septatae, constrictae, 37-41 x 15-18.5 μm .

Colonies hypophyllous, very thin, spreading and cover most of the leaf area. Hyphae straight, branching mostly opposite at wide angles, loosely reticulate, cells 18-22 x 6-8 μm . Hyphopodia alternate, 5% opposite, antrorse to subantrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 5-6.5 μm long; head cells ovate to globose, entire, 10-12.5 x 9-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 12-22 x 6-9.5 μm . Mycelial setae mostly grouped around perithecia, simple, straight, obtuse to 2-3 cristate at the apex, up to 300 μm long. Perithecia scattered to loosely grouped, verrucose, up to 155 μm in diam.; ascospores oblong to ellipsoidal, 4-septate, constricted, 37-41 x 15-18.5 μm .

Materials examined: On leaves of *Euonymus indicus* Heyne ex Roxb. (Celastraceae), Radhanagari, Kolhapur, Maharashtra, February 10, 1978, M.S. Patil HCIO 32522 (type).

Distribution: India (Maharashtra).

Globose head cells of hyphopodia and obtuse to cristate mycelial setae distinguishes this new species from the known *Meliola* species on Celastraceae.

178. *Meliola exaci* sp. nov.

Coloniae amphigenae, densae, crustosae, fortiter appressae, ad 2 mm diam. Hyphae flexuosae vel anfractuae, opposite vel irregulariter acuteque ramosae, dense reticulatae, cellulae 27-31 x 6-9.5 μ m. Hyphopodia alternata, antrorsa, 12-25 (-37) μ m longa; cellula basali cylindracea vel cuneata, 3-9.5 (-15.5) μ m longa; cellula apicali ovata, clavata, oblonga, integra, 15-22 x 12-15.5 μ m. Phialides in hyphis separatis, oppositis vel alternatis, ampullaceus, 15-18.5 x 5-6.5 μ m. Setae myceliales circa perithecia aggregatae, simplices, rectae vel leniter flexuosae, acutae vel obtusae ad apicem, ad 360 μ m longae. Perithecia dispersa, verrucosa, ad 125 μ m diam.; ascosporae obovoideae vel cylindraceae, 4-septatae, constrictae, 34-37.5 x 12-15.5 μ m.

Colonies amphigenous, dense, crustose, strongly appressed to the host surface, up to 2 mm in diameter. Hyphae flexuous to crooked, branching opposite to irregular at acute angles, closely reticulate, cells 27-31 x 6-9.5 μ m. Hyphopodia alternate, antrorse, 12-25(-37) μ m long; stalk cells cylindrical to cuneate, 3-9.5 (-15.5) μ m long; head cells ovate, clavate, oblong, entire, 15-22 x 12-15.5 μ m. Phialides borne on a separate mycelial branch, opposite to alternate, ampulliform, 15-18.5 x 5-6.5 μ m. Mycelial setae scattered to grouped around perithecia, simple, straight to slightly flexuous, acute to obtuse at the tip, up to 360 μ m long. Perithecia scattered, verrucose, up to 125 μ m in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 34-37.5 x 12-15.5 μ m.

Materials examined: On leaves of *Exacum tetragonum* Roxb. (*E. bicolor*) (Gentianaceae), Radhanagari, Maharashtra, August 4, 1976, M.S. Patil HCIO 36750 (type).

Distribution: India (Maharashtra).

This new species is distinct from *Meliola chelonanthi* Hansf. and *M. chelonanthi* Hansf. var. *bisgoeppertiae* Hansf. in having only alternate, ovate and entire head cells of hyphopodia.

179. *Meliola ficicola* Hansf. & Thirum., Farlowia 3: 297, 1948; Hansf. Sydowia Beih. 2: 330, 1961.

Colonies epiphyllous, subdense, up to 3 mm in diameter, confluent.

Hyphae straight to flexuous, branching opposite at acute angles, loosely to closely reticulate, cells 12-25 x 6-9.5 μm . Hyphopodia alternate, antrorse to rarely spreading, straight, 15-22 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells oblong to cylindrical, entire, 12-16 x 8-10 μm . Phialides mixed with hyphopodia, alternate, ampulliform, 18-25 x 8-10 μm . Mycelial setae scattered, straight, simple, up to 290 μm long. Perithecia loosely scattered, verrucose, up to 180 μm in diam.; ascospores oblong to cylindrical, 4-septate, constricted, 40-46.5 x 16-18.5 μm .

Materials examined: On leaves of *Ficus* sp. (Moraceae), Balehonnur, Karnataka, April 29, 1945, M.J. Thirumalachar HCIO 10868 (type, p.p.).

Distribution: India (Karnataka).

180. *Meliola filicii* Hosag., Nova Hedwigia 52: 500, 1991.

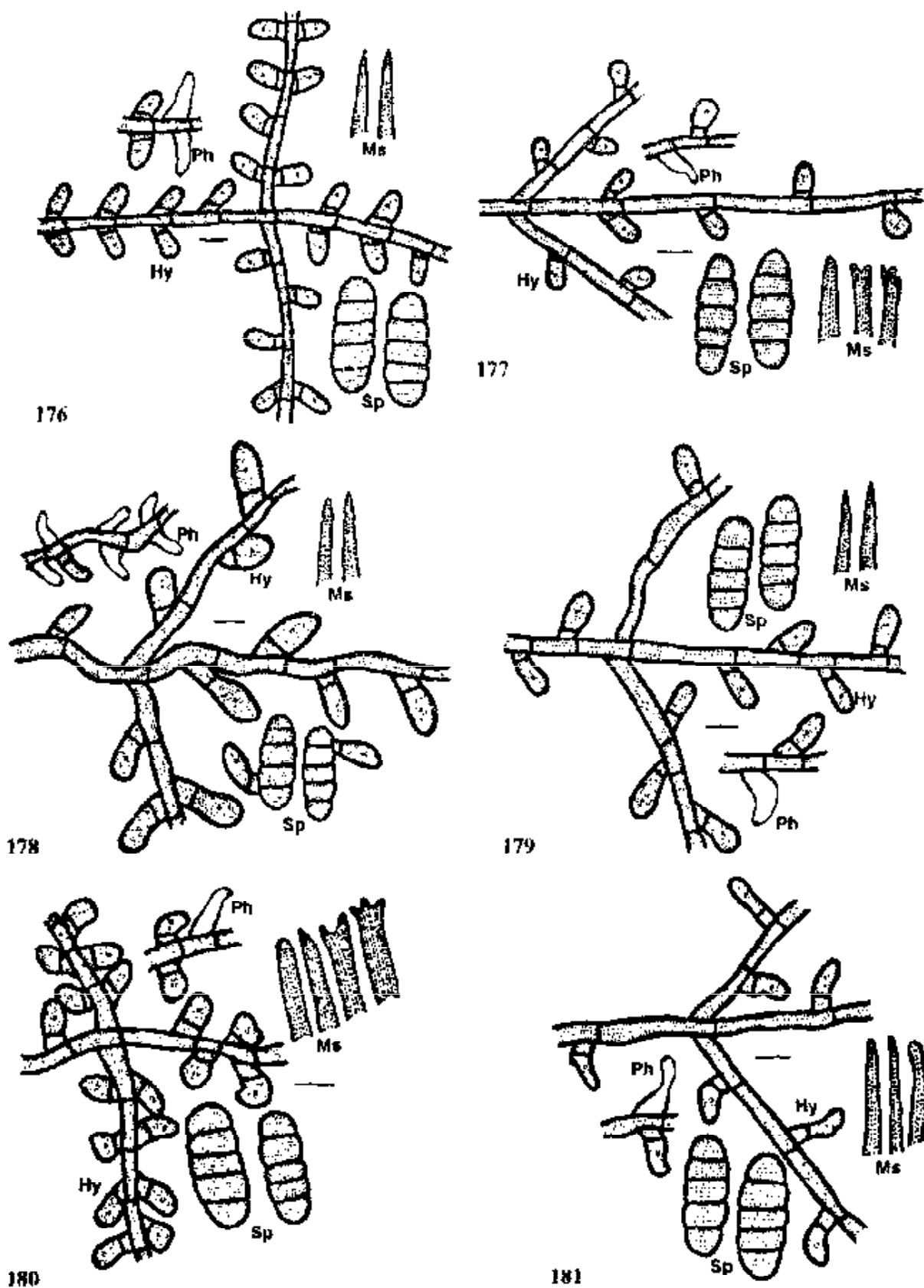
Colonies epiphyllous, dense, up to 2 mm in diameter. Hyphae straight, flexuous to tortuous, branching mostly opposite at wide angles, closely reticulate, cells 15-31 x 3-6.5 μm . Hyphopodia opposite, densely arranged, antrorse to retrorse to spreading, 15-18.5 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, globose, straight to curved, entire to truncate at the apex, 12-14 x 6-9.5 μm . Phialides few, mixed with hyphopodia, opposite to alternate, ampulliform, 12-28 x 12-15.5 μm . Mycelial setae densely scattered, straight, simple, obtuse to dentate at the apex, up to 300 μm long; perithecia scattered to grouped, up to 160 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 30-33.5 x 12-15.5 μm .

Materials examined: On leaves of *Filicium decipiens* (Wight & Arn.) Thw. (Sapindaceae), Idukki, Kerala, February 8, 1981, N.C. Nair HCIO 30391 (type); Manjolai, Tirunelveli, Tamil Nadu, February 24, 1994, V.B. Hosagoudar HCIO 41537.

Distribution: India (Kerala, Tamil Nadu).

181. *Meliola filiciicola* V.B. Hosagoudar, K. Udaiyan et P. Ponnusamy, sp. nov.

Coloniae hypophyllae, subdensae, crustosae, patentiae, ad 8 mm diam., confluentes. Hyphae rectae vel flexuosae, opposite acuteque vel laxe ramosae, laxe reticulatae, cellulae 18-31 x 5-7 μm . Hyphopodia alternata, minus quam 1% opposita, recta, 17-22.5 μm longa; cellula basali cylindrica vel cuneata, 5-7 μm longa; cellula apicali ovata, oblonga, integra vel raro angularia, 12-15.5 x 9-12.5 μm .



176. *Meliola eugenicola* Stev. 177. *M. euonymicola* Hosag. 178. *M. exaci* Hosag. 179. *M. ficicola* Hansf. & Thirum. 180. *M. filicii* Hosag. 181. *M. filiciicola* Hosag. et al.

μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 18-25 x 9-12.5 μm . Setae myceliales dispersae vel aggregatus circa peritheciae, simplices, rectae, obtusae ad apicem, ad 360 μm longae. Perithecia dispersa, verrucosa, ad 177 μm diam.; ascosporae obovoideae vel cylindratae, 4-septatae, constrictae, 37-40 x 15-18.5 μm .

Colonies hypophyllous, subdense, crustose, spreading, up to 8 mm in diameter, confluent. Hyphae straight to flexuous, branching opposite at acute to wide angles, loosely reticulate, cells 18-31 x 5-7 μm . Hyphopodia alternate, less than 1% opposite, straight to variously curved, subantrorse to spreading, 18-22 μm long; stalk cells cylindrical to cuneate, 5-7 μm long; head cells ovate, oblong, entire to rarely angular, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-25 x 9-12.5 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, obtuse at the apex, up to 360 μm long. Perithecia scattered, verrucose, up to 177 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted at the septa, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Filicium decipiens* (Wight & Arn.) Thw. (Sapindaceae), Koomali, Anamalai, Coimbatore, Tamil Nadu, March 13, 1994, V.B. Hosagoudar HClO 41564 (type).

Distribution: India (Tamil Nadu).

Meliola filicii Hosag. is the only known species on this host. The present new species is quite distinct from it in having hypophyllous colonies, alternate hyphopodia, obtuse mycelial setae and larger ascospores. These both species may occur at a time on this host.

182. *Meliola floridensis* Hansf., Sydowia 10: 72, 1957; Sydowia Beih. 2: 56, 1961; Hosag. & Goos, Mycotaxon 37: 408, 1990.

Colonies amphigenous, mostly epiphyllous, subdense, crustose, up to 2 mm in diameter, rarely confluent. Hyphae straight to slightly undulate, branching alternate to opposite at acute angles, very closely reticulate, cells 12-15.5 x 7-9.5 μm . Hyphopodia alternate, antrorse to subantrorse, straight to slightly curved, 18-28 μm long; stalk cells cuneate, 3-12.5 μm long; head cells obovate, clavate, globose, entire to rarely angular, 15-18.5 x 12-15 μm . Phialides not seen. Mycelial setae scattered to grouped around perithecia, simple, straight, acute to obtuse, up to 430 μm long. Perithecia scattered to loosely grouped at the centre, verrucose, up to 170 μm in diam.; ascospores cylindrical, 4-septate, strongly constricted, 52-56 x 18-22 μm .

Materials examined: On leaves of *Persea macrantha* (Nees) Kosterm., Pudukadu, Lower Sheikalmudi, Coimbatore, Tamil Nadu, January 17, 1987, V.B. Hosagoudar HCIO 39437.

Distribution: India (Tamil Nadu), Florida.

183. *Meliola floridensis* Hansf. var. *pudukadensis* Hosag., Sydowia 40: 117, 1987.

Colonies epiphyllous, crustose, subdense, up to 3 mm in diameter. Hyphae straight, branching mostly opposite at acute angles, loosely reticulate, cells 21-33 x 7-12.5 μm . Hyphopodia alternate, mostly straight, antrorse, 18.5-31 μm long; stalk cells cuneate, 6-9.5 μm ; head cells ovate to globose, entire, 12.5-21.5 x 12.5-15.5 μm . Phialides mixed with hyphopodia, opposite to alternate, conoid to ampulliform, 21.5-28 x 9-12.5 μm . Mycelial setae scattered, simple, straight, acute to obtuse, up to 500 μm long. Perithecia immature; ascospores obovoidal, 4-septate, slightly constricted, 49.5-53 x 18.5-22 μm .

Materials examined: On leaves of *Persea macrantha* (Nees) Kosterm. (Lauraceae), Pudukadu, Valparai, Tamil Nadu, January 17, 1987, V.B. Hosagoudar AMH 7137 (type).

Distribution: India (Tamil Nadu).

184. *Meliola furcata* Lev., Ann. Sci. Nat. III. 5: 266, 1846; Hansf., Sydowia Beih. 2: 372, 1961.

Meliola varia Doidge, Trans. Royal Soc. South Africa 5: 738, 1917.

Colonies on stems and petioles, strongly adherent to the host surface, crustose, up to 3 mm in diameter, rarely confluent. Hyphae straight to substraight, branching opposite at acute angles, very densely reticulate, cells 30-34 x 6-9 μm . Hyphopodia alternate, mostly antrorse, 15-28 μm long; stalk cells cylindrical to cuneate, 6-9 μm long; head cells ovate, globose, entire, 9-18.5 x 12-15.5 μm . Phialides not seen. Mycelial setae numerous, furcate to dichotomously branched, up to 180 μm long till branching, up to 25 μm long with the dentate or furcate tips. Perithecia grouped, up to 150 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 37-41 x 12-15.5 μm .

Materials examined: On stems and petioles of *Vitis* sp. (Vitaceae), Mahabaleshwar, Maharashtra, March 24, 1980, M.S. Patil HCIO 36746.

Distribution: India (Maharashtra), Brazil, Costa Rica, Cuba, Honduras, Jamaica, Panama, Philippines, Porto Rico, South Africa, Surinam.

The Indian collection has entire head cells of the hyphopodia whereas they are shallowly and irregularly rounded-lobate for the species.

The collector communicated part of the material with the host identity as *Vitis* sp. while partly it was deposited in HCIO with the host identity as *Leea macrophylla*. The host should be *Vitis* sp.

185. *Meliola gamblei* Hosag. in Hosag. & Goos, Mycotaxon 42: 134, 1991.

Colonies epiphyllous, dense, crustose, up to 2 mm in diameter, confluent. Hyphae substraight to crooked, branching opposite at acute angles, loosely to closely reticulate, cells 18-31 x 6-9 μm . Hyphopodia alternate, straight to curved, antrorse to spreading, 18-22 μm long; stalk cells cylindrical to cuneate, 4-5 μm long; head cells ovoid to globose, straight to curved, often bluntly pointed at the apex, entire, 12-15.5 x 12-14 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15-25 x 6-9.5 μm . Mycelial setae few, straight, simple, acute to obtuse at the apex, up to 650 μm long. Perithecia scattered, verrucose, up to 280 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 37-43.5 x 15-18.5 μm .

Materials examined: On leaves of *Smilax zeylanica* L. (Smilacaceae), Kombar, South Canara, Karnataka, December 16, 1918, J.S. Gamble HCIO 30546 (type).

Distribution: India (Karnataka).

186. *Meliola garciniae* Yates, Philippine J. Sci. 13: 369, 1918; Hansf., Sydowia Beih. 2: 167, 1961.

Meliola kydiae Sacc., Bull. Ort. Bot. Nepoli 6: 13, 1921.

Colonies epiphyllous, dense, crustose to slightly velvety, up to 5 mm in diameter, confluent. Hyphae straight to substraight, branching opposite to alternate at wide angles, loosely reticulate, cells 21-25 x 6-8 μm . Hyphopodia alternate, straight to curved, mostly antrorse, 15-25 μm long; stalk cells cuneate, 3-9.5 μm long; head cells ovate, globose, cylindrical, entire to slightly angular, 12-18.5 x 12-15.5 μm . Phialides numerous, mixed with hyphopodia, alternate to opposite, conoid to ampulliform, 18-25 x 9-12.5 μm . Mycelial setae numerous, simple,

straight, acute at the apex, up to 800 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, very rarely middle cell larger, 46-50 x 12-22 μm .

Materials examined: On leaves of *Garcinia spicata* (Wight & Arn.) Hook.f. (Clusiaceae), Gersoppa, Uttara Kannada, Karnataka, May 29, 1992, P.A. Raghu HCIO 30992.

Distribution: India (Karnataka), Camaroons, Malaya, Philippines, Sierra Leone.

Meliola gercinia Yates and *M. gercinia* Yates var. *mangostana* (Sacc.) Hansf. have been reported on the host genus *Garcinia*. In the variety, middle cell in the ascospore is largest. However, in the present collection, both types of ascospores are present and hence the variety may not stand distinct from the species type.

187. *Meliola gardneriae* Hansf. & Thirum., Farlowia 3: 293, 1948; Hansf., Sydowia Beih. 2: 525, 1961.

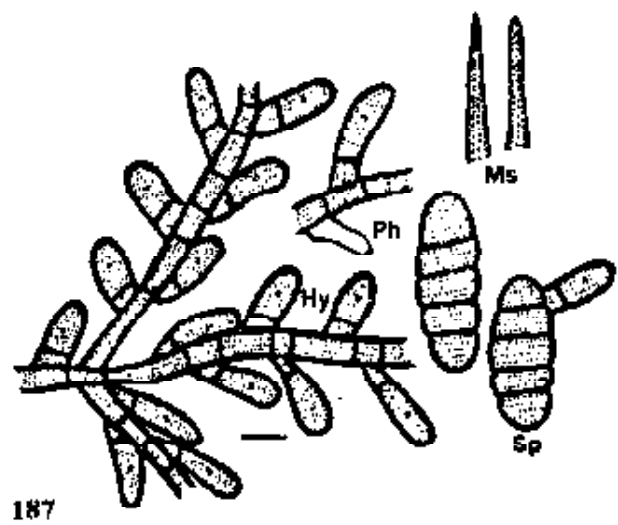
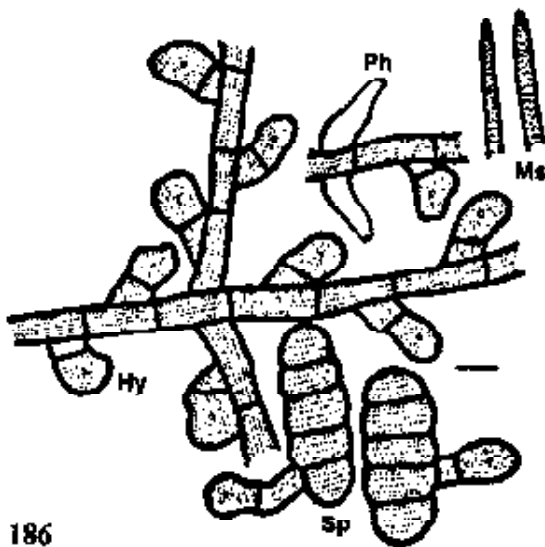
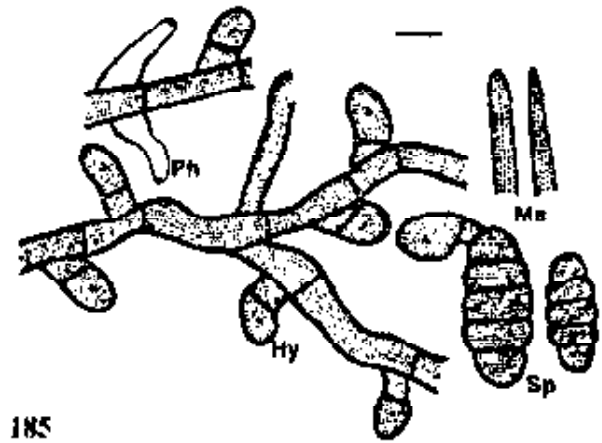
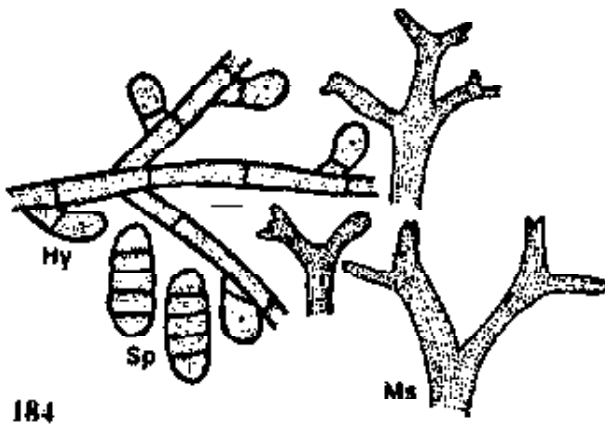
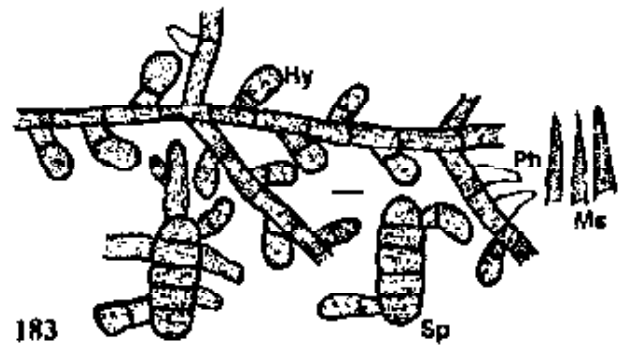
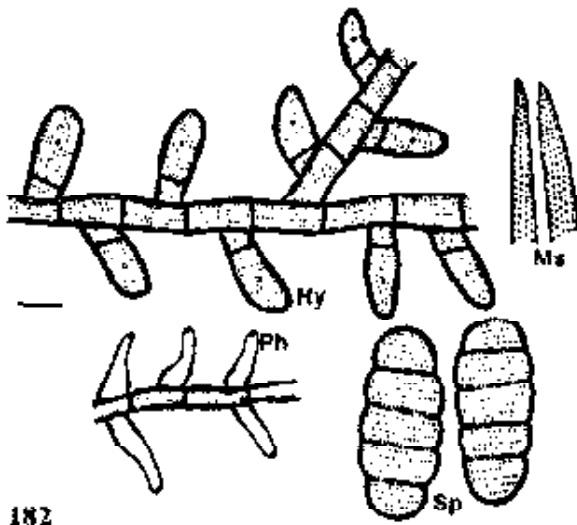
Colonies epiphyllous, dense, subvelvety, up to 4 mm in diameter. Hyphae substraight to slightly undulate, branching opposite at acute angles, loosely to closely reticulate, cells 10-31 x 4-6.5 μm . Hyphopodia alternate, straight to curved, subantrorse, 16-28 μm long; stalk cells cylindrical to cuneate, up to 4-8 μm long; head cells cylindrical, entire to angulose, 12-18 x 6-9 μm . Phialides mixed with hyphopodia, alternate to opposite, conoid to ampulliform, 18-24 x 6-9.5 μm . Mycelial setae thinly scattered, straight to substraight, simple, acute to obtuse, up to 400 μm long. Perithecia loosely scattered, verrucose, up to 160 μm in diam.; ascospores oblong, 4-septate, constricted, 36-42 x 17-20 μm .

Materials examined: On leaves of *Gardneria* sp. (Loganiaceae), Balchonnur, Karnataka, April 29, 1945, M.J. Thirumalachar HCIO 10877 (type); *G. ovata* Wall., Dharmasthala, Karnataka, August 26, 1987, S. Manian HCIO 39411.

Distribution: India (Karnataka).

188. *Meliola gardneriae* Hansf. & Thirum. var. *indica* Hosag., Siddappa & Udaiyan, Nova Hedwigia 56: 197, 1993.

Colonies epiphyllous, dense, velvety, up to 6 mm in diameter. Hyphae



182. *Meliola floridensis* Hansf. 183. *M. floridensis* Hansf. var. *pudukadensis* Hosag.
 184. *M. furcata* Lev. 185. *M. gamblei* Hosag. 186. *M. garciniae* Yates 187. *M. gardneriae* Hansf. & Thirum.

straight to flexuous, branching opposite to alternate at acute angles, loosely to closely reticulate, cells 18-25 x 5-7 μm . Hyphopodia alternate, antrorse to subantrorse, 21-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, versiform, entire, 12-18.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, elongated, conoid to ampulliform, 21-25 x 6-8 μm . Mycelial setae numerous, scattered, simple, straight to curved, acute to obtuse at the apex, up to 300 μm long. Perithecia loosely grouped, verrucose, up to 160 μm in diam.; perithecial cells conoid, projecting; ascospores obovoidal, 4-septate, 31-35 x 15-18.5 μm .

Materials examined: On leaves of *Gardenia ovata* Wall. (Loganiaceae), Nilgiris, Tamil Nadu, February 16, 1991, V.B. Hosagoudar HCIO 30619 (type).

Distribution: India (Tamil Nadu).

189. *Meliola gemellipoda* Doidge, Bothalia 1: 80, 1920; Stev., Ann. Mycol. 26: 229, 1928; Hansford, Sydowia Beih. 2: 530, 1961; Hosag. & Goos, Mycotaxon 37: 232, 1990.

Meliola busogensis Hansf., J. Linn. Soc. Bot. 51: 538, 1938.

Colonies amphigenous, mostly epiphyllous, dense, up to 3 mm in diameter, confluent. Hyphae straight to slightly undulate, branching opposite at acute angles, loosely to closely reticulate, cells 8-20 x 6-8 μm . Hyphopodia opposite (very few unilateral), straight, closely antrorse, 16-20 μm long; stalk cells cuneate, 4-8 μm long; head cells subglobose to ovate, entire, 10-14 x 8-10 μm . Phialides few, mixed with hyphopodia, alternate to opposite, ampulliform, 20-28 x 6-10 μm . Mycelial setae scattered to mostly grouped around perithecia, straight, simple, acute to obtuse, up to 594 μm long. Perithecia scattered, verrucose, up to 110 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 42-50 x 14-20 μm .

Materials examined: On leaves of *Jasminum malabaricum* Wight (Oleaceae), Siral, Karnataka, September 10, 1912, G.S. Kulkarni HCIO 3298; *J. ozoricum* L., Calvary Mount, Idukki, Kerala, October 6, 1983, V.B. Hosagoudar MH 78188; October 12, 1982, V.B. Hosagoudar MH 73645; Kanchiar forest, Idukki, Kerala, February 23, 1983, V.B. Hosagoudar MH 75004; Lakshmi Estate, Idukki, Kerala, October 6, 1983, V.B. Hosagoudar MH 78183; *J. flexile* Vahl, M.K. Vayal, Kanniyakumari, Tamil Nadu, February 27, 1994, V.B. Hosagoudar HCIO 41636.

Distribution: India (Karnatak, Kerala, Tamil Nadu), Congo Belge, Gold

Coast, Malaya, Sierra Leone, South Africa, Tanganyika.

This species is distinct from the rest in having opposite hyphopodia.

190. *Meliola geniculata* Sydow & Butler, Ann. Mycol. 9: 381, 1911; Hansf., Sydowia Beih. 2: 463, 1961.

Colonies epiphyllous, subdense, up to 5 mm in diameter. Hyphae straight to slightly crooked, branching mostly opposite at wide angles, loosely reticulate, cells 27-31 x 6-8 μ m. Hyphopodia alternate and 1% opposite, antrorse to spreading, straight to curved, 12-18.5 μ m long; stalk cells cylindrical to cuneate, 3-6.5 μ m long; head cells ovate, globose to cylindrical, entire, 9-15.5 x 9-11 μ m. Phialides many, mixed with hyphopodia, alternate to opposite, conoid to ampulliform, 15-18.5 x 6-8 μ m. Mycelial setae thinly scattered, straight, simple, bi to quadri dentate, up to 300 μ m long, few setae up to 545 μ m long. Perithecia scattered, verrucose, up to 140 μ m in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted at the septa, 32-38 x 13-15.5 μ m.

Materials examined: On leaves of *Lanea coromandelica* (Houtt.) Merr. (*Odina wodier* Roxb.) (Anacardiaceae), Pulliyanur, Kerala, October 8, 1907, E.J. Butler HClO 1366 (type).

Distribution: India (Kerala), Gold Coast, Java, Sierra Leone, Uganda.

191. *Meliola gersoppaensis* V.B. Hosagoudar, C.M. Pillai et P.A. Raghu, sp. nov.

Coloniae amphigenae, densae, crustosae on epiphyllae et numerosae vel velutinae on hypophyllae, ad 3 mm diam., plerumque confluentes. Hyphae rectae vel leniter anfractuae, opposite acuteque ramosae, densae reticulatae, cellulae 12-25 x 6-9.5 μ m. Hyphopodia alternata et minusva 1% opposita, recta vel curvula, antrorsa vel recurva, 21-28 μ m longa; cellula basali cylindracea vel cuneata, 6-7 μ m longa; cellula apicali recta vel curvula, ovata, globosa, integra vel angularia, 15-22 x 15-18.5 μ m. Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 24-31 x 9-12.5 μ m. Setae myceliales paucae in coloniae epiphyllae, numerosae in coloniae hypophyllae, simplices, rectae, acute vel obtusae ad apicem, ad 1150 μ m longae. Perithecia laxae dispersae, ad 220 μ m diam.; cellula peritheciales protrudorae; ascosporae obovoideae vel cylindraceae, 4-septatae, leniter constrictae ad septatae, 49-56 x 18-22 μ m.

Colonies amphigenous, dense, crustose on the upper surface of the leaves but velvety on the lower surface, up to 3 mm in diameter, mostly confluent.

Hyphae straight to slightly crooked, branching opposite at acute angles, closely reticulate, cells 12-25 x 6-9.5 μm . Hyphopodia alternate, less than 1% opposite, straight to curved, antrorse to recurved, 21-25 μm long; stalk cells cylindrical to cuneate, 6-7 μm long; head cells straight to curved, ovate, globose, entire to angular, 15-22 x 15-18.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 24-31 x 9-12.5 μm . Mycelial setae few in the epiphyllous colonies, numerous in the hypophyllous colonies, simple, straight, acute to obtuse at the tip, up to 1150 μm long. Perithecia loosely scattered, up to 220 μm in diam.; perithecial cells projecting; ascospores obovoidal to cylindrical, 4-septate, slightly constricted at the septa, 49-56 x 18-22 μm .

Materials examined: On leaves of *Syzygium* sp. (Myrtaceae), Gersoppa, Karnataka, May 29, 1992, P.A. Raghu HCIO 30993 (type).

Distribution: India (Karnataka).

According to Bceci formula 3111. 5334, the present new species is close to *Meliola eugeniae* Sydow and *M. eugeniae-jamboloidis* Hansf. It differs from the former species in having longer and ovate to globose head cells of the hyphopodia and longer mycelial setae. It differs from the latter species in having amphigenous colonies, straight to slightly crooked mycelium, hyphopodia antrorse to recurved but not irregularly sinuously bent and in having longer mycelial setae. The present new species differs from the two varieties of the latter species namely, *M. eugeniae-jamboloidis* Hansf. var. *paulensis* Hansf. and *M. eugeniae-jamboloides* Hansf. var. *amphigena* Kar & Maity in having distinctly ovate to globose, entire to angular head cells of the hyphopodia, longer mycelial setae and larger ascospores.

192. *Meliola glochidiicola* Yamam., Trans. Nat. Hist. Soc. Taiwan 31: 19, 1941; Hansf., Sydowia Beih. 2: 228, 1961; Thite & Patil, Kavaka 10: 30, 1982; Hosag. & Goos, Mycotaxon 38: 233, 1990.

Colonies epiphyllous, dense, up to 2 mm in diameter, rarely confluent. Hyphae undulate, branching regularly opposite at acute angles, closely reticulate in the dense colonies, cells 16-28 x 6-8 μm . Hyphopodia alternate, mostly straight, antrorse, 20-26 μm long; stalk cells cuneate, 4-8 μm long; head cells versiform, entire to sublobate, 14-18 x 10-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 20-24 x 8-10 μm . Mycelial setae grouped around perithecia, simple, acute obtuse at the tip, up to 712 μm long. Perithecia mostly grouped, verrucose, up to 234 μm in diam.; ascospores oblong, 4-septate, slightly constricted, 44-52 x 18-20 μm .

Materials examined: On leaves of *Glochidion hohenackeri* Bedd. (Euphorbiaceae), Radhanagari, Kolhapur, Maharashtra, A.N. Thite HCIO 31904; *G. ellipticum* Wight, Idukki, Kerala, April 11, 1982, V.B. Hosagoudar MH 73629; Calvary Mount, Idukki, Kerala, October 12, 1982, V.B. Hosagoudar MH 73646; December 11, 1982, V.B. Hosagoudar MH 73687; Idukki, Kerala, October 4, 1983, V.B. Hosagoudar MH 78143.

Distribution: India (Kerala, Maharashtra), Formosa.

The Indian collections slightly vary from the species description in having smaller hyphopodia, smaller perithecia and longer mycelial setae. Few bifurcate setae also noticed.

193. *Meliola glochidii* Stev. & Rold. ex Hansf. var. *velutini* Hosag. in Hosag. & Goos, Mycotaxon 37: 233, 1990.

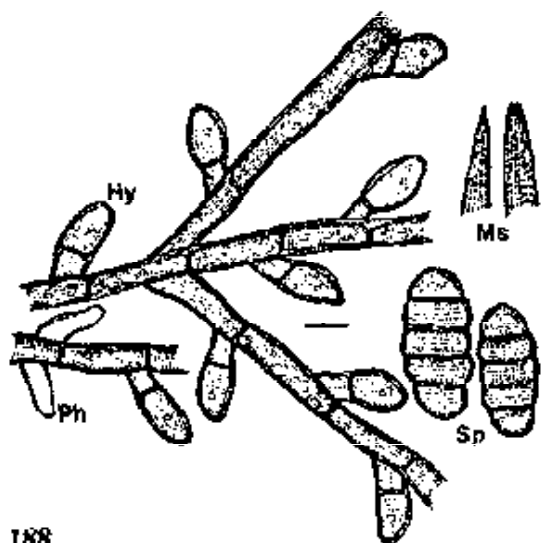
Colonies amphigenous, dense, velvety, up to 6 mm in diameter, confluent. Hyphae straight to undulate, branching opposite to alternate at acute angles, loosely reticulate, cells 24-30 x 6-8 μm . Hyphopodia opposite, about 30% alternate, straight, antrorse, 12-16 μm long; stalk cells cuneate, 4-6 μm long; head cells globose, versiform, entire, 8-12 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, 12-18 x 6-8 μm . Mycelial setae fairly numerous, scattered, simple, acute at the tip, up to 630 μm long. Perithecia scattered, up to 184 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 42-50 x 16-18 μm .

Materials examined: On leaves of *Glochidion velutinum* Wight (Euphorbiaceae), Kanchiar forest, Idukki, Kerala, December 29, 1983, V.B. Hosagoudar HCIO 40526 (type), MH 80343 (isotype).

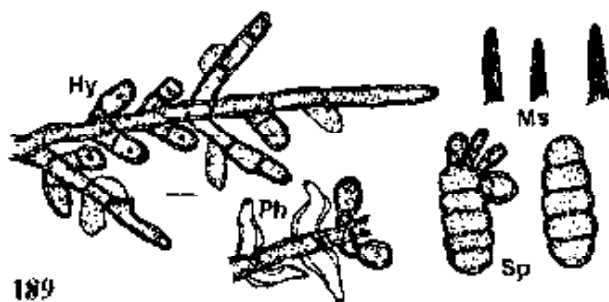
Distribution: India (Kerala).

194. *Meliola gneti* Hansf., Reinwardtia 3: 85, 1954; Sydowia Beih. 2: 751, 1961; Thite & Kulkarni, J. Shivaji Univ. (Sci.) 18: 211, 1978; Hosag. & Goos, Mycotaxon 37: 234, 1990; 42: 135, 1991.

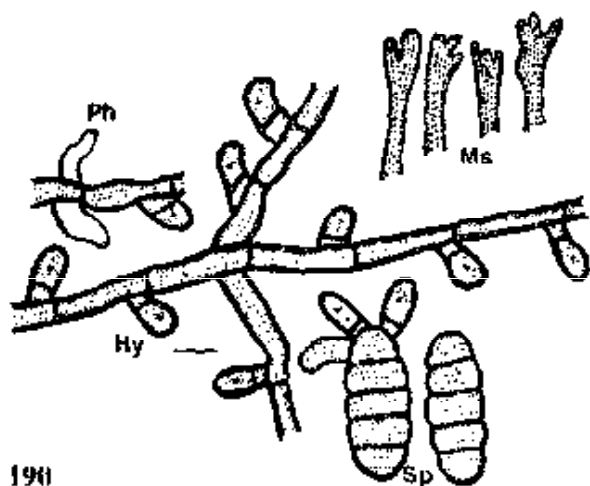
Colonies amphigenous, mostly hypophyllous, dense, velvety, up to 6 mm in diameter, confluent. Hyphae straight to slightly undulate, branching opposite at acute angles, loosely to closely reticulate, cells 18-44 x 6-8 μm . Hyphopodia



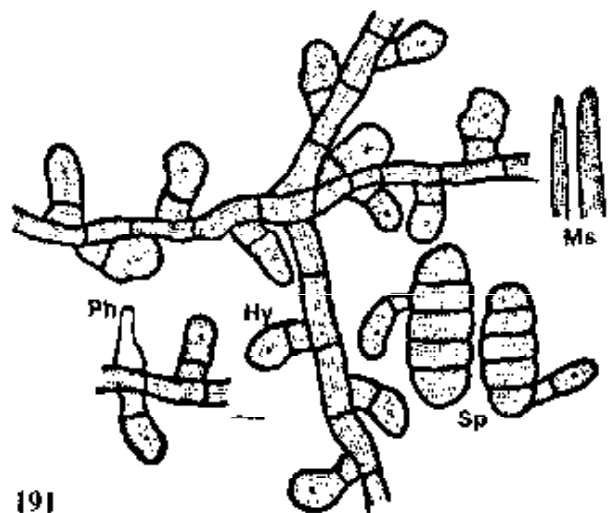
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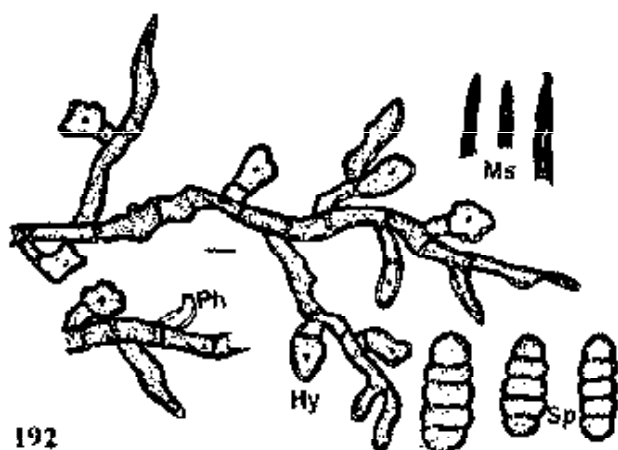
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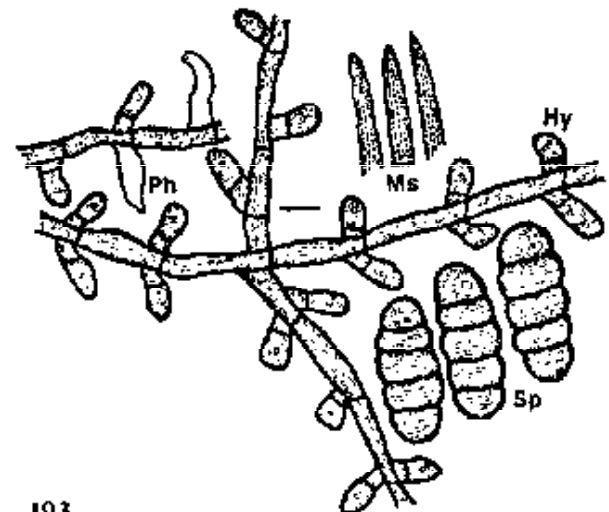
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192



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188. *Meliola gardneriae* Hansf. & Thirum. var. *indica* Hosag. et al. 189. *M. gemelipoda* Doidge 190. *M. geniculata* Sydow 191. *M. gersoppaensis* Hosag. et al. 192. *M. glochidiicola* Yamam. 193. *M. glochidii* Stev. & Rold. ex Hansf. var. *velutini* Hosag.

alternate, about 5% opposite, antrorse to reflexed, straight to curved, 16-24 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells ovate, globose, slightly angulose, entire, 10-18 x 8-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-28 x 6-10 μm . Mycelial setae numerous, scattered to grouped around perithecia, straight, simple, acute at the tip, up to 918 μm long. Perithecia scattered, verrucose, up to 180 μm in diam.; ascospores cylindrical, 4-septate, constricted, 46-54 x 14-10 μm .

Materials examined: On leaves of *Gnetum ula* Brogn. (Gnetaceae), Gagan Bavada, Maharashtra, HCIO 40529; Idukki, Kerala, February 20, 1983, V.B. Hosagoudar HCIO 40529, MH 75871; February 25, 1983, V.B. Hosagoudar MH 75021; June 11, 1983, V.B. Hosagoudar MH 75071; Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30547; Londha, Karnataka, November 1969, A.N. Thite HCIO 31623.

Distribution: India (Karnataka, Kerala, Maharashtra, Tamil Nadu), Java, Philippines.

195. *Meliola goosii* Hosag., Crypt. Bot. 2/3: 186, 1991.

Colonies epiphyllous, dense, up to 2 mm in diameter. Hyphae straight to flexuous, branching alternate to opposite at acute angles, loosely to closely reticulate, cells 15-28 x 6-9.5 μm . Hyphopodia alternate, antrorse, straight to curved, 21-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, irregularly and stellately sublobate, 12-18 x 12-15.5 μm . Phialides borne on a separate mycelial branch, opposite to alternate, ampulliform, 21-28 x 9-12.5 μm . Mycelial setae scattered, straight, simple, acute to obtuse at the tip, up to 450 μm long. Perithecia scattered, up to 120 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, slightly constricted at the septa, 40-44 x 15-19 μm .

Materials examined: On leaves of *Viburnum punctatum* Buch.-Ham. (Caprifoliaceae), Nilgiris, Tamil Nadu, January 24, 1990, V.B. Hosagoudar HCIO 30363 (type); M.K. Vayal, Kanniyakumari, Tamil Nadu, February 27, 1994, V.B. Hosagoudar HCIO 41607.

Distribution: India (Tamil Nadu).

196. *Meliola gordoniae* sp. nov.

Coloniae amphigenae, densae, velutinae, confluentes et fuliginosae.

Hyphae rectae vel leniter flexuosae, irregulariter acuteque ramosae, laxe vel dense reticulatae, cellulae 15-18.5 x 9-10 μm . Hyphopodia alternata, antrorsa, arte antrorsa vel subantrorsa, 24-31 μm longa; cellula basali cylindracea vel cuneata, 9-12.5 μm longa; cellula apicali ovata vel globosa, angulata vel leniter lobata, 15-18.5 x 15-22 μm . Phialides in hyphis separatis, plerumque oppositis, ampullaceus, 21-28 x 9-12.5 μm . Setae myceliales dispersae, dichotoma ramosae, ad 210 μm longae ad ramificans, ramuli primari ad 18 μm longae et secondary ad 10 μm longae, obtusae ad apicem, ramuli reflexae. Perithecia dispersa, verrucosa, ad 220 μm diam.; ascosporae oblongae vel cylindraceae, 4-septatae, constrictae, 40-44 x 15-17 μm .

Colonies amphigenous, dense, velvety, confluent and covered entire leaf portion and given sooty appearance. Hyphae straight to slightly flexuous, branching irregular at acute angles, loosely to closely reticulate, cells 15-18.5 x 9-10 μm . Hyphopodia alternate, antrorse, closely antrorse to subantrorse, 24-31 μm long; stalk cells cylindrical to cuneate, 9-12.5 μm long; head cells ovate to globose, angular to slightly lobate, 15-18.5 x 15-22 μm . Phialides borne on a separate mycelial branch, mostly opposite, ampulliform, 21-28 x 9-12.5 μm . Mycelial setae scattered, dichotomously branched, up to 210 μm long till the branching, up to 18 μm long till the second branch and the final branches up to 10 μm long, tip obtuse to acute, branchlets reflexed. Perithecia scattered, verrucose, up to 220 μm in diam.; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 40-44 x 15-17 μm .

Materials examined: On leaves of *Gordonia obtusa* Wall. ex Wight & Arn. (Theaceae), Kemmanagundi, Karnataka, February 29, 1984, C.R. Patil HCIO 40022 (type).

Distribution: India (Karnataka).

This species can be compared with *Meliola schimae* Hansf. but differs from it in having angular to slightly lobate head cells of hyphopodia, phialides on separate mycelial branch and also in the nature of branching pattern of mycelial setae.

197. *Meliola grewiae* Hansf. var. *longispora* Hosag. & Raju, J. Econ. Tax. Bot. 3: 717, 1985.

Meliola grewiae Srinivasulu, Nova Hedwigia Beih. 47: 427, 1974 (non, Hansford, 1957).

Colonies amphigenous, mostly epiphyllous, dense; velvety, up to 3 mm

in diameter. Hyphae mostly straight, branching alternate at wide angles, closely reticulate, cells 31-50 x 6-10 μm . Hyphopodia alternate, antrorse to subantrorse, 23-27 μm long; stalk cells cuneate, 10-12 μm long; head cells clavate, ovate, cylindrical, entire, angulose to slightly lobate, 13-15.5 x 13-15 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform. Mycelial setae numerous, grouped around perithecia, straight, simple, acute, up to 285 μm ; ascospores oblong, 4-septate, constricted, 41-46.5 x 14-16 μm .

Type: On leaves of *Grewia teliaefolia* Vahl (Tiliaceae), Mahabaleshwar, Maharashtra, November 1967, Srinivasulu MUH 136.

Materials examined: Material was not available for the study.

Distribution: India (Maharashtra).

198. *Meliola groteana* Sydow & Sydow, Ann. Mycol. 11: 402, 1913; Hansf., Sydowia Beih. 2: 511, 1961; Thite & Patil, Kavaka 10: 30, 1982; Hosag. & Goos, Mycotaxon 37: 234, 1990; 42: 135, 1991.
Meliola maesae Rehm, Philippine J. Sci. 8: 392, 1913.

Colonies hypophyllous, dense, velvety, up to 5 mm in diameter, rarely confluent, corresponding upper surface of the leaf turned yellowish brown. Hyphae straight to slightly crooked, branching opposite at wide angles, loosely to closely reticulate, cells 10-28 x 6-8 μm . Hyphopodia alternate, about 10% opposite, antrorse, spreading, 10-15 μm long; stalk cells cylindrical to cuneate, 2-5 μm long; head cells globose, slightly angular, entire, 8-10 x 8-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 10-16 x 8-10 μm . Mycelial setae fairly numerous, straight, simple, acute at the tip, up to 302 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores oblong, 4-septate, constricted, 40-44 x 12-16 μm .

Materials examined: On leaves of *Embelia viridiflora* Bl. (Myrsinaceae), Radhanagari, Kolhapur, Maharashtra, November 10, 1975, M.S. Patil HCIO 31942; *E. ribes* Burm.f., Nechal, Koyna dam, Satara, Maharashtra, December 6, 1984, C.R. Patil HCIO 40015; *Muesa indica* (Roxb.) DC. (Myrsinaceae), Coorg, Karnataka, February 2, 1968, K.H. Anahosur HCIO 31136; AMH 572; Calvary Mount, Idukki, Kerala, January 8, 1982, V.B. Hosagoudar MH 72647; Idukki, Kerala, April 19, 1982, V.B. Hosagoudar MH 73719, HCIO 40530; near Sholayar dam, Valparai, Coimbatore, Tamil Nadu, December 25, 1990, V.B. Hosagoudar HCIO 30549.

Distribution: India (Karnataka, Kerala, Maharashtra, Tamil Nadu), Congo Belge, Philippines, Sierra Leone, Tanganyika, Uganda.

199. *Meliola hemidesmi* Kamal & Gupta, Indian J. Mycol. Pl. Pathol. 16: 245, 1986 (*hemidesmae*).

Colonies amphigenous, dense. Hyphae sinuous to flexuous, branching opposite at acute to wide angles, loosely reticulate, cells 15-35 x 4-9 μm . Hyphopodia alternate, straight to curved, subantrorse to retrorse, 9-20 μm long; stalk cells cylindrical to cuneate, 3-8 μm long; head cells ovate, entire, 6-12.5 x 4-6 μm . Phialides not seen. Mycelial setae numerous, simple, straight, acute to obtuse at the apex, up to 400 μm long. Perithecia scattered, up to 250 μm in diam.; ascospores cylindrical, 4-septate, slightly constricted at the septa, 25-55 x 12-18 μm .

Type: On leaves of *Hemidesmus indicus* (L.) R. Br. (Periplocaceae), Gorakhpur, Uttar Pradesh, B.K. Gupta IMI 281887 (type).

Materials examined: Material was not available for the study.

Distribution: India (Uttar Pradesh).

200. *Meliola hemidesmicola* sp. nov.

Coloniae epiphyllae, densae et confluentes. Hyphae rectae vel leniter flexuosae, plerumque opposite laxae ramosae, laxae vel acuteque ramosae, cellulae 24-28 x 6-8 μm . Hyphopodia alternata, anatrorsa vel subantrorsa, 18-22 μm longa; cellula basali cylindracea vel cuneata, 5-7 μm longa; cellula apicali ovata, globosa, integra, 12-15.5 x 9-12.5 μm . Phialides illis hyphopodiis commixtae, alternatae vel oppositae, ampullacea, 21-25 x 5-7 μm . Setae myceliales numerosae, dispersae, simplices, rectae, acutae ad apicem, ad 650 μm longae. Perithecia dispersa, verrucosa, ad 124 μm diam.; ascosporae oblongae vel subelli soideae, 4-septatae, constrictae, 32-35 x 12-15.5 μm .

Colonies epiphyllous, dense, confluent and cover the entire upper leaf surface. Hyphae straight to slightly flexuous, branching mostly opposite at wide angles, loosely to closely reticulate, cells 24-28 x 6-8 μm . Hyphopodia alternate, antrorse to subantrorse, 18-22 μm long; stalk cells cylindrical to cuneate, 5-7 μm long; head cells ovate, globose, entire, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-25 x 5-7 μm . Mycelial setae fairly numerous, scattered, simple, straight, acute at the tip, up to 650 μm long.

Perithecia scattered, verrucose, up to 124 μm in diam.; ascospores oblong to subellipsoidal, 4-septate, constricted at the septa, 32-35 x 12-15.5 μm .

Materials examined: On leaves of *Hemidesmus indicus* (L.) R. Br. (Periplocaceae), Panhala, Maharashtra, October 1980, A.N. Thite HCIO 33673 (type).

Distribution: India (Maharashtra).

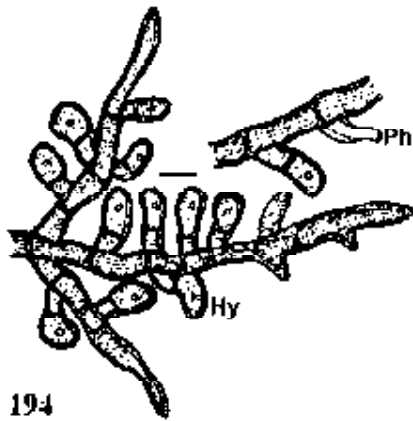
Meliola hemidesmi Kamal & Gupta is known on this host but the present new species differs from it in having longer mycelial setae, smaller perithecia and ascospores.

201. *Meliola henryi* sp. nov.

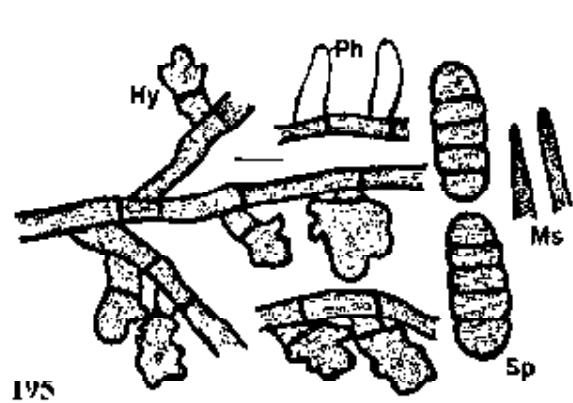
Coloniae amphigenae, plerumque epiphyllae, densae, crustosae, ad 3 mm diam., raro confluentes. Hyphae rectae vel subrectae, plerumque opposite acuteque vel laxe ramosae et profusim ramosae formatum solidae, cellulae 21-28 x 9-11 μm . Hyphopodia alternata, antrorsa vel anguste antrorsa, 27-31 μm longa; cellula basali cuneata, 9-12.5 μm longa; cellula apicali ovata, cylindracea, integra, raro truncata ad apicem, 15-22 x 12-15.5 μm . Phialides producentes in ramus separatam myceliolis, alternata vel opposita, conoidea vel ampullacea, 15-18.5 x 6-8 μm . Setae myceliales paucae, dispersae, simplicis, rectae, obtusae ad apicem, ad 315 μm longae. Perithecia dispersa, verrucosa, ad 186 μm diam.; ascosporae obovoideae, 4-septatae, leniter constrictae, 43-46.5 x 15-18.5 μm .

Colonies amphigenous, mostly epiphyllous, dense, crustose, up to 3 mm in diameter, rarely confluent. Hyphae straight to substraight, branching mostly opposite at acute to wide angles and profusely branched to form solid mycelial mat, cells 21-28 x 9-11 μm . Hyphopodia alternate, antrorse to closely antrorse, 27-31 μm long; stalk cells cuneate, 9-12.5 μm long; head cells ovate, cylindrical, entire, rarely truncate at the apex, 15-22 x 12-15.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, conoid to ampulliform, 15-18.5 x 6-8 μm . Mycelial setae few, scattered, simple, straight, obtuse at the apex, up to 315 μm long. Perithecia scattered, verrucose, up to 186 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 43-46.5 x 15-18.5 μm .

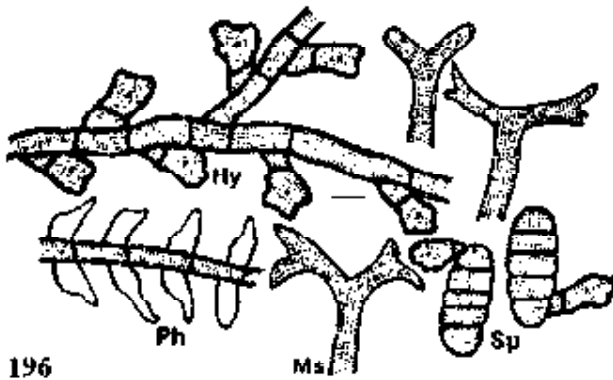
Materials examined: On leaves of *Canthium rheedii* DC. (Rubiaceae), Valve House, Kanyakumari dist., Tamil Nadu, February 28, 1994, V.B. Hosagoudar HCIO 41631 (type); *C. parviflora*, Petlond, Sangli, Maharashtra, December 12, 1980, C.R. Patil HCIO 40018.



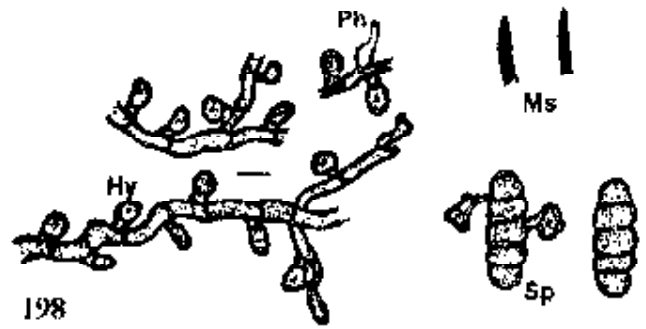
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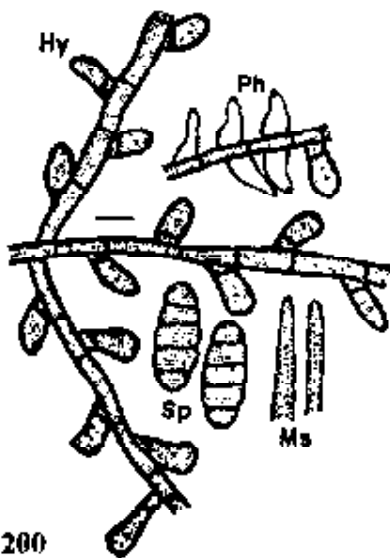
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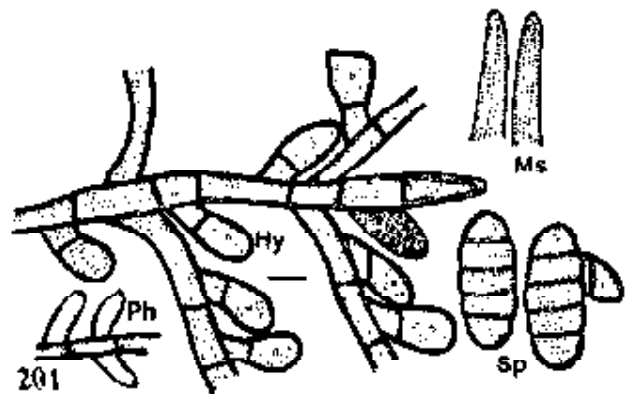
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194. *Meliola gneti* Hansf. 195. *M. goosii* Hosag. 196. *M. gordoniae* Hosag. 198. *M. groteana* Sydow 200. *M. hemidesmicola* Hosag. 201. *M. henryi* Hosag.

Distribution: India (Maharashtra, Tamil Nadu).

This species is close to *M. psychotriae* Earle var. *marcliae* Hansf. & Deight. and *M. lictorea* Ciff. However it differs from the former in having straight hyphae and separate phialides while, it differs from the latter in having entire head cells of the hyphopodia.

This species is named in honour of Dr. A.N. Henry for his excellent contributions to the floristic work of this district.

202. *Meliola heudelotii* Gaill., Le Genre *Meliola*, p. 49, 1892; Bal., J. Dept. Agric. Univ. Calcutta 4: 1, 1922; Hansf., *Sydowia Beih.* 2: 156, 1961; Hosag., J. Econ. Tax. Bot. 11: 157, 1987.

Colonies hypophyllous, subdense, up to 5 mm in diameter, confluent. Mycelium straight to flexuous, branching opposite to irregular at wide angles, loosely reticulate, cells 15.5-18.5 x 6-9.5 μ m. Hyphopodia alternate, unilateral, straight to curved, antrorse to recurved, 24-37 μ m long; stalk cells cylindrical to cuneate, 6-7.5 μ m long; head cells mostly straight, often curved, globose, ovate, entire to slightly angular, 18.5-29.5 x 9-11 μ m. Phialides few, mixed with hyphopodia, opposite to alternate, ampulliform, 15-24 x 6-8 μ m. Mycelial setae numerous, simple, straight, acute to dentate, up to 715 μ m long. Perithecia mostly grouped, up to 195 μ m in diam.; ascospores obovoidal, 4-septate, constricted, 37-50 x 15-18.5 μ m.

Materials examined: On leaves of *Memecylon edule* Roxb. (Melastomataceae), Bhubaneswar, Orissa, October 1920, S.N. Bal HCIO 3221; *M. talbotium* Brandis, Agumbe, Karnataka, M.J. Thirumalachar HCIO 870; Tummalabailu, Kurnool, Andhra Pradesh, April 16, 1986, V.B. Hosagoudar MH 82644.

Distribution: India (Andhra Pradesh, Karnataka, Orissa), Senegambia.

203. *Meliola heyneae* Hansf. & Thirum., *Farlowia* 3: 294, 1948; Hansf., *Sydowia Beih.* 2: 418, 1961.

Colonies epiphyllous, thin to subdense, velvety, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching alternate to irregular at acute angles, loosely reticulate, cells 18-22 x 5-7 μ m. Hyphopodia alternate, antrorse, straight to rarely curved, 18-22 μ m long; stalk cells cylindrical to cuneate, 6-9.5

μm long; head cells ovate, oblong to globose, entire, rounded to rarely slightly pointed at the apex, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-22 x 6-8 μm . Mycelial setae grouped around perithecia to scattered, simple, straight, acute to obtuse at the tip, up to 250 μm long. Perithecia loosely grouped at the centre of the colonies, up to 155 μm in diam.; ascospores cylindrical, 4-septate, constricted at the septa, 40-43.5 x 15-18.5 μm .

Materials examined: On leaves of *Trichilia connaroides* (Wight & Arn.) Bentvelzen (*Heynea trijuga* Roxb.) (Meliaceae), Korekote, Thirthahalli, Karnataka, April 4, 1945, M.J. Thirumalachar HCIO 10863 (type).

Distribution: India (Karnataka).

204. *Meliola himalayensis* Kapoor, Indian Phytopathol. 20: 154, 1967.

Colonies amphigenous, crustose, dense, up to 3 mm in diameter, confluent. Hyphae undulate, closely appressed to the host surface, branching opposite at wide angles, closely reticulate, cells 16-28 x 6-8 μm . Hyphopodia alternate, subantrorse to spreading, straight to curved, 16-40 μm long; stalk cells cylindrical, 8-12 μm long; head cells ovate, cylindrical, broadly clavate, often bent, entire, 16-20 x 10-12 μm . Phialides not seen. Mycelial setae numerous, scattered uniformly on the colonies, up to 400 μm long, dichotomously branched, branches up to 160 μm long, secondary branches up to 60 μm long. Perithecia scattered, verrucose, up to 100 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 34-40 x 12-14 μm .

Materials examined: On leaves of *Bridelia* sp. (Euphorbiaceae), Sribadam, West Sikkim, April 7, 1962, J.N. Kapoor HCIO 28363 (type).

Distribution: India (Sikkim).

205. *Meliola holarrhenae* Hansf. & Thirum., Farlowia 3: 294, 1948; Hansf., Sydowia Beih. 2: 561, 1961.

Colonies amphigenous, mostly epiphyllous, thin to velvety, confluent. Hyphae substraight to undulate, branching mostly opposite at wide angles, loosely to closely reticulate, cells 15-25 x 5-7 μm . Hyphopodia alternate, antrorse to spreading, usually straight, 14-21 μm long; stalk cells cylindrical to cuneate, 3-7

μm long; head cells ovate to oblong, rounded to slightly pointed at the apex, entire, 11-16 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, conoid to ampulliform, 15-25 x 5-7 μm . Mycelial setae fairly numerous, scattered, straight, simple, acute, up to 450 μm long. Perithecia scattered, verrucose, up to 190 μm in diam.; ascospores cylindrical to subellipsoidal, 4-septate, slightly constricted, 30-38 x 12-15 μm .

Type: On leaves of *Holarrhena antidysentrica* (Roxb. ex Fleming) Wall. (Apocynaceae), Balehonnur, Karnataka, July 18, 1944, M.J. Thirumalachar.

Materials examined: Material was not available for the study.

Distribution: India (Karnataka).

Type material was not available for the study and the description is based on Hansf. & Thirum. (1948).

206. *Meliola holigarnae* Stev., Mem. Dept. Agric. India, Bot. Ser. 15: 108, 1928; Hansf., Sydowia Beih. 2: 468, 1961; Thite & Kulkarni, J. Shivaji Univ. (Sci.) 6: 162, 1973; Hosag., J. Econ. Tax. Bot. 7: 45, 1985; Hosag. & Goos, Mycotaxon 37: 234, 1990; 42: 135, 1991; Hosag., Dayal & Goos, Mycotaxon 46: 204, 1993; Hosag., Raghu & Pillai, Nova Hedwigia 58: 529, 1994.

Colonies hypophyllous, dense, velvety, up to 10 mm in diam., confluent. Hyphae strongly adpressed to the host surface, crooked, branching alternate to irregular at acute to wide angles, closely reticulate and forming almost solid mycelial mat, cells 38-56 x 6-8 μm . Hyphopodia scattered, alternate to unilateral, antrorse to reflexed, curved variously, 26-50 μm long; stalk cells cylindrical, flexuous, usually elongated, usually 8-22 μm long; head cells ovate, versiform, angulose, entire to lobate, straight to curved, 18-22 x 14-18 μm . Phialides few, mixed with hyphopodia, conoid to ampulliform, 12-26 x 4-8 μm . Mycelial setae numerous, straight, flexuous, simple, acute to obtuse at the tip, up to 810 μm long. Perithecia scattered, verrucose, up to 270 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, middle cell largest, 64-74 x 24-30 μm .

Materials examined: On leaves of *Holigarna grahamii* (Wight) Kurz (Anacardiaceae), December 25, 1917, L.J. Sedgwick HClO 1981; Ekamb., North Canara, Karnataka, October 1919, L.J. Sedgwick HClO 1986a; Wynaad, Kerala, November 12, 1909, W. McRae HClO 10405; Kanchiar forest, Idukki, Kerala, December 17, 1982, V.B. Hosagoudar HClO 40531; Kaiga forest, Kaiga, Uttar

Kannada, Karnataka, December 6, 1991, S. Shetty HCIO 30831; *H. ornottiana* Hook.f., Parappa, Cannanore, Kerala, Jan.24, 1979, V.J. Nair & V.S. Ramachandran MH 59831, 59192; *H. ferruginea* March., in the forest along the road from Painavu to Kulamavu, Idukki, Kerala, June 10, 1983, V.B. Hosagoudar MH 75066; Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30550; Devar Estate, Seithur hills, Kamarajar dist., Tamil Nadu, October 16, 1992, V.B. Hosagoudar HCIO 40760.

Distribution: India (Karnataka, Kerala, Maharashtra).

207. *Meliola hunteriae* Hosag. in Hosag. & Goos, Mycotaxon 37: 234, 1990.

Colonies hypophyllous, dense, up to 5 mm in diameter, often confluent, cause leaf spots and yellow haloes around the infected spots, corresponding upper surface of the leaf turned yellow and result in shot holes. Hyphae substraight to slightly undulate, branching alternate to opposite at acute angles, loosely reticulate, cells 12-26 x 6-8 μ m. Hyphopodia alternate, straight to curved, antrorse, 22-30 μ m long; stalk cells cuneate, 6-10 μ m long; head cells broadly ovate, entire to imperfectly sublobate, 14-22 x 10-14 μ m. Phialides borne on a separate mycelial branch, alternate, unilateral, rarely opposite, ampulliform, 16-20 x 6-8 μ m. Mycelial setae numerous, scattered to grouped around perithecia, simple, acute at the tip, up to 522 μ m long. Perithecia scattered, verrucose, up to 76 μ m in diam.; ascospores oblong, 4-septate, constricted, 38-42 x 14-20 μ m.

Materials examined: On leaves of *Hunteria zeylanica* (Retz.) Gard. ex Thw. (*H. corymbosa* Roxb. var. *roxburghiana* Trin.) (Apocynaceae), Idukki, Kerala, December 28, 1983, V.B. Hosagoudar HCIO 40532 (type).

Distribution: India (Kerala).

This species differs from rest of the *Meliola* species recorded on the members of the family Apocynaceae in producing pathogenic effect on the host.

208. *Meliola hystricis* Kar & Maity, Nytt. Mag. Bot. 17: 85, 1970 (*hystrixii*).

Colonies hypophyllous, thin, up to 4 mm in diameter. Hyphae undulate to crooked, branching opposite to alternate at wide angles, loosely reticulate, cells 26-36 x 5-6 μ m. Hyphopodia alternate and rarely opposite, distantly placed, antrorse to recurved, straight to curved, 10-20 μ m long; stalk cells cylindrical to cuneate, 3-8 μ m long; head cells ovate, entire, straight to curved, 6-13 x 6-10 μ m.

Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 16-24.5 x 8-10 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute at the apex, up to 90 μm long. Perithecia scattered to grouped, verrucose up to 264 μm in diam.; ascospores fusiform, straight to curved, 4-septate, constricted at the septa, end cells conoid, middle cell longer, 42-46 x 16-18 μm .

Type: On leaves of *Castanopsis hystrix* A. DC. (Fagaceae), Sukhiapokhari, Darjeeling, West Bengal, May 11, 1967, M.K. Maity PCC 1250.

Materials examined: Material was not available for the study.

Distribution: India (West Bengal).

209. *Meliola ichnocarpi* Hansf. & Thirum., Farlowia 3: 295, 1948 (non Stev. & Rold., 1935); Hansf., Sydowia 16: 312, 1962.

Meliola ichnocarpicola Hansf., Sydowia Beih. 3: 559, 1961.

Colonies amphigenous, mostly epiphyllous, thin, up to 2 mm in diameter, confluent. Hyphae more or less undulate, branching opposite at wide angles, loosely reticulate, cells 20-40 x 5-7 μm . Hyphopodia alternate, more or less curved, spreading, 15-30 μm long; stalk cells cylindrical to cuneate, 4-10 μm long; head cells mostly curved, ovate, clavate, cylindrical, entire, 11-18 x 8-12 μm . Phialides mixed with hyphopodia, alternate, opposite, ampulliform, 16-22 x 5-9 μm . Mycelial setae few, scattered, mostly straight, simple, acute, up to 1000 μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores oblong to subellipsoidal, 4-septate, constricted, 40-48 x 20-22 μm .

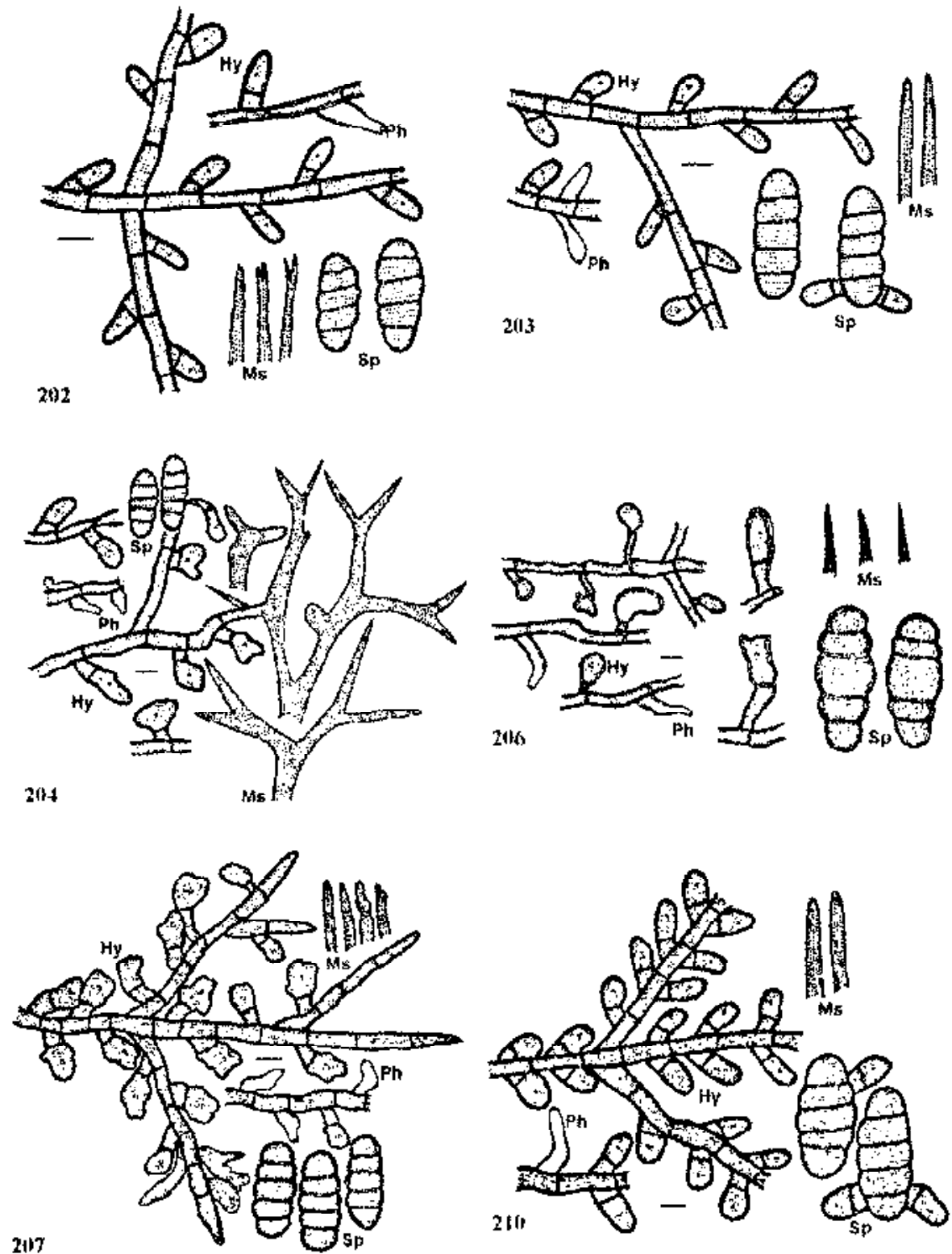
Type: On leaves of *Ichnocarpus frutescens* (L.) R. Br. (Apocynaceae), Teerthahalli, Karnataka, April 3, 1945, M.J. Thirumalachar HCIO 10878.

Materials examined: Material was not available for the study.

Distribution: India (Karnataka).

210. *Meliola ilicis-malabaricae* Hosag. & Raghu, New Botanist 20: 67, 1993.

Colonies amphigenous, mostly hypophyllous, dense, crustose to velvety, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite at acute angles, closely reticulate, cells 18-34 x 9-12.5 μm . Hyphopodia opposite, rarely solitary, straight to curved, antrorse to subantrorse,



202. *Meliola heudelotii* Gaill. 203. *M. heyneae* Hansf. & Thirum. 204. *M. himalayensis* Kapoor 206. *M. holigarnae* Stev. 207. *M. hunteriae* Hosag. 210. *M. ilicis-malabari-cae* Hosag. & Raghu

18-25 μm long; stalk cells mostly cuneate, 6-7 μm long; head cells ovate to globose, entire, 12-18.5 x 12-14 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, neck elongated, 21-25 x 7-9.5 μm . Mycelial setae numerous, simple, straight, acute to obtuse at the tip, up to 500 μm long. Perithecia scattered to loosely grouped, verrucose, up to 220 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 52-59 x 24-26 μm .

Materials examined: On leaves of *Ilex malabarica* Beddome (Aquifoliaceae), Gersoppa, Uttara Kannada, Karnataka, October 21, 1992, P.A. Raghu HCIO 40889 (type).

Distribution: India (Karnataka).

211. *Meliola indica* Sydow in Sydow, Sydow & Butler, Ann. Mycol. 9: 382, 1911; Hansf., Sydow Beih. 2: 149, 1961; Thite & Kulkarni, J. Shivaji Univ. (Sci.) 4: 163, 1973.

Meliola barringtoniae Yates, Philip. J. Sci. 363, 1917.

Colonies epiphyllous, dense, velvety, up to 4 mm in diameter, confluent. Hyphae straight to slightly undulate, branching opposite at wide angles, loosely to closely reticulate, cells 16-20 x 8-10 μm . Hyphopodia opposite, about 10% alternate, subantrorse, 10-15 μm long; stalk cells cylindrical, 4-8 μm long; head cells globose, entire, 11-16 x 10-12 μm . Phialides mixed with hyphopodia, opposite, rarely alternate, ampulliform, 14-20 x 8-10 μm . Mycelial setae mostly grouped around perithecia, straight, simple, acute at the tip, up to 396 μm long. Perithecia scattered, verrucose, up to 243 μm in diam.; ascospores oblong, 4-septate, constricted, 40-48 x 14-18 μm .

Materials examined: On leaves of *Barringtonia acutangula* Gaertn (Lecythidaceae), Assam, March 20, 1910, A. Som HCIO 1036 (type).

Distribution: India (Assam), Java, Philippines.

212. *Meliola indica* Sydow, var. *careyae* Stev., Ann. Mycol. 26: 223, 1928; Mem. Dept. Agric. India Bot. ser. 15: 107, 1928; Hansf., Sydowia Beih. 2: 149, 1961; Thite & Kulkarni, J. Shivaji Univ. (Sci.) 6: 163, 1973; Hosag., Kavcriappa, Raghu & Gobs, Mycotaxon 51: 112, 1994.

Meliola barringtoniae Yates, Philippine J. Bot. 12: 363, 1917.

Meliola indicu sensu Hosagoudar, J. Econ. Tax. Bot. 9: 375, 1987;

Hosagoudar, Dayal & Goos, Mycotaxon 46: 204, 1993.

Colonies epiphyllous, dense, velvety, up to 4 mm in diameter; confluent. Hyphae substraight to flexuous, branching opposite at wide angles, closely reticulate, cells 25-30 x 6-8 μm . Hyphopodia alternate and opposite, antrorse to spreading, mostly straight, 15-20 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells subglobose to broadly clavate, entire, 10-14 x 8-12 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 16-20 x 7-9 μm . Mycelial setae numerous, scattered, straight, simple, acute, up to 700 μm long. Perithecia scattered, verrucose, up to 180 μm in diam.; ascospores oblong, 4-septate, constricted, 30-50 x 14-18 μm .

Materials examined: On leaves of *Careya arborea* Roxb. (Lecythidaceae), Gersoppa Falls, Karnataka, October 1919, L.J. Sedgwick HCIO 1985 (type); Lonawala, Poona, Maharashtra, December 1970, A.N. Thite HCIO 31630; Idukki, Kerala, January 10, 1982, V.B. Hosagoudar HCIO 40533, MH 72652; February 26, 1983, V.B. Hosagoudar MH 75039; October 2, 1983, V.B. Hosagoudar MH 78105, 78122; October 8, 1983, V.B. Hosagoudar MH 78911; December 28, 1983, V.B. Hosagoudar MH 80325; Tropical Botanic Garden, Trivandrum, sept. 1, 1984, S. Shetty HCIO 30837; Hosmatta, Subramanya, Dakshina Kannada, Karnataka, August 31, 1992, H.S.P. Shenoy HCIO 40869.

Distribution: India (Assam, Karnataka, Kerala, Maharashtra).

So far *Meliola indica* Sydow and *M. indica* Sydow var. *careyae* Stev. have been recorded on this host genus *careya*. The latter taxon differs from the former in having the phialides borne on a separate mycelial branch, longer setae and ascospores.

213. *Meliola integrifolii* C.R. Patil ex V.B. Hosagoudar, sp. nov.

Coloniae hypophyllae, densae, velutinae, ad 5 mm diam. Hyphae anfractuae, opposite vel irregulariter acuteque vel laxe ramosae, dense reticulatae et solidae, cellulae 18-22 x 6-8 μm . Hyphopodia opposita (60%), alternata et raro solitaria, antrorsa vel subantrorsa, 12-18.5 μm longa; cellula basali cylindracea vel cuneata, 3-6.5 μm longa; cellula apicali ovata, globosa, integra, 9-13 x 9-12 μm . Phialides illis hyphopodiis commixta, dispersa, ampullacea, 15-22 x 9-10 μm . Setae myceliales dense dispersae, simplices, rectae, curvulae, uncinatae, acutae, obtusae vel bidentatae ad apicem, ad 300 μm longae. Perithecia dense aggregata, verrucosa, ad 140 μm diam.; ascosporae oblongae vel obovoideae, 4-septatae, constrictae, 43-46.5 x 18-20 μm .

Colonies hypophyllous, dense, velvety, up to 5 mm in diameter. Hyphae crooked, branching opposite to irregular at acute to wide angles, closely reticulate, form solid mycelial mat, cells 18-22 x 6-8 μm . Hyphopodia opposite (60%), alternate and rarely solitary, antrorse to subantrorse, 12-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, globose, entire, 9-13 x 9-12 μm . Phialides mixed with hyphopodia, scattered, ampulliform, 15-22 x 9-10 μm . Mycelial setae densely scattered, simple, straight, curved, uncinata, acute, obtuse to bi-dentate, up to 300 μm long. Perithecia closely grouped, verrucose, up to 140 μm in diam.; ascospores oblong to obovoidal, 4-septate, constricted at the septa, 43-46.5 x 18-20 μm .

Materials examined: On leaves of *Artocarpus heterophyllus* Lam. (*A. integrifolia* auct. non L.f.) (Moraceae), Dajipur Reserve Forest, Kolhapur, Maharashtra, May 15, 1991, C.R. Patil HCIO 30805 (type).

Distribution: India (Maharashtra).

Opposite hyphopodia (60%); straight, curved to uncinata and obtuse to bi-dentate mycelial setae distinguishes this species from others.

The host identity is questionable.

214. *Meliola ixorae* Yates, Philippine J. Sci. 12: 365, 1917; Hansf., Sydowia Beih. 2: 606, 1961; Thite & Patil, Kavaka 10: 30, 1982; Hosag., Siddappa & Udaiyan, Nova Hedwigia 56: 198, 1993.

Colonies amphigenous, thin, up to 5 mm in diameter, widely confluent. Hyphae undulate to crooked, branching mostly opposite at wide angles, loosely reticulate, cells 20-30 x 6-9 μm . Hyphopodia alternate, scattered, mostly antrorse, straight to curved, 20-30 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells ovate, globose, entire to sublobate, 14-24 x 10-14 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 20-25 x 6-10 μm . Mycelial setae scattered to grouped around perithecia, straight to slightly flexuous, simple, acute, up to 800 μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores obovate to fusiform, straight to slightly curved, 4-septate, constricted, 35-40 x 10-12 μm .

Materials examined: On leaves of *Ixora polyantha* Wight (Rubiaceae), Amboli, Maharashtra, February 23, 1975, M.S. Patil HCIO 31943; *Ixora* sp., Bagamandala, Karnataka, March 3, 1984, C.R. Patil HCIO 40023; *Canthium wightii*, Talakavery, Coorg, Karnataka, March 3, 1984, C.R. Patil HCIO 40017.

Distribution: India (Karnataka, Maharashtra), Ceylon, Philippines.

215. *Meliola ixorae* Yates var. *macrospora* Hosag. in Hosag. & Goos, Mycotaxon 37: 235, 1990.

Colonies hypophyllous, thin, up to 10 mm in diameter. Hyphae tortuous, branching opposite to irregular at wide to acute angles, loosely reticulate, cells 28-32 x 6-10 μm . Hyphopodia alternate to unilateral, distantly placed, spreading, antrorse, straight to curved, 22-34 μm long; stalk cells cuneate to cylindrical, 6-12 μm long; head cells ovate, angulose to slightly lobate, 14-20 x 12-16 μm . Phialides borne on a separate mycelial branch, alternate, rarely opposite, ampulliform, 12-20 x 6-12 μm . Mycelial setae scattered, mostly grouped around perithecia, simple, acute to obtuse at the tip, up to 1035 μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores obovoidal to cylindrical, terminal cells broadly conoid, 42-48 x 12-14 μm .

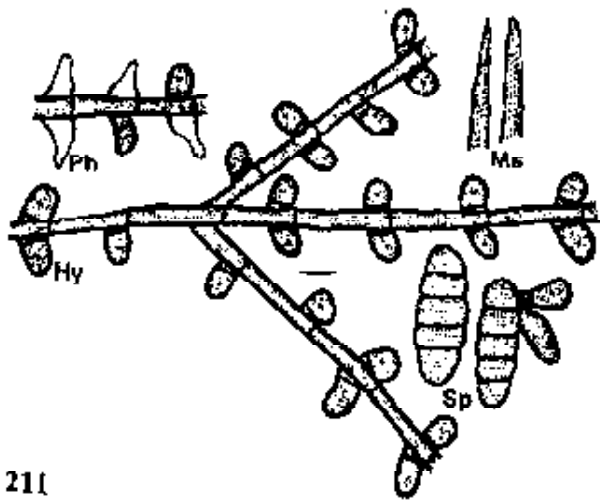
Materials examined: On leaves of *Ixora elongata* Heyne (Rubiaceae), Idukki, Kerala, February 18, 1983, V.B. Hosagoudar HClO 40534 (type), MH 75841 (isotype); *I. nigricans* R. Br., Kakatode, Kerala, February 26, 1984, M. Ali MH 80363; *I. coccinea*, Radhanagari, Maharashtra, October 1970, A.N. Thite HClO 31629.

Distribution: India (Kerala, Maharashtra).

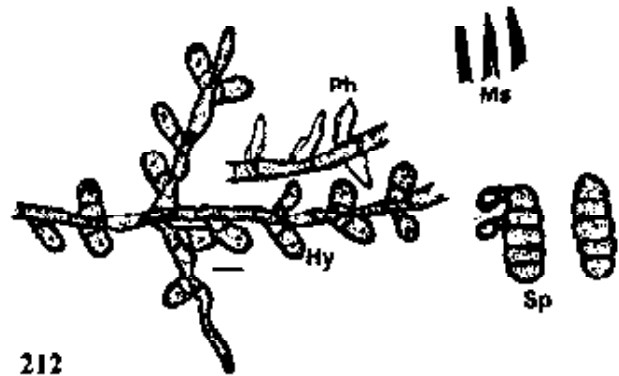
216. *Meliola ixorae-coccineae* Hosag. & Pillai in Hosag., Raghu & Pillai, Nova Hedwigia 58: 539, 1994.

Colonies epiphyllous, dense, crustose, up to 1 mm in diameter, rarely confluent. Hyphae straight, branching mostly opposite at acute to wide angles, densely reticulate and form solid mycelial mat, cells 12-15.5 x 9-12.5 μm . Hyphopodia opposite, crowded, antrorse to subantrorse, mostly straight, 15-18.5 μm long; stalk cells cuneate, 5-7 μm long; head cells ovate, globose, entire, rarely attenuated at apex, 9-12.5 x 9-11 μm . Phialides few, mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 9-12.5 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute to obtuse at the apex, up to 800 μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores obovoidal, 4-septate, strongly constricted, 40-43.5 x 15-18.5 μm .

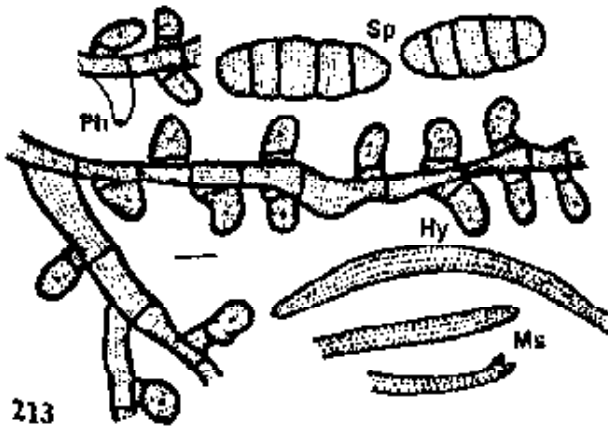
Materials examined: On leaves of *Ixora coccinea* L. (Rubiaceae), Vettiyyar, Mavelikara, Kerala, September 14, 1992, C.M. Pillai HClO 40761 (type).



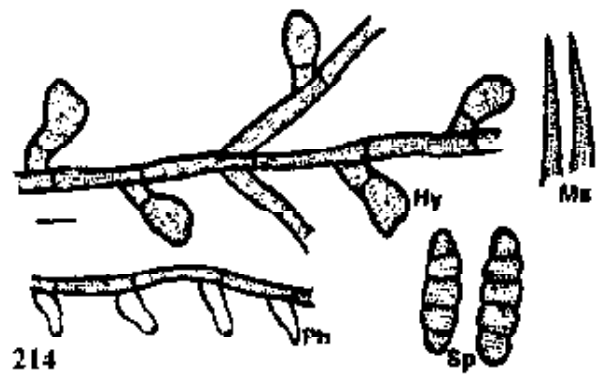
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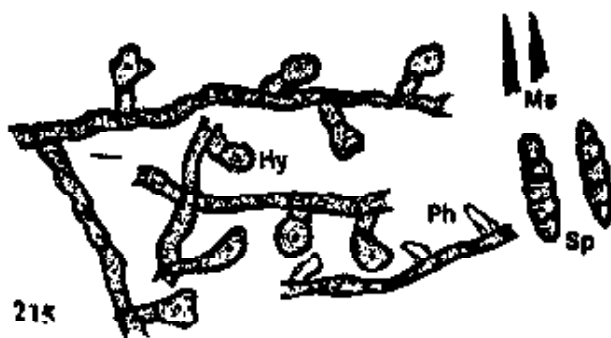
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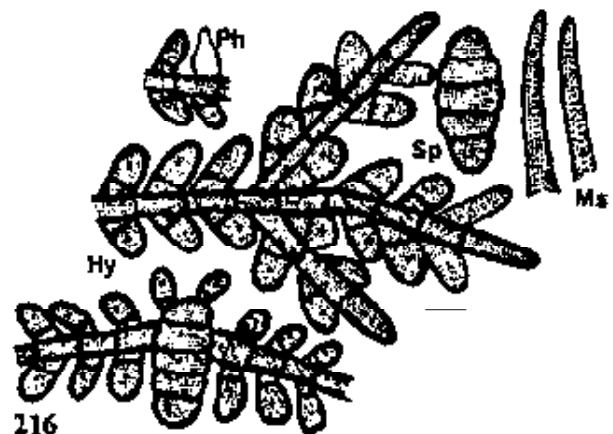
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211. *Meliola indica* Sydow 212. *M. indica* Sydow var. *careyae* Stev. 213. *M. integrifolia* Patil ex Hosag. 214. *M. ixorae* Yates 215. *M. ixorae* Yates var. *macrospora* Hosag. 216. *M. ixorae-coccineae* Hosag. & Pillai

Distribution: India (Kerala).

217. *Meliola jasmini* Hansf. & Stev., J. Linn. Soc. London 51: 273, 1937; Hansf., Sydowia Beih. 2: 535, 1961; Hosag., Indian J. Bot. 11: 185, 1988; Hosag. & Raghu, New Botanist 20: 70, 1993.

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching opposite at acute to wide angles, loosely to closely reticulate, cells 18.5-25 x 6-8 μm . Hyphopodia alternate, straight, antrorse, 15.5-22 μm long; stalk cells cuneate, 4.5-6 μm long; head cells ovate, entire, 12.5-15.5 x 9-12.5 μm . Phialides borne on a separate mycelial branch, opposite to alternate, conoid to ampulliform, 31-37 x 9-15.5 μm . Mycelial setae fairly numerous, scattered, straight, simple, acute to obtuse, up to 500 μm long. Perithecia scattered, verrucose, up to 124 μm in diam.; ascospores obovoidal, 4-septate, 31-34 x 12-18 μm .

Materials examined: On leaves of *Jasminum sambac* (L.) Ait. (Oleaceae), Calicut, Kerala, November 17, 1986, V.B. Hosagoudar AMH 7134; *Jasminum* sp., Tropical Botanic Garden, Trivandrum, Kerala, November 20, 1992, A.G. Pandurangan HCIO 40887.

Distribution: India (Kerala), Gold Coast, Malaya, Sierra Leone, Uganda.

218. *Meliola jasminicola* Henn. var. *indica* Kapoor, Indian Phytopathol. 20: 156, 1967; Hosag. & Goos, Mycotaxon 37: 236, 1990.

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 6 mm in diameter, confluent. Hyphae straight to slightly undulate, branching opposite to irregular at acute angles, cells 24-32 x 6-8 μm . Hyphopodia alternate to unilateral, straight to curved, antrorse to spreading, 16-30 μm long; stalk cells cylindrical to cuneate, 4-12 μm long; head cells ovate, versiform, entire to angulose, 12-18 x 8-16 μm . Phialides mixed with hyphopodia, alternate to opposite, conoid to ampulliform, 16-18 x 6-8 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute at the tip, up to 585 μm long. Perithecia scattered to grouped, verrucose, up to 200 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 36-42 x 12-18 μm .

Materials examined: On leaves of *Jasminum auriculatum* Vatil (Oleaceae), Calcutta, West Bengal, June 6, 1919, S.N. Bal HCIO 3295 (type); *J. rotlerianum* Wall. ex A. DC., Idukki, Kerala, December 13, 1982, Hosagoudar MH 732; February 20, 1983, V.B. Hosagoudar HCIO 40535, MH 75862.

Distribution: India (Kerala, West Bengal).

So far, seven species of the genus *Meliola* have been recorded on *Jasminum* spp. But the present species is closer to *M. jasminicola* Henn. but differs from it in having only alternate hyphopodia. It also differs from *M. jasminicola* Henn. var. *africana* Hansf. in having straight to slightly undulate hyphae, entire head cells of the hyphopodia and phialides mixed with hyphopodia.

219. *Meliola jatrophae* Stev., Illinois Biol. Monogr. 2: 48, 1916; Hansf., Sydowia Beih. 2: 231, 1961; Srinivasulu, Nova Hedwigia Beih. 47: 428, 1974.

Colonies epiphyllous, thin, up to 4 mm in diameter. Hyphae substraight to undulate, branching opposite to irregular at acute angles, loosely reticulate, cells 20-30 x 6-7 μm . Hyphopodia alternate, antrorse, straight to slightly curved, 16-20 μm long; stalk cells cuneate, 4-6 μm long; head cells ovate, entire, 12-16 x 7-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 13-17 x 6-8 μm . Mycelial setae few, scattered to grouped around perithecia, straight, simple, acute, up to 350 μm long. Perithecia scattered, verrucose, up to 150 μm in diam.; ascospores cylindrical to ellipsoidal, 4-septate, constricted, 30-34 x 16-18 μm .

Type: On leaves of *Jatropha glandulifera* Roxb. (Euphorbiaceae), Mahabaleshwar, Maharashtra, October 1966, B.V. Srinivasulu MUH 137.

Materials examined: Material was not available for the study, and the description adopted from Hansford (1961).

Distribution: India (Maharashtra), Porto Rico.

220. *Meliola jayachandranii* Hosag., Sydowia 40: 117, 1987; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 112, 1994.

Colonies epiphyllous, rarely amphigenous, subdense, up to 3 mm in diameter, scattered. Hyphae straight, branching opposite to irregular at wide angles, loosely reticulate, cells 15.5-18.5 x 7-10 μm . Hyphopodia alternate, unilateral, about 5% opposite, straight to curved, antrorse to recurved, 15.5-22 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, mostly curved, entire, 12.5-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate

to opposite, ampulliform, 22-28 x 9-12.5 μm . Mycelial setae few, grouped around perithecia, simple, straight, rarely dentate at the tip, up to 545 μm long. Perithecia scattered, verrucose, up to 165 μm in diam.; ascospores obovoid, 4-septate, slightly constricted, slightly curved, 40-43.5 x 21-25 μm .

Materials examined: On leaves of *Isonandra lanceolata* Wight forma *anfractuosa* (Clarke) Jeuken (Sapotaceae), Pudukadu, Anamalai, Tamil Nadu, January 17, 1987, V.B. Hosagoudar HCIO 39313 (type); Seithur hills, Kamarajar dist., Tamil Nadu, November 1992, V.B. Hosagoudar HCIO 40870.

Distribution: India (Tamil Nadu).

221. *Meliola kakachiana* sp. nov.

Coloniae hypophyllae, subdensae, crustosae, ad 5 mm diam. Hyphae rectae vel anfractuae, plerumque oppositae acutae ramosae, laxe reticulatae, cellulae 27-31 x 6-9.5 μm . Hyphopodia unilateralia, alternata vel ad 10% opposita, antrorsa vel subantrorsa, 12-18.5 μm longa; cellula basali cylindracea, 3-6.5 μm longa; cellula apicali globosa, rotunda vel truncata ad apicem, integra, 9-15.5 x 12-14 μm . Phialides illis hyphopodiis commixtae, alternatae vel oppositae, conoideae, elongatae, 15-18.5 x 9-12.5 μm . Setae myceliales paucae, dispersae vel aggregatae circa perithecia, simplices, rectae, acutae vel furcatae ad apicem, ad 572 μm longae. Perithecia dispersa, verrucosa, ad 155 μm diam.; ascosporae oblongae, cylindraceae, 4-septatae, leniter constrictae, 46-50 x 21-25 μm .

Colonies hypophyllous, subdense, crustose, up to 5 mm in diameter. Hyphae straight to crooked, branching mostly opposite at acute angles, loosely reticulate, cells 27-31 x 6-9.5 μm . Hyphopodia unilateral, alternate and about 10% opposite, antrorse to subantrorse, 12-18.5 μm long; stalk cells cylindrical, 3-6.5 μm long; head cells globose, rounded to truncate at the apex, entire, 9-15.5 x 12-14 μm . Phialides mixed with hyphopodia, alternate to opposite, conoid, elongated, 15-18.5 x 9-12.5 μm . Mycelial setae not many, scattered to grouped around perithecia, simple, straight, acute to furcate at the tip, up to 572 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores oblong, cylindrical, 4-septate, slightly constricted at the septa, 46-50 x 21-25 μm .

Materials examined: On leaves of *Cryptocarya beddomei* Gamble (Lauraceae), Kakachi, Tirunelveli dist., Tamil Nadu, February 23, 1994, V.B. Hosagoudar HCIO 41543 (type).

Distribution: India (Tamil Nadu).

The present species differs from *Meliola neolitiseae* Yamam. in having globose head cells of hyphopodia and straight mycelial setae.

222. *Meliola kanniyakumariana* sp. nov.

Coloniae amphigenae, tenues vel densae, ad 2 mm diam., confluentes. Hyphae flexuosae, opposite vel irregulariter acuteque ramosae, laxae vel dense reticulatae, cellulae 21-31 x 6-8 μ m. Hyphopodia alternata, antrorsa, 15-31 μ m longa; cellula basali cylindracea vel cuneata, 6-12.5 μ m longa; cellula ovata, globosa, integra, angulosa, attenuata et rotundata vel truncata ad apicem, 9-18.5 x 12-15.5 μ m. Phialides producentes in ramis separatam, opposita vel subopposita, conoidea, 9-12.5 x 6-8 μ m. setae myceliales dispersae, rectae, curvulae vel uncinatae, obtusae ad apicem, ad 360 μ m longae. Perithecia dispersa vel laxae aggregata, verrucosa, ad 140 μ m diam.; ascosporae leniter fusoidae et cellulae terminaliae rotundae, 4-septatae, leniter constrictae, 36-40.5 x 15-18.5 μ m.

Colonies amphigenous, thin to dense, velvety, up to 2 mm in diameter, confluent. Hyphae flexuous, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 21-31 x 6-8 μ m. Hyphopodia alternate, antrorse, 15-31 μ m long; stalk cells cylindrical to cuneate, 6-12.5 μ m long; head cells ovate, globose, entire, angular, attenuated and rounded at the apex to truncate, 9-18.5 x 12-15.5 μ m. Phialides borne on a separate mycelial branch, opposite to subopposite, conoid, 9-12.5 x 6-8 μ m. Mycelial setae scattered, straight to curved to uncinatae, obtuse at the apex, up to 360 μ m long. Perithecia scattered to loosely grouped, verrucose, up to 140 μ m in diam.; ascospores slightly fusoid with rounded ends, 4-septate, slightly constricted at the septa, 36-40.5 x 15-18.5 μ m.

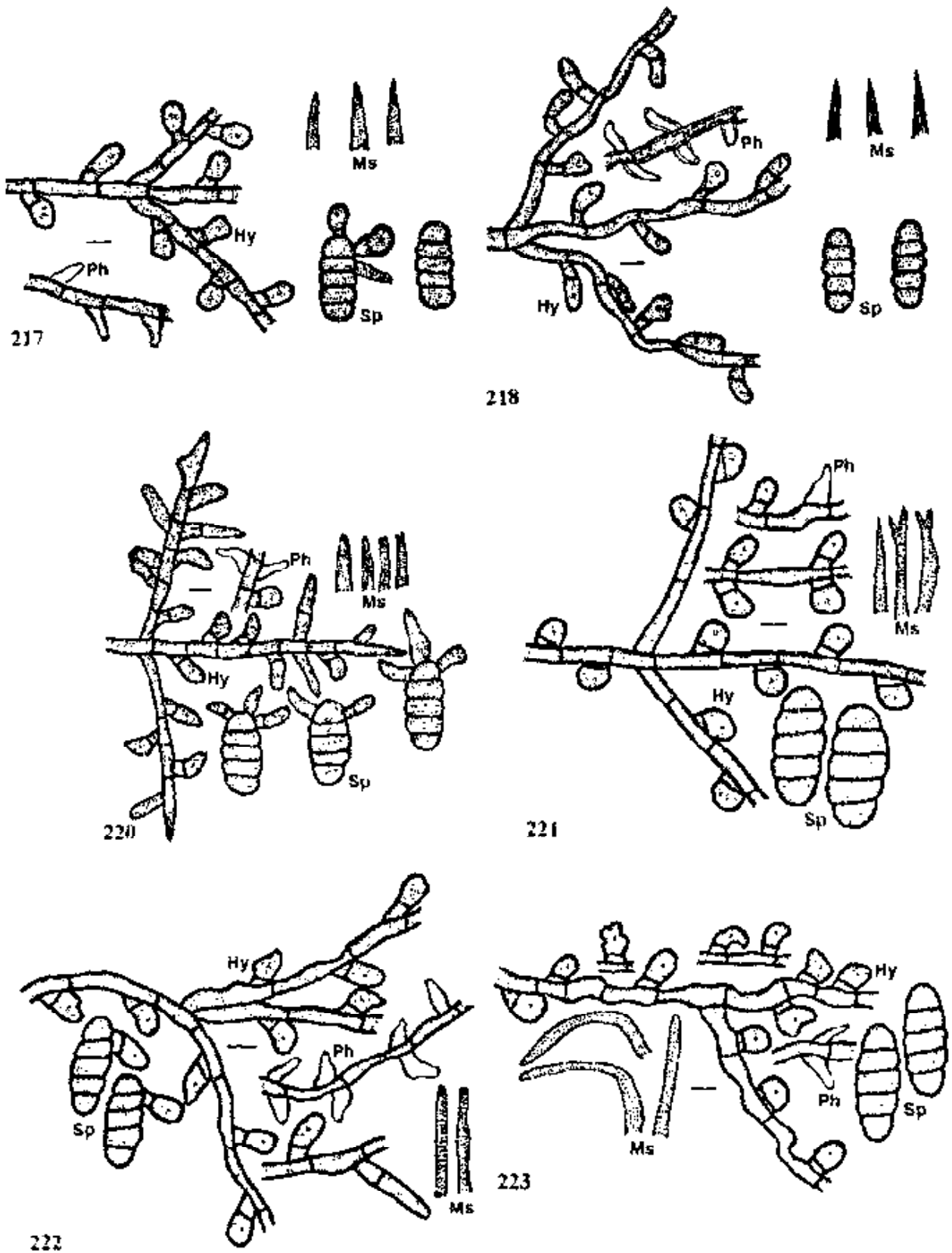
Materials examined: On leaves of *Hedyotis albo-nervia* Bedd. (Rubiaceae), Valve House, Kanniyakumari, Tamil Nadu, February 28, 1994, V.B. Hosagoudar HCIO 41540 (type); *H. gamblei* Henry & Subram. Kakachi Forest, Tirunelveli, Tamil Nadu, February 23, 1994, V.B. Hosagoudar HCIO 41637.

Distribution: India (Tamil Nadu).

Meliola oldenlandiae Hansf. & Stev. is close to the present species differs from it in having truncate head cells of the hyphopodia and straight to uncinatae mycelial setae.

223. *Meliola kapoorii* V.B. Hosagoudar et P.A. Raghu, sp. nov.

M. pandani Sawada & Yamamoto in Sawada, Spec. Publ. Coll.



217. *Meliola jasmini* Hansf. & Stev. 218. *M. jasminicola* Henn. var. *indica* Kapoor
 220. *M. jayachandranii* Hosag. 221. *M. kakachiana* Hosag. 222. *M. kanniyakumari-
 ana* Hosag. 223. *M. Kapoorii* Hosag. & Raghu

Agric. Nat. Taiwan Univ. 8: 35, 1959 (non, Sydow, 1928).

M. juttingi sensu Nair, Curr. Sci. 19: 527, 1971 (non, Hansf., 1954).

Coloniae hypophyllae, densae, velutinae, ad 5 mm diam., confluentes. Hyphae fortiter appressae ad hostes surfacionis, subrectae vel anfractuae, alternate vel irregulariter acuteque vel laxe ramosae, dense reticulatae et solidae, cellulae 15-28 x 9-10 μ m. Hyphopodia alternata, antrorsa vel subantrorsa, recta vel curvula, 18-25 μ m longa; cellula basali cylindracea vel cuneata, 3-12.5 μ m longa; cellula apicali ovata, globosa, integra, angulosa vel leniter sublobata, 12-18.5 x 12-15.5 μ m. Phialides in hyphis distinctis, alternatis vel oppositis, ampulliformis, 27-31 x 9-12.5 μ m. Setae myceliales numerosae, simplices, rectae, paucae uncinatae ad apicem, obtusae, ad 300 μ m longae. Perithecia dispersa vel laxe aggregata, verrucosa, ad 217 μ m diam.; ascospores obovoidae vel leniter ellipsoidea, 4-septatae, leniter constrictae ad septae, 50-55 x 20-22 μ m.

Colonies hypophyllous, dense, velvety, up to 5 mm in diameter, confluent and cover the entire lower surface of the leaves. Hyphae strongly appressed to the host, sustraight to crooked, branching alternate to irregular at acute to wide angles, closely reticulate and form solid mycelial mat, cells 15-28 x 9-10 μ m. Hyphopodia alternate, antrorse to subantrorse, straight to curved, 18-25 μ m long; stalk cells cylindrical to cuneate, 3-12.5 μ m long; head cells ovate, globose, entire, angular to slightly sublobate, 12-18.5 x 12-15.5 μ m. Phialides borne on separate mycelial branch, alternate to opposite, ampulliform, 27-31 x 9-12.5 μ m. Mycelial setae numerous, simple, straight, few uncinuate at penultimate apex, tip obtuse, up to 300 μ m long. Perithecia scattered to loosely grouped, verrucose, up to 217 μ m in diam.; ascospores obovoidal to slightly ellipsoidal, 4-septate, slightly constricted at septa, 50-55 x 20-22 μ m.

Materials examined: On leaves of *Pandanus* sp. (Pandanaeae), Kudremukh, Chikamagalur, Karnataka, April 24, 1993, P.A. Raghu HCIO 41123 (type).

Distribution: India (Karnataka).

So far, *Meliola juttingi*, *M. pandani* Sydow and *M. pandanicola* Hansf. & Deight. have been reported on the host *Pandanus*. The present species is close to *M. juttingi* in having uncinuate mycelial setae. However, it differs from them in having strongly appressed hypophyllous colonics, very few mycelial setae sickle shaped at the penultimate tip portion; entire, angular to sublobate head cells of hyphopodia and smaller ascospores. *M. juttingi*, reported from Kerala appears to be this species.

This species is named in honor of Dr. J.N. Kapoor for his contribution to this group.

224. *Meliola karnatakensis* V.B. Hosagoudar, C.M. Pillai et P.A. Raghu, sp. nov.

Coloniae hypophyllae, densae, velutinae, ad 5 mm diam. Hyphae tantum anfractuae, irregulariter acuteque ramosae, dense reticulatae, cellulae 12-25 x 6-8 μm . Hyphopodia alternata et opposita, antrorsa vel recurvata, 12-18.5 μm longa; cellula basali cylindracea vel cuneata, 3-6.5 μm longa; cellula apicali ovata, obovata vel globosa, recta vel curvula, integra vel angulosa, 9-12.5 x 6-12.5 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 21-25 x 9-12.5 μm . Setae myceliales dispersae, rectae, simplices, acutae vel obtusae ad apicem, ad 770 μm longae. Perithecia dispersa, ad 140 μm diam.; ascospores obovoideae, 4-septatae, leniter constrictae ad septae, 31-37.5 x 15-16 μm .

Colonies hypophyllous, dense, velvety, up to 5 mm in diameter. Hyphae very crooked, branching irregular at acute angles, closely reticulate, cells 12-25 x 6-8 μm . Hyphopodia alternate and opposite, antrorse to recurved, 12-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, obovate to globose, straight to curved, entire to angular, 9-12.5 x 6-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-25 x 9-12.5 μm . Mycelial setae scatter-ed, straight, simple, acute to obtuse at the apex, up to 770 μm long. Perithecia scattered, up to 140 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 31-37 x 15-16 μm .

Materials examined: On leaves of *Glochidion* sp. (Euphorbia-ceae), Agumbe, Karnataka, May 7, 1992, C.M. Pillai HCIO 30994 (type).

Distribution: India (Karnataka).

The present new species is close to *Meliola luzonensis* Sydow (3113. 3223) but differs from it in having hypophyllous colonies, crooked mycelia and in the arrangement and morphology of the hyphopodia.

225. *Meliola kaveriappai* V.B. Hosagoudar, C.M. Pillai & P.A. Raghu, sp. nov.

Coloniae hypophyllae, tantum tenues, patentiae, ad 10 mm diam. Hyphae fortiter appressae ad hospes, anfractuae, alternate vel irregulariter acuteque ramosae, laxe reticulatae, cellulae 30-50 x 6-8 μm . Hyphopodia alternata, recta vel diverse curvula, antrorsa, vel recurvata, 24-28 μm longa; cellula basali

cylindracea vel cuneata, 6-9.5 μm longa; cellula apicali ovata, globosa, recta vel curvula, integra, angularia vel leniter, lobata, 15-18.5 x 12-15.5 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 21-25 x 6-8 μm . Setae myceliales dispersae, simplices, rectae vel raro flexuosae ad basim, acutae vel obtusae ad apicem, ad 715 μm longae. Perithecia dispersa, ad 125 μm diam.; ascosporeae obovoideae, 4-septatae, leniter constrictae ad septae, 51-54 x 24-25 μm .

Colonies hypophyllous, very thin, spreading, up to 10 mm in diameter. Hyphae strongly appressed to the host surface, crooked, branching alternate to irregular at acute angles, loosely reticulate, cells 30-50 x 6-8 μm . Hyphopodia alternate, straight to variously curved, antrorse to recurved, 24-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, straight to curved, entire, angular to slightly lobate, 15-18.5 x 12-15.5 μm . Phialides mixed with hyphopodia, alternate opposite, ampulliform, 21-25 x 6-8 μm . Mycelial setae scattered, simple, straight to rarely flexuous at the base, acute to obtuse at the apex, up to 715 μm long. Perithecia scattered, up to 125 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 51-54 x 24-25 μm .

Materials examined: On leaves of *Cinnamomum* sp. (Lauraceae), Agumbe, Shimoga, Karnataka, May 7, 1992, C.M. Pillai HClO 30995 (type).

Distribution: India (Karnataka).

The present new species is close to *Meliola cryptocaryae* Doidge and *M. sempeiensis* Yamam. in having thin hypophyllous colonies and crooked hyphae. However, it differs from the former species in having smaller hyphopodia, phialides mixed with hyphopodia and smaller ascospores. It differs from the latter species in having entire, angular to slightly lobate head cells of the hyphopodia, straight mycelial setae and smaller ascospores without central larger cell.

The species is named in honour of Prof. K.M. Kaveriappa whose contribution to the study of downy mildew and aquatic fungi has been notable.

226. *Meliola khasiensis* Hansf., Sydowia Beih. 2: 336, 1961.

Meliola falcatiseta Speg. var. *khasiensis* Hansf., Sydowia 9: 16, 1955.

Colonies hypophyllous, subcrustose to dense, up to 2 mm in diameter, confluent. Hyphae substraight to undulate branching opposite at wide angles, closely reticulate and solid at the centre, cells 12-15 x 8-9 μm . Hyphopodia

opposite and about 10% alternate, antrorse to spreading, usually straight, 12-18 μm long; stalk cells cylindrical to cuneate, 3-4 μm long; head cells globose to oblong, entire, 8-14 x 7-11 μm . Phialides not seen. Mycelial setae numerous, closely scattered, simple, arcuate, coiled or uncinata above, acute to obtuse, up to 500 μm . Perithecia grouped in the centre, verrucose, up to 180 μm in diam.; ascospores oblong, 4-septate, constricted, 42-49 x 17-19 μm .

Materials examined: On *Ilex* sp. (Aquifoliaceae) from India deposited in Kew, was not available for the present study.

Distribution: India.

227. *Meliola kingiodendri* Hosag., Dayal & Goos, Mycotaxon 46: 205, 1993.

Colonies hypophyllous, rarely amphigenous, dense, up to 5 mm in diameter, rarely confluent. Hyphae straight, very rarely crooked, branching mostly opposite at acute to wide angles, loosely reticulate, cells 27-35.5 x 6-9.5 μm . Hyphopodia opposite, rarely solitary, antrorse to recurved to spreading, 15-18 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells pyriform, conoid with rounded ends, straight, curved to recurved, entire, 12-15.5 x 6-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, straight to curved at the apex, 18-25 x 9-12 μm . Mycelial setae evenly scattered on the colonies, simple, straight, obtuse to dentate at the tip, up to 575 μm long. Perithecia scattered, globose, up to 248 μm in diam.; perithecial cells projected, rounded at the apex; ascospores ellipsoidal, 4-septate, constricted at the septa, 37-40.5 x 18-22 μm .

Materials examined: On leaves of *Kingiodendron pinnatum* (Roxb.) Harms (Caesalpinaceae), Sampaje forest nursery, Sampaje, Kodagu, Karnataka, B.R. Dayal HClO 30836 (type).

Distribution: India (Karnataka).

228. *Meliola kwelchowensis* Hansf. var. *uncinata* Kar & Maity, Nytt. Mag. Bot. 17: 87, 1970.

Colonies epiphyllous, subdense, up to 4 mm in diameter, confluent. Hyphae straight, branching mostly opposite at wide angles, closely reticulate, cells 16-23 x 6-7 μm . Hyphopodia alternate, antrorse to recurved, 13-18 μm long; stalk cells cylindrical to cuneate, 3-5 μm long; head cells ovate, globose, entire to angular, 9-13 μm . Phialides mixed with hyphopodia, alternate to opposite,

ampulliform, 13-16.5 x 6-7 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, hooked at the upper portion, acute to obtuse at the tip, up to 250 μm long. Perithecia scattered to grouped, verrucose, up to 218 μm in diam.; ascospores cylindrical, 4-septate, constricted at the septa, 33-36.5 x 9-13 μm .

Type: On leaves of *Styrax serrulatum* (Styracaceae), Jalpaiguri, West Bengal, November 1, 1967, M.K. Maity PCC 1468.

Materials examined: Material was not available.

Distribution: India (West Bengal).

229. *Meliola kydiae-calycinae* Hansf. & Thirum., Farlowia 3: 296, 1948; Hansf., Sydowia Beih. 2: 188, 1961.

Colonies mostly epiphyllous, dense, velvety, up to 4 mm in diameter, confluent. Hyphae undulate to crooked, branching opposite to irregular at wide angles, closely reticulate, cells 20-30 x 7-9 μm . Hyphopodia alternate, antrorse to spreading, 15-24 μm long; stalk cells cylindrical to cuneate, 4-10 μm long; head cells angulose to irregularly sublobate, straight to curved, 10-15 x 12-19 μm . Phialides borne on a separate mycelial branch, opposite to alternate, conoid to ampulliform, 16-23 x 6-8 μm . Mycelial setae numerous, mostly grouped around perithecia, straight to curved, simple, acute to obtuse, up to 340 μm long. Perithecia scattered, verrucose, up to 180 μm in diam.; ascospores ellipsoidal to cylindrical, 4-septate, constricted, 33-39 x 10-12 μm .

Materials examined: Material was not available for the present study and the report is on *Kydia calycina* Robx., Karnataka, Thirumalachar No. 852.

Distribution: India (Karnataka).

230. *Meliola laxa* Gaill. var. *indica* V.B. Hosagoudar, C.M. Pillai et P.A. Raghu, var. nov.

Differt a var. *laxa* in phialides illis hyphopodiis commixta et setae myceliales longiorae.

Colonies amphigenous, thin, up to 5 mm in diameter, confluent. Hyphae straight to slightly undulate, branching mostly opposite at acute angles, loosely

reticulate, cells 27-31 x 6-8 μm . Hyphopodia alternate, less than 1% opposite, antrorse to subantrorse, 15-21.5 μm long; stalk cells cuneate, 3-6.5 μm long; head cells ovate to globose, entire, 9-15.5 x 12-15.5 μm . Phialides numerous, mixed with hyphopodia, alternate to opposite, ampulliform, 18-28 x 6-8 μm . Mycelial setae few, grouped around perithecia, simple, straight, acute to obtuse at the tip, up to 575 μm long. Perithecia scattered, up to 125 μm in diam.; ascospores obovoidal, 4-septate, deeply constricted at the septa, 36-40.5 x 15-19 μm .

Materials examined: On leaves of *Syzygium zeylanicum* (L.) DC. (Myrtaceae), Mavelikara, Kerala, May 10, 1992, C.M. Pillai HClO 30996 (type).

Distribution: India (Kerala).

The present collection is close to *Meliola laxa* Gaill. reported on Myrtaceae member from Ecuador. However, the present new variety differs from the var. *laxa* in having phialides mixed with hyphopodia and longer setae.

231. *Meliola leycesteriae* Kar & Maity, Nytt. Mag. Bot. 17: 83, 1970.

Colonies amphigenous, mostly epiphyllous, thin, up to 6 mm in diameter, confluent. Hyphae undulate, branching opposite at acute angles, loosely reticulate, cells 19-30 x 5-6.5 μm . Hyphopodia alternate, straight to curved, antrorse to subantrorse, 13-15 μm long; stalk cells cuneate, 3-5 μm long; head cells oval, globose, entire, 8-11.5 x 9-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 16-21.5 x 5-6.5 μm . Mycelial setae scattered to grouped around perithecia, simple, straight to curved, acute at the tip, up to 937 μm long. Perithecia scattered to grouped, up to 172 μm in diam.; ascospores cylindrical, 4-septate, constricted at the septa, 28-33 x 8-13 μm .

Type: On leaves of *Leycesteria glaucophylla* Hook.f. (Caprifoliaceae), Dhurguri forest, West Bengal, November 7, 1967, M.K. Maity PCC 1476.

Materials examined: Material was not available.

Distribution: India (West Bengal).

232. *Meliola ligustri* Hosag. in Hosag. & Goos, Mycotaxon 37: 236, 1990.

Colonies amphigenous, subdense, up to 4 mm in diameter, confluent. Hyphae flexuous, branching opposite to irregular at wide angles, loosely reticulate, cells 20-30 x 6-8 μm . Hyphopodia alternate, spreading, antrorse,

straight to curved, 20-24 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells globose, cylindrical, versiform, angulose, entire, 12-18 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, tip twisted and elongated, 16-20 x 6-8 μm . Mycelial setae fairly numerous, scattered, simple, acute to obtuse at the tip, up to 270 μm long. Perithecia scattered, verrucose, up to 160 μm in diam.; ascospores obovoidal, 4-septate, constricted, 36-40 x 14-16 μm .

Materials examined: On leaves of *Ligustrum walkeri* Roxb. Blume ssp. *walkeri* (Decne) Green (*L. walkeri* Decne) (Oleaceae), Lakshmi Estate, Idukki, Kerala, June 12, 1983, V.B. Hosagoudar HCIO 40536 (type), MH 75079 (isotype); Lakshmi Estate, Idukki, Kerala, December 15, 1982, V.B. Hosagoudar MH 75771; Puliyanmala, Idukki, Kerala, February 23, 1984, M. Ali MH 80370.

Distribution: India (Kerala).

233. *Meliola linderæ* Yamam., Trans. Nat. Hist. Soc. Taiwan 31: 20, 1941; Hansf., Sydowia Beih. 2: 50, 1961; Hosag. & Goos, Mycotaxon 37: 237, 1990.

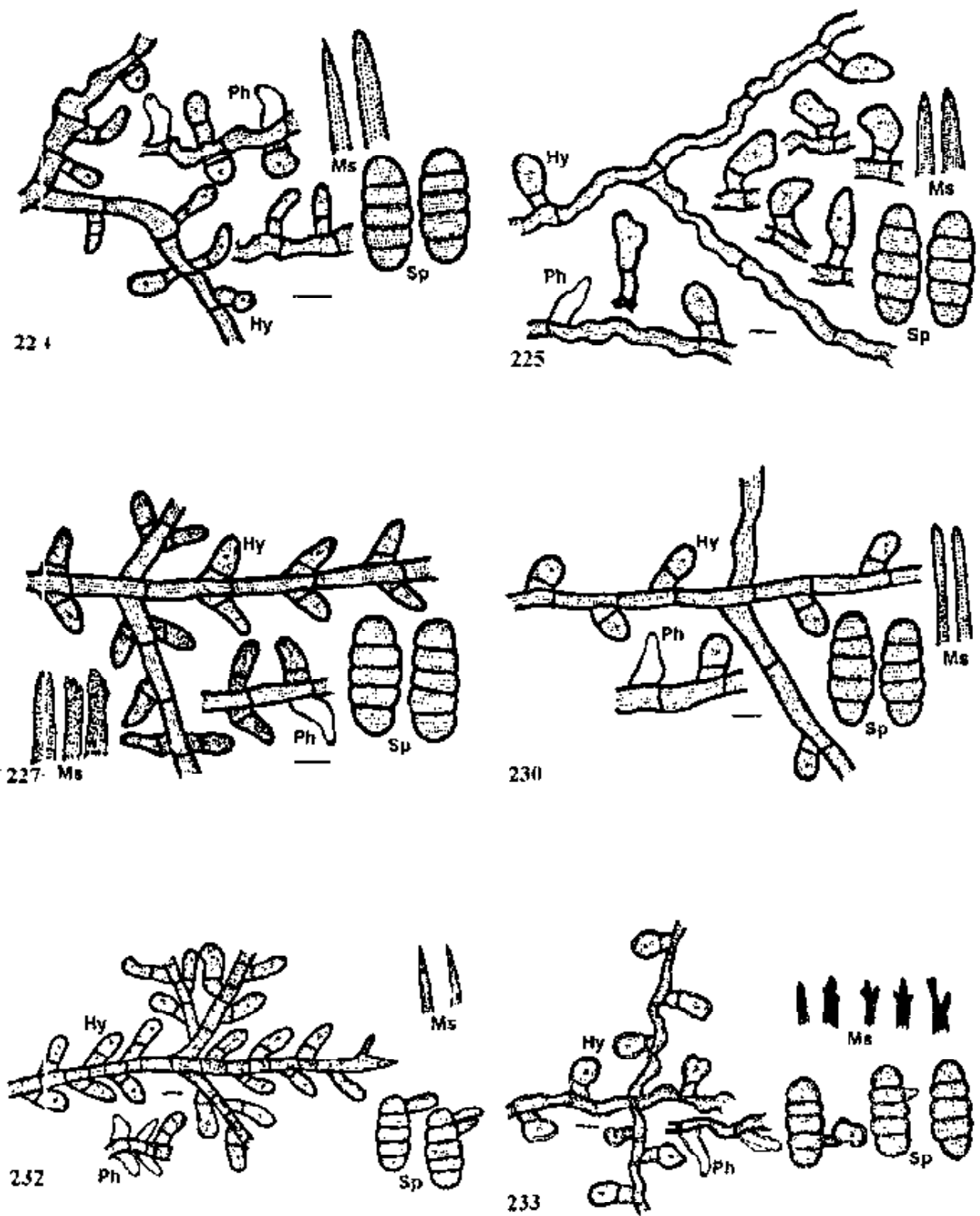
Colonies hypophyllous, dense, subvelvety, up to 5 mm in diameter, confluent. Hyphae crooked, branching opposite to irregular at acute angles, closely reticulate, cells 18-32 x 6-8 μm . Hyphopodia alternate, straight to variously curved, antrorse to reflexed, spreading, 20-24 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells ovate, globose, angulose, truncate, entire, 14-18 x 12-14 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 20-22 x 8-10 μm . Mycelial setae numerous, straight, simple, acute to 2-3 dentate at the tip, up to 864 μm . Perithecia scattered, verrucose, up to 180 μm in diam.; ascospores oblong, 4-septate, constricted, 46-52 x 20-22 μm .

Materials examined: On leaves of *Actinodaphne hookeri* Meissn. (Lauraceae), Meenmutty, Idukki, Kerala, October 10, 1982, V.B. Hosagoudar HCIO 40537, MH 73608; Idukki, Kerala, December 11, 1982, V.B. Hosagoudar MH 73686; December 23, 1983, V.B. Hosagoudar MH 79038.

Distribution: India (Kerala); China, Formosa.

234. *Meliola linocieræ-malabaricæ* Hosag., Nova Hedwigia 47: 540, 1988.

Colonies hypophyllous, caulicolous, dense, velvety, up to 10 mm in



224. *Meliola karnatakensis* Hosag. et al. 225. *M. kaveriappai* Hosag. et al. 227. *M. kingiodendri* Hosag. et al. 230. *M. laxa* Gaill. var. *indica* Hosag. et al. 232. *M. ligustri* Hosag. 233. *M. linderæ* Yamam.

diam., confluent. Hyphae straight to undulating, branching mostly opposite at wide angles, loosely to closely reticulate, cells 18-22 x 4-6 μm . Hyphopodia alternate, straight, flexuous, crooked, antrorse to recurved, 18-22 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, truncate, angulose, straight to variously curved, mostly entire, rarely sublobate, 15-17 x 6-9 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 27-31 x 8-9 μm . Mycelial setae numerous, densely scattered, simple, acute, up to 272 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores obovoidal, 4-septate, constricted, 40-46 x 15-19 μm .

Materials examined: On leaves of *Chionanthus mala-elengi* (Dennst.) Green (*Linociera malabarica* Wall. ex Don) (Oleaceae), Idukki, Kerala, December 28, 1983, V.B. Hosagoudar MH 80318 (p.p.), HClO 39394 (isotype); Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HClO 30551.

Distribution: India (Kerala, Tamil Nadu).

235. *Meliola litseae* Sydow var. *floribundae* Hosag. in Hosag. & Goos, *Mycotaxon* 37: 237, 1990.

Colonies hypophyllous, subdense, velvety, up to 12 mm in diameter, confluent. Hyphae tortuous to crooked, branching opposite to irregular at wide angles, loosely reticulate, cells 36-42 x 6-10 μm . Hyphopodia alternate, unilateral, 5% opposite, antrorse, spreading, straight to curved, 26-34 μm long; stalk cells cylindrical to cuneate, 8-12 μm long; head cells ovate, globose, truncate, slightly angulose to sublobate, straight to curved, 16-24 x 14-18 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 20-26 x 8-10 μm . Mycelial setae fairly numerous, grouped around perithecia, simple, acute at the tip, up to 1089 μm long. Perithecia scattered to grouped, up to 342 μm in diam.; ascospores ellipsoidal, 4-septate, 46-58 x 16-20 μm .

Materials examined: On leaves of *Litsea floribunda* (Blume) Gamble (Lauraceae), Lakshmi Estate, Idukki, Kerala, June 12, 1983, V.B. Hosagoudar HClO 40538 (type); Kanchiar forest, October, 4, 1982, V.B. Hosagoudar MH 73670; Pudukadu, Lower Sheikalmudy, Coimbatore, Tamil Nadu, January 17, 1987, V.B. Hosagoudar MH 82668.

Distribution: India (Kerala, Tamil Nadu).

236. *Meliola litseae* Sydow & Sydow var. *insignis* Hosag. in Hosag. & Goos,

Mycotaxon 37: 237, 1990.

Colonies hypophyllous, thin, up to 10 mm in diameter, confluent. Hyphae tortuous to crooked, branching alternate to irregular at acute angles, loosely reticulate, cells 18-22 x 6-8 μm . Hyphopodia alternate to unilateral, straight to curved, antrorse, spreading, 14-20 μm long; stalk cells cuneate to cylindrical, 6-8 μm long; head cells ovate, clavate, globose, slightly angular, entire, 8-12 x 10-12 μm . Phialides few, mixed with hyphopodia, alternate, ampulliform, 16-22 x 8-10 μm . Mycelial setae fairly numerous, scattered, simple, acute to obtuse at the tip, up to 927 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores obovoidal, 4-septate, constricted, 42-50 x 14-18 μm .

Materials examined: On leaves of *Litsea insignis* Gamble (Lauraceae), Idukki, Kerala, June 10, 1983, V.B. Hosagoudar HClO 40539 (type), MH 75057 (isotype).

Distribution: India (Kerala).

237. *Meliola litsea* Sydow var. *keralensis* Hosag. in Hosag. & Goos, Mycotaxon 37: 238, 1990 (*keralense*).

Colonies epiphyllous, subdense, up to 3 mm in diameter, rarely confluent. Hyphae substraight, branching opposite at wide angles, loosely reticulate, cells 14-20 x 8-10 μm . Hyphopodia alternate, antrorse, 26-28 μm long; stalk cells cuneate, 6-8 μm long; head cells ovate, versiform, entire, 18-20 x 12-14 μm . Phialides mixed with hyphopodia, opposite to alternate, 18-26 x 8-10 μm . Mycelial setae few, mostly grouped around perithecia, simple, acute, up to 578 μm long. Perithecia mostly scattered, seated on exhyphopodiate hyphae, up to 186 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 36-38 x 18-20 μm .

Materials examined: On leaves of *Litsea stocksii* (Meisner) Hook.f. var. *glabrescense* (Meisner) Hook.f. (Lauraceae), Idukki, Kerala, October 3, 1983, V.B. Hosagoudar HClO 40540 (type), MH 78124 (isotype).

Distribution: India (Kerala).

238. *Meliola litseae* Sydow & Sydow var. *microspora* Hosag., Sydowia 40: 119, 1987.

Colonies epiphyllous, subdense, up to 3 mm in diameter, rarely confluent. Hyphae straight to substraight, branching opposite at wide angles, loosely

reticulate, cells 15-31 x 6-9.5 μm . Hyphopodia alternate, straight to slightly curved, antrorse to recurved, 21-30 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells straight to slightly curved, ovate, bluntly pointed towards the apex, entire, 15.5-21.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 21-31 x 9-12.5 μm . Mycelial setae numerous, mostly grouped around perithecia, simple, straight, acute to obtuse at the tip, up to 715 μm long. Perithecia scattered, up to 211 μm in diam.; ascospores obovoidal, 4-septate, 35-40 x 12-18.5 μm .

Materials examined: On *Litsea floribunda* (Bl.) Gamble (Lauraceae), Pudukadu, Valparai, Tamil Nadu, India, January 17, 1987, V.B. Hosagoudar HClO 39314 (type).

Distribution: India (Tamil Nadu).

239. *Meliola litseae* Sydow & Sydow var. *rotundipoda* Hansf., *Reinwardtia* 3: 88, 1954; *Sydowia* Bieh. 2: 57, 1961; Hosag. & Goos, *Mycotaxon* 37: 239, 1990.

Meliola litseae Graff, *Mem. Torrey Bot. Club* 17: 61, 1918 (non Sydow & Sydow, 1917).

Colonies epiphyllous, dense, velvety, up to 4 mm diameter, confluent. Hyphae straight to undulate, branching opposite at wide angles, loosely reticulate, cells 14-20 x 6-8 μm . Hyphopodia alternate, straight to curved, antrorse, rarely spreading, 24-26 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells versiform, obovate, rarely truncate, entire, 16-20 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 20-24 x 10-12 μm . Mycelial setae few, straight, simple, acute at the tip, up to 612 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores obovate, 4-septate, slightly constricted, 44-48 x 18-20 μm .

Materials examined: On leaves of *Litsea coriacea* (Heyne ex Meisner) Hook.f. (Lauraceae), in the forest near Painavu, Idukki, Kerala, January 10, 1982, V.B. Hosagoudar HClO 40551, MH 72639; Painavu, Idukki, Kerala, April 18, 1982, V.B. Hosagoudar MH 72686; December 13, 1982, V.B. Hosagoudar MH 75740.

Distribution: India (Kerala), Java, Philippines.

The Indian collections slightly vary from species description in having larger hyphopodia, few mycelial setae and larger ascospores.

240. *Meliola lobeliae* Stev., Bull. Bishop Mus. 19: 29, 1925; Hansf., Sydowia 2: 626, 1961; Hosag. & Raju, J. Econ. Tax. Bot. 6: 718, 1985.
Meliola lobeliae Srinivasulu, Nova Hedwigia Beih. 47: 428, 1974.

Colonies epiphyllous, dense, up to 5 mm in diameter, confluent. Hyphae slightly undulate, branching opposite at wide angles, loosely reticulate, cells 15-31 x 6-9 μm . Hyphopodia opposite, antrorse to subantrorse, 17-20 μm long; stalk cells cylindrical to cuneate, 3-5 μm long; head cells ovate, cylindrical, entire, 12-15 x 8-10 μm . Phialides few, mixed with hyphopodia, ampulliform, 15-21 x 3-6 μm . Mycelial setae numerous, scattered, simple, straight, acute to obtuse, up to 380 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores oblong, 4-septate, constricted, 50-54 x 16-18 μm .

Type: On leaves of *Lobelia nicotianifolia* Roth ex Schultes (Lobeliaceae), Castle Rock, Maharashtra, November 1967, B.V. Srinivasulu MUH 138 (type of *M. lobeliae* Srinivasulu).

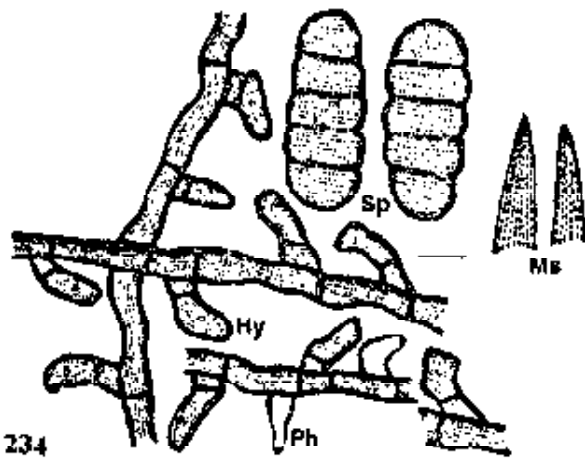
Materials examined: Material was not available.

Distribution: India (Maharashtra), Hawaii.

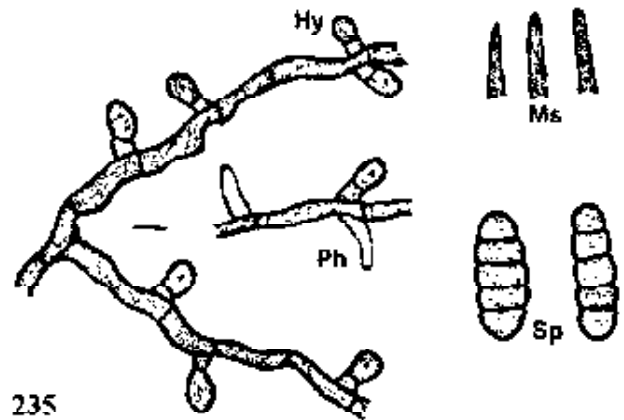
This is a less known species and Hansford (1961) also expressed his doubt about the identities of the host plant. Detailed description with the correct host identity is required for this species.

241. *Meliola longiseta* Hoehnel, Sitzb. K. Akad. Wiss. Wien, Math.-naturw. Kl. 116: 100, 1907; Hansf., Sydowia Beih. 2: 593, 1961; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 112, 1992.

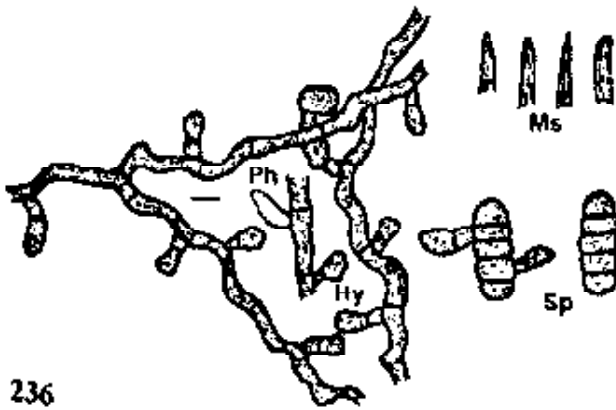
Colonies amphigenous, hypophyllous colonies mostly on the veins, dense, velvety, up to 5 mm in diameter. Hyphae substraight to flexuous, branching alternate to irregular at acute angles, loosely reticulate, cells 24-46.5 x 6-8 μm . Hyphopodia alternate, antrorse, straight to curved, 24-37.5 μm long; stalk cells cylindrical to cuneate, 9-15.5 μm long; head cells ovoid to globose, entire to angular, crenately lobate to lobate, 15-22 x 15-18.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 24-28 x 9-12.5 μm . Mycelial setae scattered, straight, simple, acute to obtuse at the tip, up to 750 μm long, setae around perithecia small and pale in colour. Perithecia scattered to loosely grouped, verrucose, up to 150 μm in diam.; ascospores obovoidal, straight to slightly curved, 4-septate, slightly constricted, 40-46.5 x 12-15.5 μm .



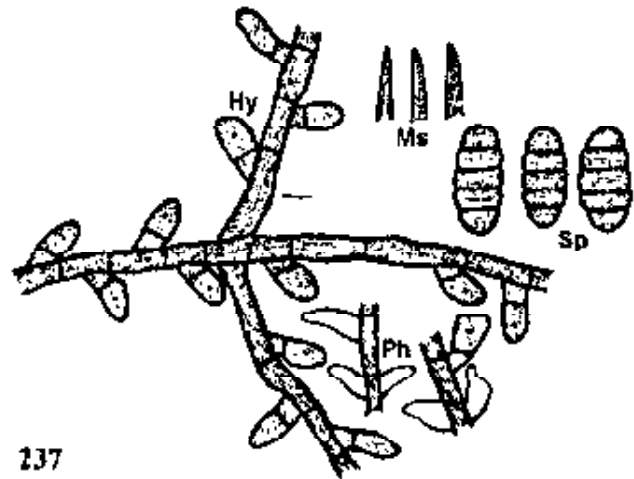
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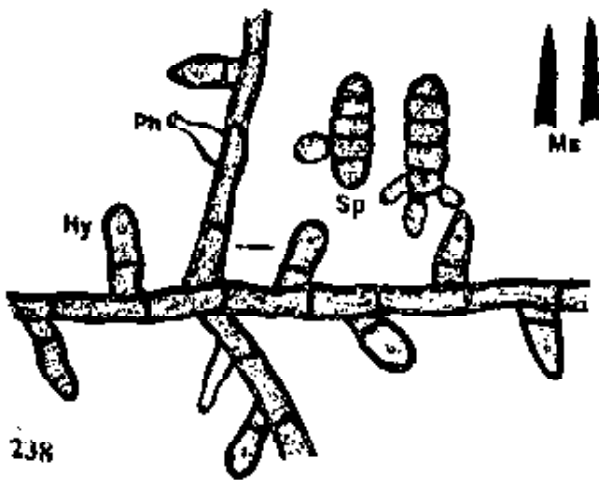
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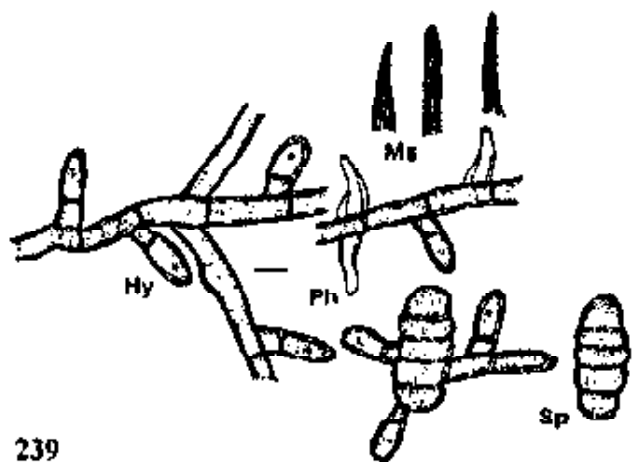
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234. *Meliola linoceirae-malabaricae* Hosag. 235. *M. litseae* Sydow var. *floribundae* Hosag. 236. *M. litseae* Sydow var. *insignis* Hosag. 237. *M. litseae* Sydow var. *keralensis* Hosag. 238. *M. litseae* Sydow var. *microspora* Hosag. 239. *M. litseae* Sydow var. *rotundipoda* Hansf.

Materials examined: On leaves of *Canthium dicoccum* (Gaertn.) Teijsm. & Binn. var. *umbellata* (Wight) Sant. & Merch. (Rubiaceae), Gersoppa, Uttara Kannada, Karnataka, November 23, 1992, P.A. Raghu HCIO 40871.

Distribution: India (Kernataka), Samoa.

242. *Meliola luvungae* Hosag. in Hosag. & Goos, Mycotaxon 37: 239, 1990.

Colonies hypophyllous, dense, velvety, up to 6 mm in diameter, confluent. Hyphae straight, branching mostly opposite and rarely alternate at acute angles, loosely reticulate, cells 12-14 x 6-8 μm . Hyphopodia alternate, straight to slightly curved, subantrorse to antrorse, 16-20 μm long; stalk cells cuneate, 4-6 μm long; head cells ovate to cylindrical, entire, 10-14 x 8-10 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 16-20 x 6-8 μm . Mycelial setae scattered, straight, simple, acute at the tip, up to 351 μm long. Perithecia scattered, verrucose, up to 166 μm in diam.; ascospores obovoidal, 4-septate, constricted, 40-42 x 14-18 μm .

Materials examined: On leaves of *Luvunga sermentosa* (Blume) Kurz (*L. elutherandra* Dalz.) (Rutaceae), Idukki, Kerala, December 12, 1982, V.B. Hosagoudar HCIO 40542 (type), MH 75705 (isotype); October 2, 1983, V.B. Hosagoudar MH 78108; *Euodia luna-ankenda* (Gaertn.) Merr. (Rutaceae), Amboli, Maharashtra, September 28, 1976, M.S. Patil HCIO 32521.

Distribution: India (Kerala, Maharashtra).

243. *Meliola machili* Yamam., Trans. Nat. Hist. Soc. Taiwan 31: 23, 1941; Hansf., Sydowia Beih. 2: 54, 1961; Hosag. & Goos, Mycotaxon 37: 239, 1990; Hosag., Dayal & Goos, Mycotaxon 46: 206, 1993.

Colonies hypophyllous, dense, velvety, up to 6 mm in diameter, confluent. Hyphae crooked and geniculate, branching opposite to irregular at acute to wide angles, closely reticulate, rarely form solid mycelial mat, cells 20-28 x 6-10 μm . Hyphopodia alternate to unilateral, straight to curved, antrorse, spreading, 16-22 μm long; stalk cells cylindrical to cuneate, 4-10 μm long; head cells ovate, globose, slightly angular, truncate, entire, 12-14 x 14-16 μm . Phialides mixed with hyphopodia, alternate to unilateral, 10-16 x 8-12 μm . Mycelial setae numerous, scattered to grouped around perithecia, straight, simple, acute at the tip, up to 486 μm long. Perithecia scattered, verrucose, up to 246 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 54-56 x 18-22

µm.

Materials examined: On leaves of *Persea macrantha* (Nees) Kosterm. (*Machilus macrantha* Nees) (Lauraceae), Idukki, Kerala, January 12, 1982, V.B. Hosagoudar HCIO 40543, MH 72681; April 19, 1982, V.B. Hosagoudar MH 73646, 73711; December 15, 1982, V.B. Hosagoudar MH 75764; Lakshmi Estate, Idukki, Kerala, June 12, 1983, V.B. Hosagoudar MH 75091, 75092, 75094; Pooyankutty, Kerala, June 16, 1983, V.B. Hosagoudar MH 79021; Idukki, Kerala, October 3, 1983, V.B. Hosagoudar MH 78134; December 28, 1983, V.B. Hosagoudar MH 80320; Calvary Mount, Idukki, Kerala, February 24, 1984, M. Ali MH 80371; Idukki, Kerala, October 25, 1984, A. Diraviadoss MH 82612; Pudukadu, Lower Sheikalmudy, Coimbatore, Tamil Nadu, January 17, 1987, V.B. Hosagoudar MH 82670, 82678, 82684; Sampaje forest nursery, Sampaje, Kodagu, Karnataka, December 22, 1991, B.R. Dayal HCIO 30834.

Distribution: India (Karnataka, Kerala, Tamil Nadu), Formosa, Java.

This species is distinct from rest of the *Meliola* spp. reported on the members of the family Lauraceae in having dense colonies, crooked mycelia and truncate head cells of the hyphopodia.

244. *Meliola macropoda* Sydow, Ann. Mycol. 24: 290, 1926; Hansf., Sydowia Beih. 2: 392, 1961; Hosag., Kaveriappa, Raghu & Hosag., Mycotaxon 51: 113, 1994.

Colonies amphigenous; dense, crustose to velvety, up to 5 mm in diameter. Hyphae straight to substraight, branching mostly opposite at acute to wide angles, loosely to closely reticulate, cells 24-46 x 6-8 µm. Hyphopodia alternate, straight to slightly curved, antrorse to spreading, 21-28 µm long; head cells ovate to elongate-ovate, entire to slightly angular, often bluntly pointed towards the apex, 12-18.5 x 9-12.5 µm. Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-28 x 9-12.5 µm. Mycelial setae scattered, straight, simple, mostly obtuse at the tip, up to 680 µm long. Perithecia scattered, up to 205 µm in diameter; ascospores obovoidal, 4-septate, constricted, 40-52 x 15-22 µm.

Materials examined: On leaves of *Vepris bilocularis* (Wight & Arn.) Engl. (Rutaceae), Gersoppa, Uttara Kannada, Karnataka, October 21, 1992, P.A. Raghu HCIO 40872 (p.p.).

Distribution: India (Karnataka), Costa Rica, Panama.

245. *Meliola maduraiensis* Hosag., Ravikumar & Lakshmanan, Nova Hedwigia 54: 269, 1992.

Colonies epiphyllous, dense, crustose, up to 4 mm in diameter, confluent. Hyphae straight to flexuous, branching alternate to irregular at acute angles, loosely to closely reticulate, cells 21.5-37.5 x 9-12.5 μm . Hyphopodia alternate, rarely opposite (less than 1%), straight, curved to flexuous, antrorse to recurved, 21.5-28 μm long; stalk cells straight to rarely flexuous, cylindrical, 8-10 μm long; head cells ovate, globose, entire, angular to lobate, 12-18.5 x 12-15.5 μm . Phialides mixed with hyphopodia, mostly alternate, conoid to ampulliform, 18-25 x 9-12.5 μm . Mycelial setae grouped around perithecia, simple, straight to uncinata, acute to obtuse at the apex, up to 444 μm long. Perithecia scattered to grouped, up to 190 μm in diam.; ascospores cylindrical to fusiform, straight but mostly curved, 3-septate, constricted at the septa, 46.5-53 x 15-18.5 μm .

Materials examined: On leaves of *Syzygium lanceolatum* (Lam.) Wight & Arn. (Myrtaceae), Hospital Valley, High Wavy Mountain, Madurai, Tamil Nadu, August 25, 1990, V. Lakshmanan HClO 30457(type).

Distribution: India (Tamil Nadu).

246. *Meliola mahabaleshwariensis* Srinivasulu, Nova Hedwigia Beih. 47: 429, 1974.

Colonies amphigenous, crustose, subdense, up to 6 mm in diameter, confluent. Hyphae mostly straight, branching mostly opposite at wide angles, loosely reticulate, cells 10-44 x 6-8 μm . Hyphopodia alternate, mostly antrorse, rarely spreading, 19-24 μm long; stalk cells cylindrical to cuneate, 5-8 μm long; head cells ovate, cylindrical, entire, 9-15 x 11-14 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 15-17 x 4-7 μm . Mycelial setae scattered, simple, straight, acute at the tip, up to 400 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 30-38 x 13-15 μm .

Type: On leaves of *Solanum giganteum* Jacq. (Solanaceae), Mahabaleshwar, Maharashtra, November 1966, B.V. Srinivasulu MUH 139.

Materials examined: Material was not available.

Distribution: India (Maharashtra).

247. *Meliola malabarensis* Hansf., Proc. Linn. Soc. London 157: 182, 1946;

Sydowia Beih. 2: 531, 1961; Thite & Kulkarni, J. Shivaji Univ. 5: 161, 1973; Hosag. & Goos, Mycotaxon 37: 240, 1990; 42: 135, 1991; Hosag., Dayal & Goos, Mycotaxon 46: 206, 1993.

Colonies hypophyllous, thin, up to 4 mm in diameter, confluent. Hyphae straight to slightly undulate, branching opposite at wide to acute angles, loosely to closely reticulate, cells 22-42 x 6-8 μm . Hyphopodia alternate, straight to curved, antrorse to spreading, 16-24 μm long; stalk cells cylindrical to cuneate, 4-10 μm long; head cells ovate, globose, cylindrical, often curved, slightly truncate at the apex, entire, 10-14 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, variously curved, ampulliform, 18-20 x 6-10 μm . Mycelial setae grouped around perithecia, straight, simple, acute at the tip, up to 480 μm long. Perithecia scattered, verrucose, up to 144 μm in diam.; ascospores obovoidal, 4-septate, constricted, 32-38 x 10-16 μm .

Materials examined: On leaves of *Olea* sp. (Oleaceae), Kanouth, Tellicherry, Kerala, September 26, 1904, E.J. Butler HCIO 3187; Puliyanur, Kerala, October 8, 1907, E.J. Butler HCIO 1050; *Olea dioica* Roxb., Painavu, Idukki, Kerala, January 10, 1982, V.B. Hosagoudar HCIO 40544, MH 72646; Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30552; Marach 13, 1994, V.B. Hosagoudar HCIO 41572; Sampaje, Kodagu, Karnataka, February 15, 1992, B.R. Dayal HCIO 30839.

Distribution: India (Karnataka, Kerala, Maharashtra).

248. *Meliola malacotricha* Speg., Ann. Soc. Cienc. Argentina 22: 59, 1888; Hansf., Sydowia Beih. 2: 647, 1961; Gupta & Gupta, Indian Phytopathol. 38: 390, 1985.

Meliola ipomoeae Earle, Muhlenbergia 1: 10, 1901.

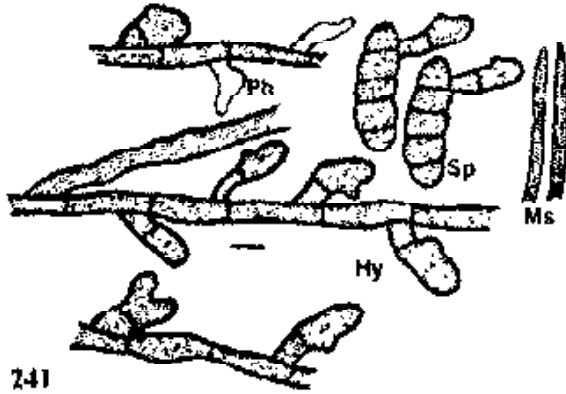
Meliola merremiae Rehm, Philippine J. Sci. 8: 253, 1913.

Meliola hewittiae Rehm, Philippine J. Sci. 8: 253, 1913.

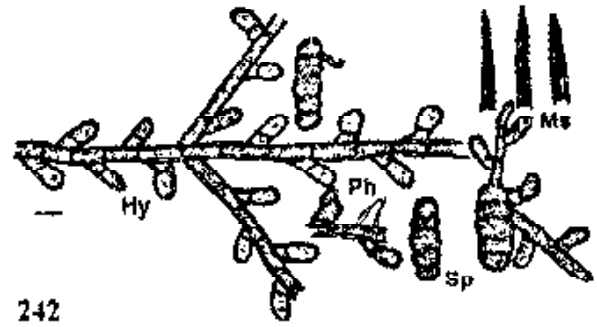
Meliola ipomoeae Rehm, Ann. Mycol. 12: 171, 1914.

Meliola lepidomonis Hansf., J. Linn. Soc. London 51: 277, 1937.

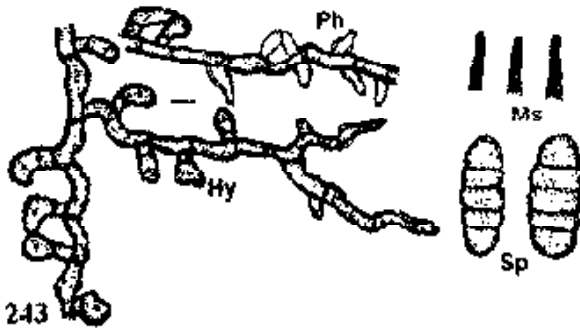
Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 3 mm in diameter. Hyphae substraight to flexuous, branching alternate at acute angles, closely reticulate and form solid mycelial mat, cells 15.5-18.5 x 4-6 μm . Hyphopodia alternate and opposite, straight to curved, antrorse to recurved, 12-15.5 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, globose, entire, 9-11 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18.5-25 x 9-12.5 μm . Perithecia scattered to grouped,



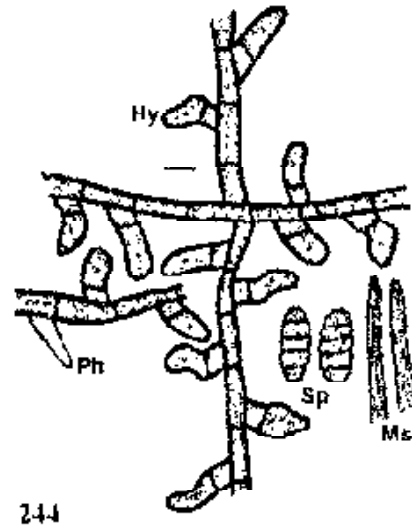
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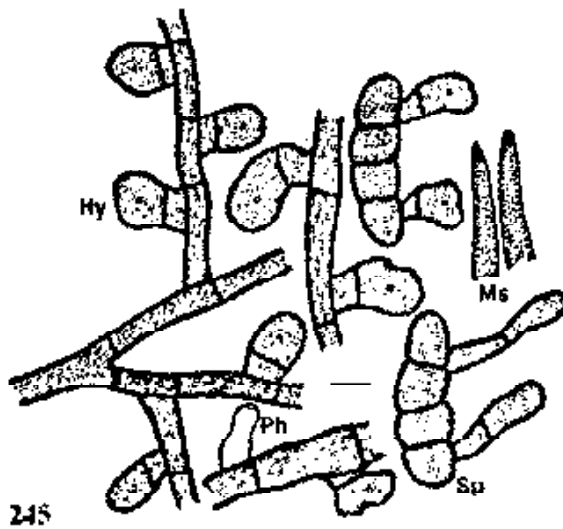
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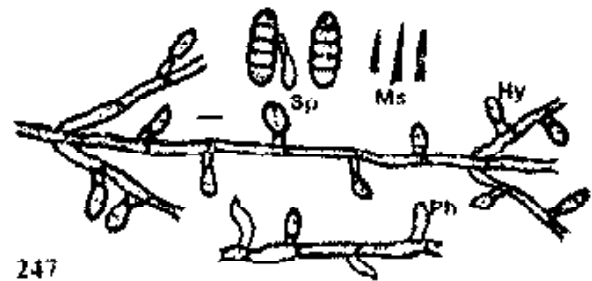
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241. *Meliola longiseta* Hohnel 242. *M. luvungae* Hosag. 243. *M. machili* Yamam.
244. *M. macropoda* Sydow 245. *M. maduraiensis* Hosag. et al. 247. *M. malabarensis*
Hansf.

up to 190 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 37-40.5 x 15-19 μm .

Materials examined: On leaves of *Porana paniculata* Roxb. (Convolvulaceae), Ghorakhpur University, January 11, 1980, D.N. Shukla IMI 245051; *Argyria* sp. (Convolvulaceae), Koomati, Anamalai, Coimbatore, Tamil Nadu, March 13, 1994, V.B. Hosagoudar HCIO 41573.

Distribution: India (Tamil Nadu, Uttar Pradesh), Brazil, British Guiana, Ceylon, Congo Belge, Costa Rica, Formosa, Gold Coast, Honduras, Malaya, Panama, Paraguay, Philippines, Porto Rico, San Domingo, Sierra Leone, Uganda.

249. *Meliola malacotricha* Speg. var. *major* Beeli, Bull. Jard. Bot. Etat. 7: 89, 1920; Hansf., Sydowia Beih. 2: 649, 1961; Hosag. & Goos, Mycotaxon 37: 240, 1990; 42: 137, 1991; Hosag., Crypt. Bot. 2/3: 186, 1991; Hosag., Raghu & Pillai, Nova Hedwigia 58: 540, 1994.

Colonies epiphyllous, dense, crustaceous, scattered, up to 2 mm in diameter. Hyphae straight to slightly undulate, branching opposite at acute angles, loosely to closely reticulate, cells 14-26 x 6-8 μm . Hyphopodia opposite, about 5% unilateral, subantrorse to antrorse, spreading, 10-15 μm long; stalk cells cylindrical to cuneate, 2-6 μm long; head cells globose, entire, rarely bluntly pointed towards the apex, 8-10 μm . Phialides mixed with hyphopodia, opposite and alternate, ampulliform, 14-16 x 6-8 μm . Mycelial setae scattered to grouped around perithecia, simple, straight to curved, acute at the tip, up to 333 μm long. Perithecia scattered to grouped, verrucose, up to 150 μm in diam.; ascospores ellipsoidal, 4-septate, slightly constricted, 38-40 x 12-16 μm .

Materials examined: On leaves of *Merremia umbellata* (L.) Hall.f. (Convolvulaceae), Idukki, Kerala, October 3, 1983, V.B. Hosagoudar MH 78125; *Argyria hookeri* Clarke (Convolvulaceae), Vazhathope, Idukki, Kerala, January 7, 1982, V.B. Hosagoudar HCIO 40545, MH 71582; *A. elliptica* Choisy, Benne Forest, Nilgiris, Tamil Nadu, January 24, 1990, V.B. Hosagoudar HCIO 32827; *A. setosa* (Roxb.) Choisy, Topslip, Coimbatore, Tamil Nadu, December 20, 1990, V.B. Hosagoudar HCIO 30553; *Merremia umbellata* (L.) Hall. (Convolvulaceae), Gersoppa, Uttara Kannada, Karnataka, September 24, 1992, P.A. Raghu HCIO 40762.

Distribution: India (Karnataka, Kerala, Tamil Nadu), Congo Belge.

This species is very close to *M. bonamiae* Hansf. & Deight. but differs from it in having shorter hyphopodia and mycelial setae.

250. *Meliola mallotica* nom. nov.

Meliola malloti Srinivasulu, Nova Hedwigia Beih. 47: 430, 1974 (non Cifferi, 1954).

Colonies amphigenous, subdense, velvety, up to 2 mm in diameter. Hyphae slightly undulate, branching opposite at wide angles, loosely reticulate, cells 15-34 x 7-10 μm . Hyphopodia alternate, antrorse to spreading, 25-34 μm long; stalk cells cylindrical to cuneate, 6-10 μm long; head cells ovate, globose, entire, 10-23 x 11-13.5 μm . Phialides borne on a separate mycelial branch, opposite to alternate, ampulliform, 18-22 x 6-9 μm . Mycelial setae numerous, grouped around perithecia, simple, straight, acute to obtuse at the tip, up to 280 μm long. Perithecia grouped, verrucose, up to 254 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 38-46 x 12-20 μm .

Type: On leaves of *Mallotus philippensis* (Lam.) Muell.-Arg. (Euphorbiaceae), Castle Rock, Maharashtra, November 1967, Srinivasulu MUH 140.

Materials examined: Material was not available for the study and the description adopted from Srinivasulu (1974).

Distribution: India (Maharashtra).

251. *Meliola mangiferae* Earle, Bull. New York Bot. Gard. 3: 307, 1905; Hansford, Sydowia Beih. 2: 464, 1961; Hansf. & Thirum., Farlowia 3: 296, 1948; Hansf., Sydowia Beih. 2: 464, 1961; Hosag. & Goos, Mycotaxon 37: 240, 1990; Hosag., Crypt. Bot. 2/3: 186, 1991; Hosag. & Ansari, J. Andaman Sci. Assoc. 7: 89, 1991.

Colonies hypophyllous, thin, velvety, up to 4 mm in diameter. Hyphae substraight to crooked, branching opposite to irregular at wide angles, loosely reticulate, cells 27-40 x 5-6.5 μm . Hyphopodia alternate, mostly unilateral and variously curved, 24-31 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, versiform, attenuated and rounded at the apex, entire, predominantly curved, 21-25 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, elongated, 21-28 x 8-9.5 μm . Mycelial setae scattered, simple, straight, acute, obtuse to 2-3 dentate at the tip, up to 860 μm long. Perithecia scattered, verrucose, up to 175 μm , surface cells conoid and projecting;

ascospores obovoidal to ellipsoidal, middle cell slightly larger, 49-56 x 18-22 μm .

Materials examined: On leaves of *Mangifera indica* L. (Anacardiaceae), Puliyanur, Kerala, October 8, 1907, E.J. Butler HCIO 1050; North Kanara, Karnataka, June 1913, G.S. Kulkarni HCIO 3316; Panamkuttu, Idukki, Kerala, October 15, 1982, V.B. Hosagoudar HCIO 40546, MH 73677; December 18, 1982, V.B. Hosagoudar MH 75814; Vazhathope, Idukki, Kerala, February 26, 1983, V.B. Hosagoudar MH 75036; Lakshmi Estate, Idukki, Kerala, October 8, 1983, V.B. Hosagoudar MH 78184; Benne Forest, Nilgiris, Tamil Nadu, January 24, 1990, V.B. Hosagoudar HCIO 32823; *M. andamanica* King, Shoalbay, South Andaman, March 23, 1991, A.A. Ansari HCIO.

Distribution: India (Andaman Isl., Karnataka, Kerala), Amboina, Brazil, British Guiana, Costa Rica, Jamaica, Java, Malaya, Panama, Philippines, Porto Rico, Trinidad, Venezuela.

This species was observed in all the seasons on the cultivated and wild mango trees.

252. *Meliola mannii* Hosag. in Hosag. & Goos, Mycotaxon 37: 408, 1990.

Colonies epiphyllous, thin, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite at wide angles, loosely reticulate, cells 31-56 x 7-9.5 μm long; stalk cells cuneate, 3-6 μm long; head cells ovate, pointed and rounded towards the apex, mostly straight but rarely recurved, entire, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-25 x 9-12.5 μm . Mycelial setae very few, grouped around perithecia, simple, straight, obtuse at the apex, up to 350 μm long. Perithecia seated on exhyphopodiate mycelia, scattered, up to 124 μm in diam.; ascospores obovate to cylindrical, 4-septate, deeply constricted at the septa, 43-45 x 18-22 μm .

Materials examined: On leaves of *Castenopsis armata* Spanch (Fagaceae), Assam, January 1887, G. Mann HCIO 39434b.

Distribution: India (Assam).

253. *Meliola maredumilliana* V.B. Hosagoudar et M. Mohanan, sp. nov.

Coloniae amphigenae, plerumque epiphyllae, subdensae, ad 3 mm diam. Hyphae subrectae, irregulariter acuteque, ramosae, dense reticulatae, cellulae 15-

31 x 6-8 μm . Hyphopodia alternata, recta vel curvula, antrorsa vel patentia, 21-25 μm longa; cellula basali cylindracea vel cuneata, 9-12.5 μm longa; cellula apicali globosa, recta vel raro curvula, angularia et 5-6 toties sublobata, raro integra, 12-15.5 x 12-15 μm . Phialides illis hyphopodiis commixta, alternata vel dispersa, ampullacea, 22-26 x 9-11 μm . Setae myceliales paucae, juxta perithecia aggregatae, simplices, plerumque curvulae et falcatae, obtusae ad apicem, ad 155 μm longae. Perithecia dispersa, verrucosa, ad 125 μm diam.; ascosporae oblongae vel leniter ellipsoidae, 4-septatae, constrictae, 30-38 x 15-19 μm .

Colonies amphigenous, mostly epiphyllous, subdense, up to 3 mm in diameter. Hyphae substraight, branching irregular at acute angles, closely reticulate, cells 15-31 x 6-8 μm . Hyphopodia alternate, straight to curved, antrorse to spreading, 21-25 μm long; stalk cells cylindrical to cuneate, 9-12.5 μm long; head cells globose, straight to rarely curved, angular to 5-6 times sublobate, rarely entire, 12-15.5 x 12-15 μm . Phialides mixed with hyphopodia, alternate, scattered, ampulliform, 22-26 x 9-11 μm . Mycelial setae few, grouped around perithecia, simple, mostly curved and sickle-shaped, obtuse at the apex, up to 155 μm long. Perithecia scattered, verrucose, up to 125 μm in diam.; ascospores oblong to slightly ellipsoidal, 4-septate, constricted at the septa, 30-38 x 15-19 μm .

Materials examined: On leaves of *Leea asiatica* (L.) Ridsdale (Leeaceae), near Tiger Cave, Maredumilli, East Godavari, Andhra Pradesh, February 17, 1994, M. Mohanan HClO 41608 (type); *Leea* sp., Teerthahalli, Karnataka, April 28, 1945, M.J. Thirumalachar HClO 10899.

Distribution: India (Andhra Pradesh, Karnataka).

This species can be compared with *Meliola bakeri* Sydow but differs from it in having only alternate hyphopodia, angular to sublobate head cells of hyphopodia. Hansford (1961) also noted these characters.

254. *Meliola mayapeae* Stev., Illinois Biol. Monograph 2: 48, 1916; Hansf., Sydowia Beih. 2: 536, 1961; Hosag., Dayal & Goos, Mycotaxon 46: 206, 1993.

Colonies epiphyllous, dense, up to 2 mm in diam., often confluent. Hyphae straight to flexuous, branching opposite at wide angles, closely reticulate, cells 15-34 x 5-7 μm . Hyphopodia alternate, antrorse, reflexed to spreading, mostly straight, 15-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long. Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15-

18.5 x 7-9.5 μm . Mycelial setae grouped around perithecia, straight, simple, acute to obtuse, up to 235 μm long. Perithecia loosely grouped, up to 186 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of seedlings of *Ligustrum perrotteti* DC. (Oleaceae), Madikeri forest nursery, Kodagu, Karnataka, December 21, 1991, B.R. Dayal HCIO 30830; *Chionanthus ramiflora* Roxb. (*Linociera intermedia* Wight) (Oleaceae), Maredumilli, East Godavari, Andhra Pradesh, December 19, 1993, M. Mohanan HCIO 41535.

Distribution: India (Andhra Pradesh, Karnataka), Porto Rico.

255. *Meliola mayapiicola* Stev. var. *indica* Hosag., Nova Hedwigia 47: 541, 1988.

Colonies epiphyllous, rarely hypophyllous, dense, crustose to velvety, up to 2 mm in diam. Hyphae substraight, branching mostly opposite at acute to wide angles, closely reticulate, cells 15-34 x 7-9.5 μm . Hyphopodia alternate, antrorse to recurved, 18-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, cylindrical, entire, rarely angular to sublobate, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 12-18.5 x 9-12.5 μm . Mycelial setae grouped around perithecia, straight to curved, simple, acute, up to 500 μm long. Perithecia scattered, verrucose, up to 125 μm in diam.; ascospores obovoidal, 4-septate, constricted, 40-46.5 x 12-18 μm .

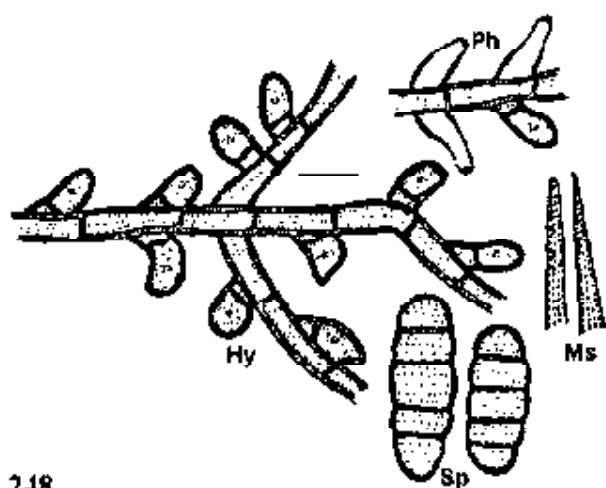
Materials examined: On leaves of *Chionanthus mala-elengi* (Dennst.) Green (*Linociera malabarica* Wall. ex G. Don) (Oleaceae), Idukki, Kerala, December 28, 1983, V.B. Hosagoudar HCIO 39395 (type, p.p.), MH 80318 (isotype, p.p.).

Distribution: India (Kerala).

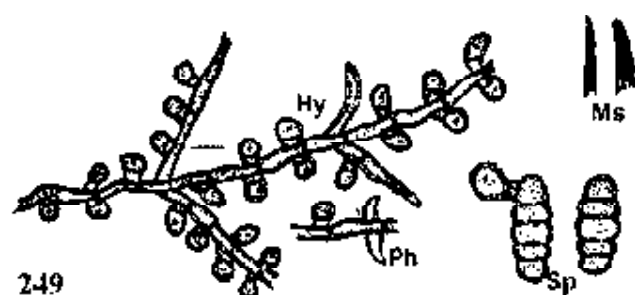
256. *Meliola megalocarpa* Sydow var. *microspora* var. nov.

Differt a var. *megalocarpa* setiis myceliales et ascosporis brevioribus.

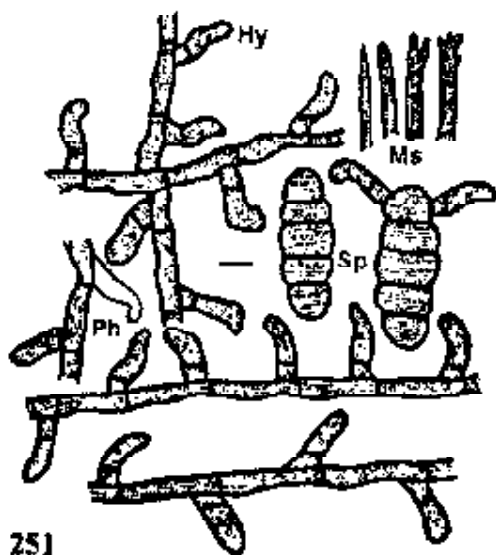
Colonies amphigenous, dense, velvety, up to 5 mm in diameter, confluent. Hyphae substraight to flexuous, branching mostly opposite at wide angles, loosely to closely reticulate, cells 18-31 x 8-10 μm . Hyphopodia alternate, subantrorse, straight, 21-31 μm long; stalk cells mostly cylindrical, 9-12.5 μm long; head cells



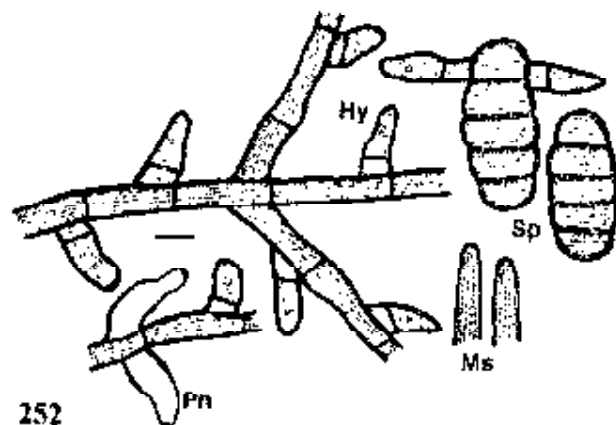
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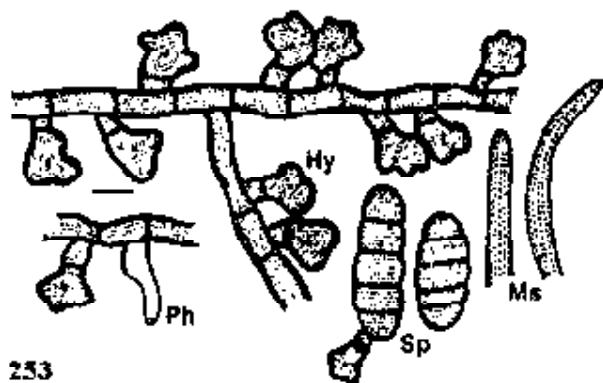
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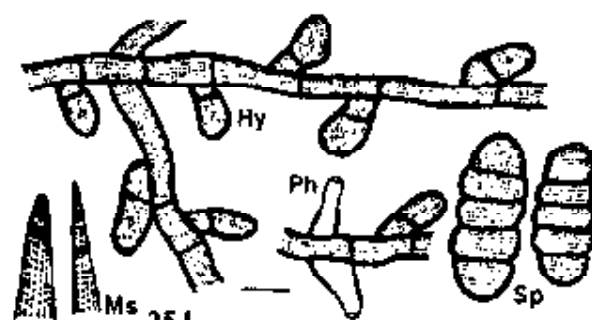
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248. *Meliola malacotricha* Speg. 249. *M. malacotricha* Speg. var. *major* Beeli 251. *M. mangiferae* Earle 252. *M. mannii* Hosag. 253. *M. maredumilliana* Hosag. & Mohanan 254. *M. mayapeae* Stev.

ovate, oblong to cylindrical, broadly rounded to attenuated to truncate at the apex, entire, 12-18.5 x 8-10 μm . Phialides mixed with hyphopodia, in some colonies thus give an appearance that they are borne on a separate mycelial branch, alternate to opposite, ampulliform, 15-22 x 6-8 μm . Mycelial setae scattered, simple, straight, acute at the tip, up to 300 μm long. Perithecia scattered, verrucose, up to 160 μm in diam.; ascospores oblong to cylindrical, 4-septate, constricted, 37-50 x 15-18.5 μm .

Materials examined: On leaves of *Diospyros buxifolia* (Blume) Hiern. (*D. microphylla* Bedd.) (Ebenaceae), Castle Rock, Karnataka, January 10, 1984, C.R. Patil HCIO 40008 (type).

Distribution: India (Karnataka).

The present collection is close to *Meliola megalocarpa* Sydow but the new variety differs from the var. *megalocarpa* in having smaller mycelial setae and ascospores.

257. *Meliola melanochaeta* Sydow, Ann. Mycol. 26: 93, 1928; Hansf., Sydowia Beih. 2: 313, 1961; Bose & Muller, Indian Phytopathol. 17: 19, 1964.

Colonies epiphyllous, dense, up to 5 mm in diameter. Hyphae substraight to sinuous, branching irregular at acute to wide angles, loosely to closely reticulate, cells 30-40 x 7-10 μm . Hyphopodia alternate, straight to curved, antrorse to spreading, 16-26 μm long; stalk cells cylindrical to cuneate, 6-10 μm long; head cells subglobose, entire, 10-16 μm . Phialides mixed with hyphopodia, opposite, ampulliform, 15-28 x 8-12 μm . Mycelial setae scattered to grouped around perithecia, straight, obtuse to dentate at the tip, up to 480 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores oblong, 4-septate, constricted, 35-50 x 14-20 μm .

Materials examined: On leaves of *Quercus spicata* Sm. (Fagaceae), British North Borneo, in herbarium bogarienosa, Bogor, Indonesia, Elmer 21770 (Type); *Quercus* spp. Ranikhet, Kumaon (this material was not available for the present study except the species description).

Distribution: India (Uttar Pradesh), British North Borneo.

258. *Meliola melanoxytonis* Hosag. & Pillai in Hosag., Raghu & Pillai, Nova Hedwigia 58: 540, 1994.

Colonies amphigenous, mostly epiphyllous, scattered, dense, subvelvety, up to 2 mm in diameter. Hyphae substraight to crooked, branching alternate, opposite to irregular at wide angles, loosely to closely reticulate, cells 15-22 x 3-5 μm . Hyphopodia mostly opposite, rarely alternate to solitary, straight to curved, antrorse, subantrorse to recurved, 12-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose, ovate, cylindrical, entire to angular, 9-12.5 x 6-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, 12-15.5 x 6-8 μm . Mycelial setae numerous, scattered, simple, straight, obtuse to 2-3 dentate at the tip, up to 650 μm long. Perithecia scattered, verrucose, up to 124 μm in diam.; ascospores obovoidal, 4-septate, constricted, 34-37.5 x 14-16 μm .

Materials examined: On leaves of *Acacia melanoxylon* R. Br. (Mimosaceae), Vettiyar, Mavelikara, Kerala, September 14, 1992, C.M. Pillai HClO 40763; *A. sinuata* (Lour.) Merr., Sampaje forest nursery, Sampaje, Kodagu, Karnataka, December 22, 1991, B.R. Dayal HClO 30832.

Distribution: India (Goa, Karnataka, Kerala).

259. *Meliola memecyli* Sydow & Sydow, Ann. Mycol. 12: 198, 1914; Hansf. & Thirum., Farlowia 3: 297, 1948; Hansf., Reinwardtia 3: 92, 1953; Sydowia Beih. 2: 155, 1961; Sreenivasulu, Nova Hedwigia Beih. 47: 431, 1974; Hosag. & Goos, Mycotaxon 37: 240, 1990.

Colonies amphigenous, subdense, velvety, up to 5 mm in diameter, confluent. Hyphae substraight to flexuous, branching opposite to irregular at wide angles, closely reticulate, cells 22-24 x 6-8 μm . Hyphopodia alternate, about 5% opposite, straight to variously curved, subantrorse to spreading, 18-30 μm long; stalk cells cylindrical to cuneate, 4-10 μm long; head cells ovate, cylindrical to conoid, entire, 16-18 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 20-30 x 8-10 μm . Mycelial setae few, scattered, simple, acute to variously dentate at the tip, up to 1080 μm long. Perithecia scattered, verrucose, up to 204 μm in diam.; ascospores obovoidal, 4-septate, constricted, 40-54 x 17-24 μm .

Materials examined: On leaves of *Memecylon depressum* Benth. ex Triana (Melastomataceae), Idukki, Kerala, February 18, 1983, V.B. Hosagoudar HClO 40547, MH 75833, 75834, 75863; Meenmutty, Idukki, Kerala, December 22, 1983, V.B. Hosagoudar MH 78984; *M. umbellatum* Burm.f., Mahabaleshwar, Satara, Maharashtra, February 1, 1984, C.R. Patil HClO 40013; Suriyanpettai, Cuddalore, Tamil Nadu, July 15, 1993, K. Ravikumar HClO 41617; *M. edule* Roxb. Kakachi, Tirunelveli, Tamil Nadu, February 25, 1994, V.B. Hosagoudar

HCIO 41538.

Distribution: India (Kerala, Maharashtra, Tamil Nadu), Java, Philippines.

260. *Meliola memecylica* Hansf. var. *indica* Hosag. in Hosag. & Goos, Mycotaxon 42: 136, 1991.

Colonies amphigenous, mostly epiphyllous, subdense, up to 2 mm in diameter. Hyphae straight, branching opposite at acute to wide angles, loosely reticulate, cells 18-22 x 6-9.5 μm . Hyphopodia alternate and about 20% opposite, subantrorse, 15-18.5 μm long; stalk cells cuneate, 7-9.5 μm long; head cells ovate, globose, attenuate and broadly rounded at the apex, entire, 9-12.5 x 9-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-25 x 9-12.5 μm . Mycelial setae few, grouped around perithecia, straight, simple, acute at the tip, up to 575 μm long. Perithecia scattered, up to 100 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 37-38 x 15-18.5 μm .

Materials examined: On leaves of *Memecylon depressum* Benth. ex Triana (Melastomataceae), Coimbatore, Tamil Nadu, December 20, 1990, V.B. Hosagoudar HCIO 30554 (type).

Distribution: India (Tamil Nadu).

261. *Meliola millettiae-chrysophyllae* Deight. var. *indica* Hosag., Siddappa & Udaiyan, Nova Hedwigia 56: 198, 1993.

Colonies epiphyllous, thin to subdense, up to 2 mm in diameter, rarely confluent. Hyphae straight to substraight, branching mostly opposite at acute to wide angles, loosely reticulate, cells 21.5-40.5 x 6-9.5 μm . Hyphopodia alternate and opposite, straight to usually curved, antrorse, 18.5-25 μm long; stalk cells cuneate, 3-6.5 μm long; head cells ovate, versiform, entire, 15.5-18.5 x 6-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 12-21.5 x 7-9.5 μm . Mycelial setae fairly numerous, scattered, straight to curved but not uncinata, acute, obtuse to rarely dentate at the tip, up to 425 μm long. Perithecia scattered, globose, up to 136 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 31-43.5 x 12-15.5 μm .

Materials examined: On leaves of *Millettia splendens* Wight & Arn. (Fabaceae), Nilgiris, Tamil Nadu, India, February 18, 1991, V.B. Hosagoudar HCIO 30622 (type).

Distribution: India (Tamil Nadu).

262. *Meliola millettiae-racemosae* V.B. Hosagoudar et M. Mohanan, sp. nov.

Coloniae epiphyllae, raro amphigenae, densae, velutinae, ad 2 mm diam., plerumque confluentes. Hyphae flexuosae vel anfractuae, opposite vel irregulariter acuteque vel laxe ramosae, laxae vel densae reticulatae, cellulae 15-25 x 9-10 μ m. Hyphopodia alternata, ad 5% opposita, antrorsa, subantrorsa vel retrorsa, 12-15.5 μ m longa; cellula basali cylindracea vel cuneata, 3-5 μ m longa; cellula apicali globosa, integra, curvata et rotundata ad apicem, 9-10 x 10-12.5 μ m. Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 15-18.5 x 6-9 μ m. Setae myceliales numerosae, dispersae, rectae, simplices, acute ad apicem, ad 575 μ m longae. Perithecia dispersa, ad 171 μ m diam.; ascosporae cylindraceae, 4-septatae, leniter constrictae ad septae, 34-37.5 x 15-18.5 μ m.

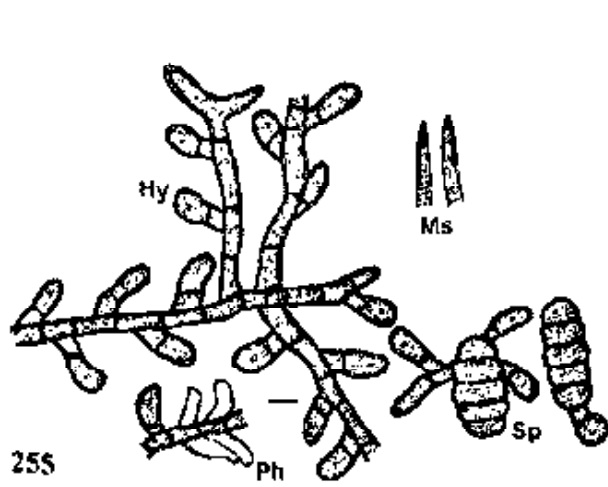
Colonies epiphyllous, rarely amphigenous, dense, velvety, up to 2 mm in diameter, mostly confluent. Hyphae flexuous to crooked, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 15-25 x 9-10 μ m. Hyphopodia alternate, up to 5% opposite, antrorse, subantrorse to retrorse, 12-15.5 μ m long; stalk cells cylindrical to cuneate, 3-5 μ m long; head cells globose, entire, curved and rounded at the apex, 9-10 x 10-12.5 μ m. Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 6-9 μ m. Mycelial setae numerous, scattered, straight, simple, acute at the tip, up to 575 μ m long. Perithecia scattered, verrucose, up to 171 μ m in diam.; ascospores cylindrical, 4-septate, slightly constricted at the septa, 34-37.5 x 15-18.5 μ m.

Materials examined: On leaves of *Millettia racemosa* (Wight & Arn.) Benth. (Fabaceae), Valamuru forest, Mareduhilli, East Godavari, Andhra Pradesh, December 23, 1993, M. Mohanan HCIO 41529 (type).

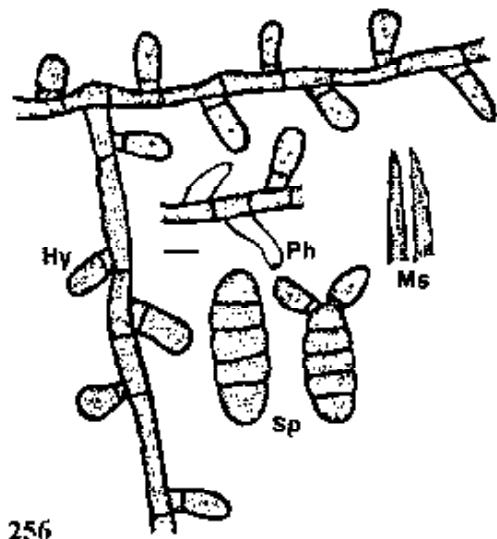
Distribution: India (Andhra Pradesh).

The present new species is close to *Meliola bapiae-nitidae* Hansf. & Deight (3113, 3223) but differs from it in having dense epiphyllous colonies, crooked hyphae with only 5% opposite hyphopodia.

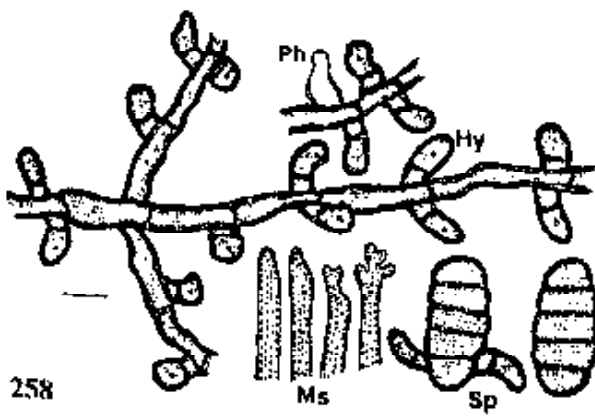
263. *Meliola mitragynae* Sydow, Philippine J. Sci. 8: 478, 1913; Hansf., Sydowia Beih. 2: 590, 1961; Gupta & Gupta, Indian Phytopathol. 38: 390, 1985; Hosag., Patil & Balakr., J. Econ. Tax. Bot. 13: 81, 1989; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 113, 1994.
Meliola parvifoliae Singh & Kamal, Indian J. Mycol. Pl. Pathol. 12: 71,



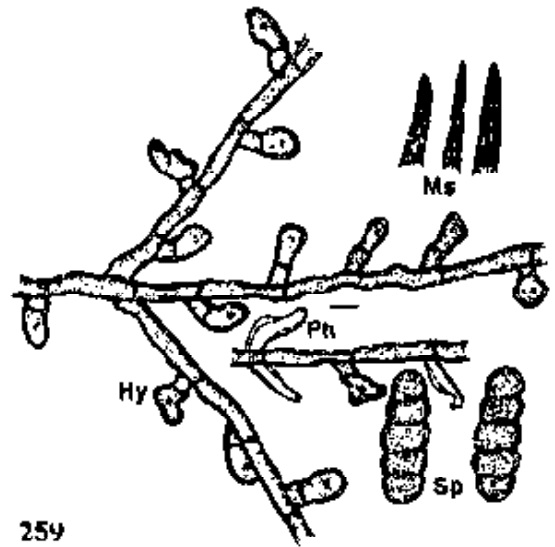
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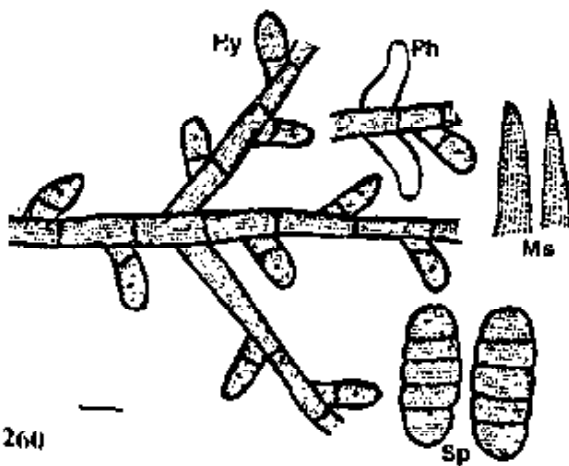
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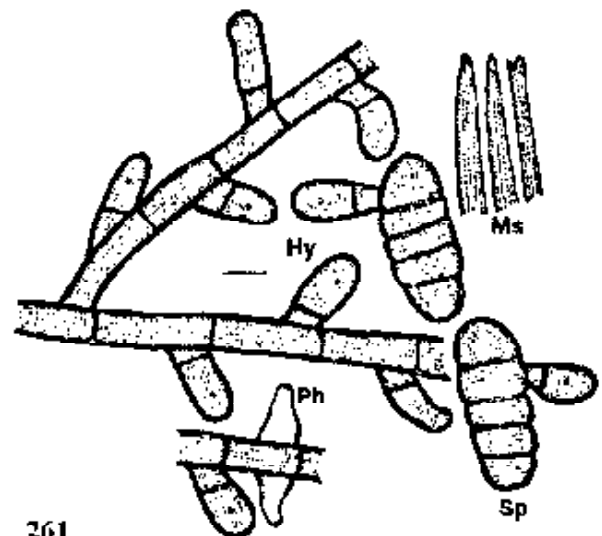
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255. *Meliola mayapiicola* Stev. var. *indica* Hosag. 256. *M. emegalocarpa* Sydow var. *microspora* Hosag. 258. *M. melanaxylonis* Hosag. & Pillai 259. *M. memecylii* Sydow 260. *M. memecylica* Hansf. var. *indica* Hosag. 261. *M. millettiae-chrysophyllae* Deight. var. *indica* Hosag. et al.

1982.

Colonies epiphyllous, thin to dense, velvety, up to 3 mm in diameter, confluent. Hyphae crooked, branching opposite to irregular at acute to wide angles, closely reticulate, cells 15-22 x 6-8 μm . Hyphopodia alternate and opposite, straight to variously curved, antrorse to spreading, 15-22 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, entire to angulose, 9-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-28 x 7-9.5 μm . Mycelial setae numerous, scattered, straight to curved, simple, acute, up to 572 μm long. Perithecia scattered to grouped, verrucose, up to 200 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 43-49.5 x 15-18.5 μm .

Materials examined: On leaves of *Mitragyna parviflora* Korth (Rubiaceae), Gorakhpur, January 5, 1976, Kamal IMI 200098 (type of *M. parvifoliae*); Gorakhpur, January 29, 1980, A.N. Rai IMI 246385; Gersoppa, Uttara Kannada, Karnataka, October 24, 1992, P.A. Raghu HCIO 40873.

Distribution: India (Karnataka, Uttar Pradesh), Philippines.

264. *Meliola mitrephorae* Hosag. & Rajendran, J. Econ. Tax. Bot. 13: 75, 1989.

Colonies amphigenous, mostly epiphyllous, dense, up to 2 mm in diameter. Hyphae straight to substraight, branching opposite at acute angles, closely reticulate and solid at the centre, cells 16-31 x 6-9.5 μm . Hyphopodia alternate, antrorse, 27-31 μm long; stalk cells cuneate, 6-9.5 μm long; head cells ovate, globose, shallowly lobate, 18-22 x 18-20 μm . Phialides numerous, mixed with hyphopodia, opposite to alternate, ampulliform, 24-34 x 6-9.5 μm . Mycelial setae numerous, simple, flexuous, geniculate, very few uncinata to coiled, acute at the apex, up to 365 μm long. Perithecia closely scattered, verrucose, up to 186 μm in diam.; ascospores obovoidal, 4-septate, constricted, 49-52 x 21-25 μm .

Materials examined: On leaves of *Mitrephora heyneana* (Hook.f. & Thoms.) Thw. (Annonaceae), Mekkari, Shencottah, Tamil Nadu, December 15, 1987, Rajendran HCIO 39396 (type), MH 82165.

Distribution: India (Tamil Nadu).

265. *Meliola motatanensis* Hansf., Sydowia 10: 79, 1957; Sydowia Beih. 2: 302, 1961; Kar & Maity, Norway J. Bot. 19: 244, 1972.

Colonies epiphyllous, thin, up to 7 mm in diameter, confluent. Hyphae undulate, branching opposite at acute to wide angles, loosely reticulate, cells 23-30 x 5-6.5 μm . Hyphopodia alternate to opposite, antrorse to spreading, straight to curved, 13-16.5 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, globose, entire to angular, 9-13 x 9-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 19-23 x 9-10 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute to obtuse, up to 540 μm long. Perithecia scattered to grouped, verrucose, up to 171 μm in diam.; ascospores cylindrical, 4-septate, constricted, 38-42.5 x 13-16 μm .

Materials examined: On leaves of *Mucuna imbricata* DC. (Fabaceae), Dhupguri, Jalpaiguri, West Bengal, November 7, 1967, M.K. Maity PCC 1483.

Material was not available for the study.

Distribution: India (West Bengal), Venezuela.

266. *Meliola mucunae* Hansf. var. *hirsutae* Hosag. in Hosag. & Goos, Mycotaxon 37: 240, 1990.

Colonies epiphyllous, thin, up to 3 mm in diameter, confluent. Hyphae undulate, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 16-34 x 6-8 μm . Hyphopodia alternate and about 40% opposite, straight, antrorse, spreading, 14-20 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells globose, entire, 10-12 μm . Phialides with hyphopodia, scattered, opposite to alternate, ampulliform, 16-20 x 8-10 μm . Mycelial setae few, grouped around perithecia, straight to curved, simple, acute at the tip, up to 324 μm long. Perithecia scattered, verrucose, up to 176 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 30-36 x 12-14 μm .

Materials examined: On leaves of *Mucuna hirsuta* Wight & Arn. (Fabaceae), Idukki, Kerala, October 8, 1983, V.B. Hosagoudar HClO 40548 (type), MH 78902 (isotype); December 23, 1983, V.B. Hosagoudar MH 79034; October 25, 1984, A. Diraviadoss MH 82607.

Distribution: India (Kerala).

267. *Meliola mucunae-acuminatae* Hansf. var. *indica* Hosag., Siddappa & Udaiyan, Nova Hedwigia 56: 198, 1993.

Colonies epiphyllous, thin to dense, confluent. Hyphae crooked, branching

opposite to irregular at wide angles, loosely reticulate, cells 15-28 x 4-6.5 μm . Hyphopodia alternate, about 5% opposite, straight to variously curved, 12-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, globose, entire, curved, 9-12.5 x 10-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, conoid to ampulliform, 18.5-25 x 6-8 μm . Mycelial setae few, grouped around perithecia, simple, straight, acute, obtuse to few dentate at the tip, up to 280 μm long. Perithecia scattered, up to 125 μm in diam.; ascospores cylindrical, 4-septate, constricted at the septa, 30-34 x 12-15.5 μm .

Materials examined: On leaves of *Mucuna pruriens* (L.) DC. (Fabaceae), Anmode, Maharashtra, October 10, 1994, A.N. Thite HCIO 31907 (type).

Distribution: India (Maharashtra).

268. *Meliola myristicae* Hosag. & Raghu in Hosag., Raghu & Pillai, *Nova Hedwigia* 58: 541, 1994.

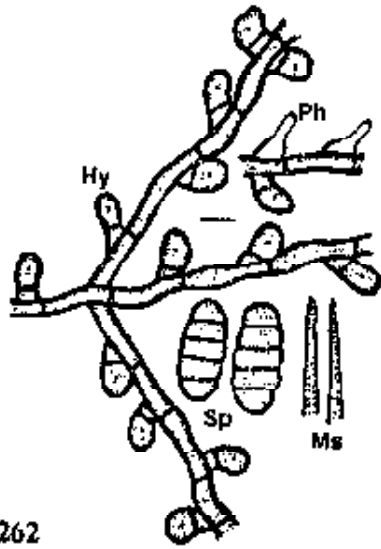
Colonies amphigenous, subdense to dense, thin to velvety, up to 5 mm in diameter. Hyphae substraight to crooked, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 30-43.5 x 7-9.5 μm . Hyphopodia alternate, straight to curved, antrorse to recurved, 34-43.5 (-65) μm long; stalk cells mostly unicellular, straight, cylindrical to cuneate, rarely 1-2 septate, crooked, 12-18.5 (-40.5) μm ; head cells ovate to globose, angulose to irregularly sublobate, 18-25 x 15-25 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-25 x 9-12.5 μm . Mycelial setae grouped around perithecia, simple, straight, acute to obtuse at the tip, up to 500 μm long. Perithecia scattered to loosely grouped, up to 240 μm in diameter; perithecial cells protruding; ascospores obovoidal, 4-septate, slightly constricted, 37-40 x 18-20 μm .

Materials examined: On leaves of *Myristica fatua* Houtt var. *magnifica* (Bedd.) Sinclair (Myristicaceae), Gerusoppa, Uttara Kannada, Karnataka, September 24, 1992, P.A. Raghu HCIO 40764 (type).

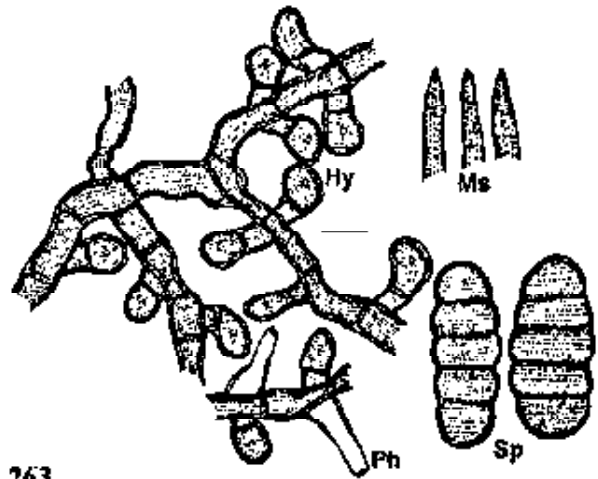
Distribution: India (Karnataka).

269. *Meliola natrii* Hosag., in Hosag. & Goos, *Mycotaxon* 37: 409, 1990.

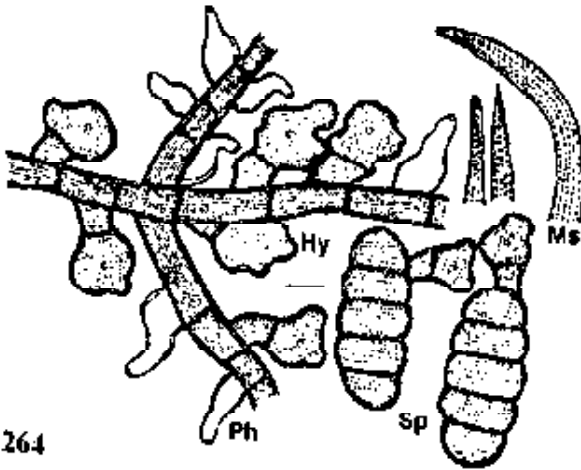
Colonies epiphyllous, minute, subdense, up to 2 mm in diameter. Hyphae straight, substraight to flexuous, branching opposite to irregular at wide angles, loosely reticulate, cells 18-31 x 6-9.5 μm . Hyphopodia alternate, antrorse to



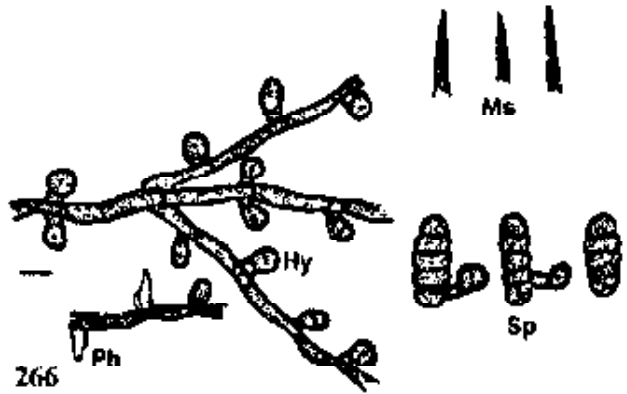
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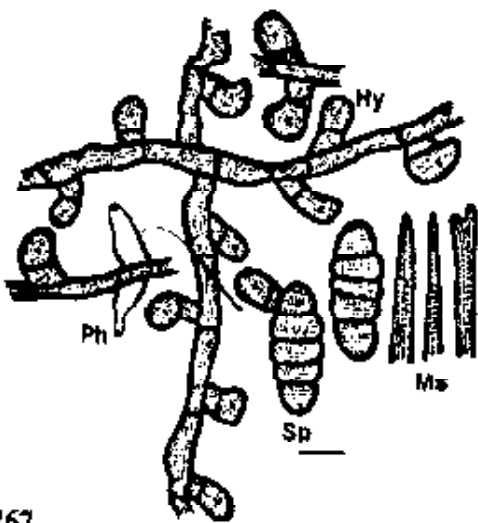
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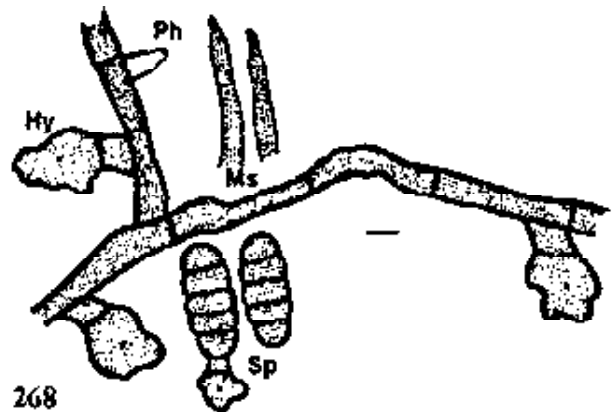
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262. *Meliola millettiae-racemosae* Hosag. & Mohanan 263. *M. mitragynae* Sydow
 264. *M. mitrephorae* Hosag. & Rajendran 266. *M. mucunae* Hansf. var. *hirsutae*
 Hosag. 267. *M. mucunae-acuminatae* Hansf. var. *indica* Hosag. 268. *M. myristicae*
 Hosag. & Raghu

subantrorse, 12-15.5 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, broadly rounded at the apex, straight to curved, entire, 9-12.5 x 6-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 9-12.5 μm . Mycelial setae few, grouped around perithecia, straight, flexuous, acute to obtuse at the tip, up to 310 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 31-34 x 15-18.5 μm .

Materials examined: On leaves of *Aphanamixis polystachya* (Wall.) Parker (*Amoora rohituka* Wight & Arn.) (Meliaceae), Panthanthode forest, Palghat, Kerala, October 9, 1972, N.C. Nair HCIO 39439 (type).

Distribution: India (Kerala).

270. *Meliola neolitseae* Yamam., Trans. Nat. Hist. Soc. Taiwan 31: 24, 1941; Hansf., Sydowia Beih. 2: 50, 1961; Hosag. & Goos, Mycotaxon 37: 241, 1990.

Colonies hypophyllous, subdense, subvelvety, up to 8 mm in diameter. Hyphae substraight to tortuous, branching opposite to irregular at acute to wide angles, loosely reticulate, cells 18-22 x 8-10 μm . Hyphopodia alternate to unilateral, straight to curved, antrorse, spreading, 22-28 μm long; stalk cells clavate, versiform, angulose, entire to slightly lobate, 14-22 x 12-16 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-26 x 8-10 μm . Mycelial setae scattered, straight, simple, acute to 2-3 dentate, up to 900 μm long. Perithecia scattered, verrucose, up to 210 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 46-52 x 20-24 μm .

Materials examined: On leaves of *Neolitsea scrobiculata* (Meisner) Gamble, (*N. zeylanica* Merr.) (Lauraceae), Lakshmi Estate, Idukki, Kerala, October 11, 1983, V.B. Hosagoudar MH 78941; Lakshmi Estate, Idukki, Kerala, December 15, 1985, A. Diraviadoss MH 75760; Pudukadu, Lower Sheikalmudy, Coimbatore, Tamil Nadu, January 17, 1987, V.B. Hosagoudar MH 82661.

Distribution: India (Kerala, Tamil Nadu), Formosa.

Yamamoto (*l.c.*) described this species on *Cryptocaryea chinensis* (Hance) Hemsl. from Formosa and stated that the mycelial setae 2-furcate with the branches shortly dentate. Hansford (*l.c.*) stated that the hyphopodia are 5% opposite. Both these characters are absent in the Indian collections.

271. *Meliola nephelii* Sacc. var. *singalensis* Hansf., *Sydowia* 10: 80, 1957; *Sydowia* Beih. 2: 430, 1961; *Sydowia* 16: 321, 1963; Hosag. & Goos, *Mycotaxon* 37: 241, 1990.

Meliola furcillata Doidge var. *singalensis* Hansf., *Sydowia* 10: 73, 1957.

Colonies epiphyllous, subdense, velvety, up to 3 mm in diameter, confluent. Hyphae substraight, branching opposite at wide angles, loosely reticulate, cells 24-26 x 6-10 μm . Hyphopodia opposite (40-60%) and alternate, straight to curved, spreading to antrorse, 14-24 μm long; stalk cells cylindrical to cuneate, 4-10 μm long; head cells globose, entire, truncate, 10-16 x 10-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 16-24 x 6-8 μm . Mycelial setae scattered to grouped around perithecia, simple, minutely dentate or cristate at the tip, up to 450 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores obovoidal, 4-septate, constricted, 36-40 x 16-18 μm .

Materials examined: On leaves of *Allophylus serrulatus* Radlk. (Sapindaceae), Idukki, Kerala, October 10, 1982, V.B. Hosagoudar HCIO 40550, MH 73621; February 10, 1983, V.B. Hosagoudar MH 75843; December 23, 1983, V.B. Hosagoudar MH 79043; February 24, 1984, M. Ali MH 80367.

Distribution: India (Kerala), Sri Lanka.

So far, six species and four varieties of the genus *Meliola* have been recorded on the host genus *Allophylus*. The present variety differs from the rest in having cristate mycelial setae.

272. *Meliola nilgirianthi* Hosag. in Hosag. & Goos, *Mycotaxon* 37: 241, 1990.

Colonies hypophyllous, dense, up to 2 mm in diameter, rarely confluent. Hyphae substraight to undulate, branching mostly opposite at acute angles, loosely reticulate, cells 16-18 x 6-8 μm . Hyphopodia alternate to unilateral, straight to curved, antrorse to spreading, 22-30 μm long; stalk cells cylindrical to cuneate, 8-12 μm long; head cells ovate, globose, slightly angular, entire, 14-18 x 10-16 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 14-22 x 6-8 μm . Mycelial setae few, scattered to grouped around perithecia, curved, acute to obtuse to weavy at the apex, up to 270 μm long. Perithecia aggregated, verrucose, up to 180 μm in diam.; ascospores obovoidal, 4-septate, constricted, 30-38 x 10-12 μm .

Materials examined: On leaves of *Nilgirianthus heyneanus* (Nees)

Bremek. (*Strobilanthes heyneanus* Nees; *S. rugosus* Wight) (Acanthaceae), Lakshmi Estate, Idukki, Kerala, December 25, 1983, V.B. Hosagoudar HCIO 40551 (type); *Strobilanthus reticulatus* Stapf, Amboli, Sindudurgh, Maharashtra, December 3, 1976, M.S. Patil HCIO 36745; Acanthaceae member, Nichal dam, Koyna, Satara, Maharashtra, December 6, 1984, C.R. Patil HCIO 40001.

Distribution: India (Kerala, Maharashtra)

273. *Meliola nothopegiae* Hansf., Sydowia 10: 80, 1957; Sydowia Beih. 2: 469, 1961; Thite & Kulkarni, J. Shivaji Univ. 6: 163, 1973; Hosag., Lakshmanan & Viswanathan, Indian J. Bot. 11: 187, 1988; Hosag. & Goos, Mycotaxon 37: 242, 1990; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 113, 1994.

Colonies amphigenous, mostly epiphyllous, subdense, up to 5 mm in diameter. Hyphae of the epiphyllous colonies straight, branching regularly opposite at acute angles, loosely reticulate. While the hyphae of the hypophyllous colonies crooked, branching opposite to irregular at wide angles, cells 18-26 x 6-8 μm . Hyphopodia alternate, subantrorse to antrorse, 24-36 μm long; stalk cells cuneate, 6-14 μm long; head cells cylindrical, versiform, slightly angulose, entire, 16-22 x 12-14 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 10-20 x 8-10 μm . Mycelial setae scattered to grouped around perithecia, straight, simple, acute at the tip, up to 675 μm long. Perithecia scattered to aggregated, verrucose, up to 164 μm in diam.; ascospores obovoidal, 4-septate, constricted, 44-50 x 18-20 μm .

Materials examined: On leaves of *Nothopegia colebrookiana* (Wight) Bl. (Anacardiaceae), Taleguppa, Karnataka, October 29, 1911, G.S. Kulkarni HCIO 19993; *N. beddomei* Gamble, Kanchiar forest, Idukki, Kerala, December 12, 1982, V.B. Hosagoudar MH 75765; December 29, 1983, V.B. Hosagoudar MH 80339; *N. heyneana* (Hook.f.) Gamble, near Kariar Dam, Tamil Nadu; December 11, 1986, A. Rajendran AMH 7138; *N. racemosa* (Dalz.) Ramam., Gersoppa, Uttara Kannada, Karnataka, October 21, 1992, P.A. Raghu HCIO 40874.

Distribution: India (Karnataka, Kerala, Maharashtra, Tamil Nadu).

274. *Meliola ochrocarpi* Thite & Patil, Geophytology 13: 125, 1983.

Colonies amphigenous, dense, up to 5 mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite at acute to wide angles, loosely to closely reticulate, cells 21-25 x 8-10 μm . Hyphopodia alternate, antrorse,

straight to curved, 18-22 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, globose, rarely hamate, entire to rarely angular, 15-16 x 12-14 μm . Phialides mixed with hyphopodia, scattered, ampulliform, 21-28 x 9-10 μm . Mycelial setae numerous, simple, straight to rarely curved, acute at the tip, up to 860 μm long. Perithecia scattered, up to 220 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted at the septa, 46-53 x 18-22 μm .

Materials examined: On leaves of *Mammia suriga* (Buch.-Ham. ex Roxb.) Kosterm. (*Ochrocarpus longifolius* (Wight) Benth. ex T. And.) (Clusiaceae), Amboli, Radhanagari, Maharashtra, October 1980, A.N. Thite HCIO 33671 (type).

Distribution: India (Maharashtra).

275. *Meliola odoratissimae* (Kapoor) comb. nov.

M. albizziae Hansf. & Deight. var. *odoratissimae* Kapoor, Indian Phytopathol. 20: 151, 1967.

Colonies epiphyllous, subdense, confluent and covered the entire leaf surface. Hyphae substraight to crooked, branching alternate to irregular at acute angles, loosely to closely reticulate, cells 18-34 x 7-9.5 μm . Hyphopodia alternate, antrorse to recurved, 15-18.5 μm long; stalk cells cylindrical to cuneate, 5-7 μm long; head cells ovate, globose, cylindrical, straight to curved, entire, 9-12.5 x 6-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 9-12.5 μm . Mycelial setae few, grouped around perithecia, simple, straight, acute at the apex, up to 375 μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted at the septa, 37-41 x 12-15.5 μm .

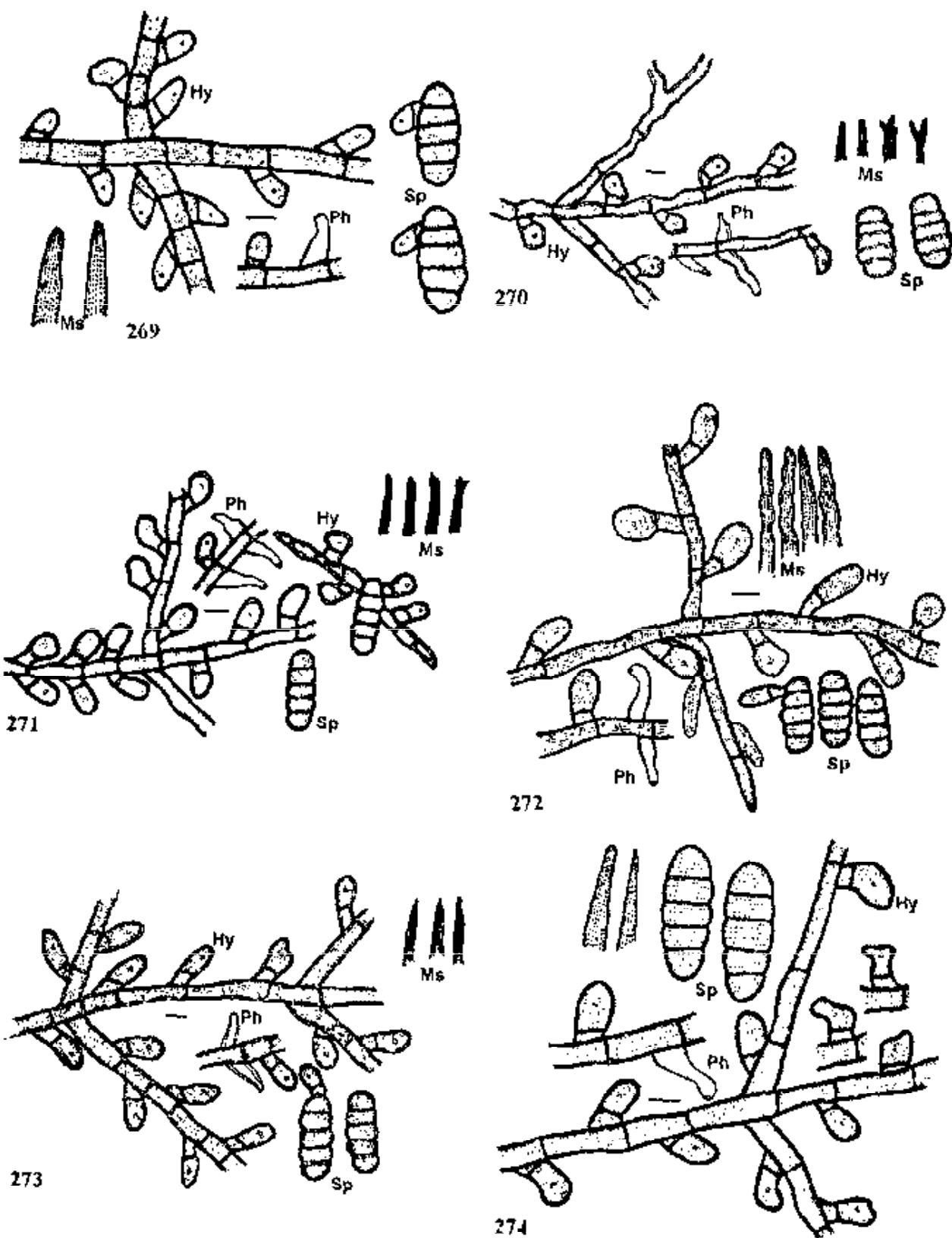
Materials examined: On leaves of *Albizzia odoratissima* (Mimosaceae), Cheridepurhat Tea Estate, Assam, December 15, 1959, J.L. Lampit HCIO 27275 (type).

Distribution: India (Assam).

Crooked mycelium, alternate hyphopodia and acute setae distinguishes this species.

276. *Meliola olacicola* sp. nov.

Coloniae amphigenae, densae, ad 2 mm diam., confluentes. Hyphae rectae, opposite acuteque vel laxae ramosae, laxae vel dense reticulatae, cellulae 15-



269. *Meliola nairii* Hosag. 270. *M. neolitseae* Yamam. 271. *M. nephelii* Sacc. var. *singalensis* Hansf. 272. *M. nilgirianthi* Hosag. 273. *M. nothopegiae* Hansf. 274. *M. ochrocarpi* Thite & Patil

22 x 6-7 μm . Hyphopodia alternata, 15% opposita, recta, antrorsa, 14-16 μm longa; cellula basali cylindracea vel cuneata, 3-5 μm longa; cellula apicali oblonga, clavata vel cylindracea, integra, 12-14 x 6-9.5 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, conoidea vel ampullacea, collum rectus vel curvatus, 15-18.5 x 6-8 μm . Setae myceliales aggregatus circa perithecia, simplices, rectae, acute ad apicem, ad 350 μm longae. Perithecia dispersa, verrucosa, ad 180 μm diam.; ascosporae oblongae vel cylindraceae, 4-septatae, fortiter constrictae, 45-48 x 18-20 μm .

Colonies amphigenous, dense, up to 2 mm in diameter, confluent. Hyphae straight, branching mostly opposite at acute to wide angles, loosely to closely reticulate, cells 18-22 x 6-7 μm . Hyphopodia alternate, 15% opposite, straight, subantrorse, 14-16 μm long; stalk cells cylindrical to cuneate, 3-5 μm long; head cells oblong, clavate to cylindrical, entire, 12-14 x 6-9.5 μm . Phialides mixed with hyphopodia, alternate to opposite, conoid to ampulliform, neck straight to curved, 15-18.5 x 6-8 μm . Mycelial setae mostly grouped around perithecia, simple, straight, acute at the apex, up to 350 μm long. Perithecia scattered, up to 180 μm in diam.; ascospores oblong to cylindrical, 4-septate, strongly constricted at the septa, 45-48 x 18-20 μm .

Materials examined: On leaves of *Olex wightiana* Wall. ex Wight & Arn. (Olacaceae), Amboli, Maharashtra, January 12, 1978, M.S. Patil HCIO 32563 (type).

Distribution: India (Maharashtra).

The present new species is close to *Meliola olacis* Deight. but differs from it in having smaller but alternate and opposite hyphopodia, only straight mycelial setae and larger ascospores.

277. *Meliola oligomera* Sydow, Ann. Mycol. 15: 190, 1917; Hansf., Sydowia Beih. 2: 345, 1961.

Meliola reinkingii Sydow, Ann. Mycol. 18: 98, 1920.

Colonies foliicolous, ramicolous, caulicolous, amphigenous, dense, velvety, up to 5 mm in diameter, confluent. Hyphae substraight to slightly flexuous, branching alternate at acute to wide angles, loosely to closely reticulate, cells 33-37.5 x 6-7 μm . Hyphopodia alternate, straight to curved, subantrorse to rarely spreading, 18-28 μm long; stalk cells cylindrical to cuneate, 9-12.5 μm long; head cells globose, entire, angular to sublobate, 9-15.5 x 15-18.5 μm . Phialides mixed with hyphopodia, scattered, ampulliform, 24-31 x 6-9.5 μm .

Mycelial setae numerous, simple, straight, acute at the tip, up to 280 (-310) μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores oblong, 3-septate, constricted at the septa, 43-46.5 x 15-16 μm .

Materials examined: On leaves, petioles and stems of *Loecneriella obtusifolia* (Roxb.) A.C. Smith [*Hippocratea obtusifolia* Roxb.] (Hippocrateaceae), Amboli, Maharashtra, September 28, 1976, M.S. Patil HCIO 32562.

Distribution: India (Maharashtra), Ceylon, Java, Philippines.

Meliola hippocrateicola Hansf. & *M. ligomera* Sydow look similar but both can be distinguished well in having densely arranged and smaller hyphopodia in the former species than the latter. The present collection matches well to the latter species.

278. *Meliola opiliae* Sydow, Ann. Mycol. 11: 327, 1913; Hansf., Sydowia Beih. 2: 354, 1961; Hosag., J. Econ. Tax. Bot. 11: 159, 1987; Hosag., Lakshmanan & Viswanathan, Indian J. Bot. 11: 187, 1988.

Colonies amphigenous, caulicolous, mostly epiphyllous, dense, velvety, up to 4 mm in diameter, confluent. Hyphae straight to undulate, branching opposite at acute angles, closely reticulate and form almost solid mycelial mat, cells 12.5-18.5 x 9-12.5 μm . Hyphopodia opposite but frequently unilateral, straight to curved, mostly antrorse, 15.5-18.6 μm long; stalk cells cylindrical to cuneate, 2-5 μm long; head cells globose, entire, 9-12.5 x 9-10.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18.5-25 x 6-10 μm . Mycelial setae numerous, straight, simple, obtuse to dentate at the tip, up to 280- μm long. Perithecia grouped, up to 220 μm in diam.; ascospores oblong, to cylindrical, 4-septate, slightly constricted, 37-46.5 x 15.5-18.6 μm .

Materials examined: On leaves of *Opilia amentacea* Roxb. (Opiliaceae), Coimbatore, December 12, 1909, C.E.C. Fischer HCIO 10400; Bollampatty Valley, Coimbatore, December 1909, W. McRae HCIO 3336; Bairlutty Reserve Forest, Andhra Pradesh, April 4, 1986, V.B. Hosagoudar MH 82619, 82621; Mukunoor, Karimnagar, Andhra Pradesh, April 5, 1987, T. Ravishankar AMH 7139.

Distribution: India (Andhra Pradesh, Tamil Nadu).

279. *Meliola opillae* Sydow var. *singalensis* Hansf., Sydowia 9: 70, 1955;

Sydowia Beih. 2: 354, 1961; Hosag., Siddappa & Udaiyan, Nova Hedwigia 56: 200, 1993.

Colonies amphigenous, caulicolous, dense, crustose to velvety, up to 2 mm in diameter, rarely confluent. Hyphae straight substraight, branching opposite to irregular at acute angles, closely reticulate and form almost solid mycelial mat, cells 12-22 x 6-9.5 μm . Hyphopodia mostly opposite and rarely alternate and unilateral, densely arranged, antrorse, 15-22 μm long; stalk cells cuneate, 2-6 μm long; head cells mostly globose, often ovate, entire, 10-15 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-25 x 7-12 μm . Mycelial setae grouped around perithecia, straight to slightly curved, acute at the tip, up to 214 μm long. Perithecia scattered, up to 214 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, slightly constricted at the septa, 37-45 x 10-15 μm .

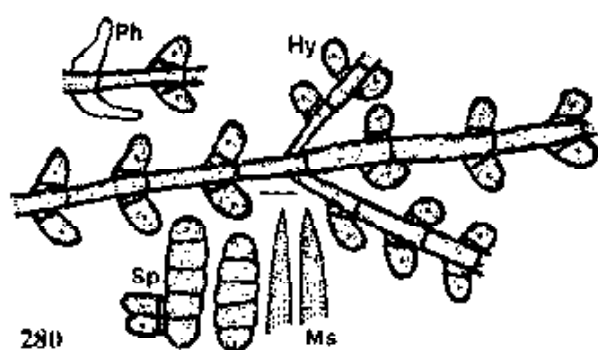
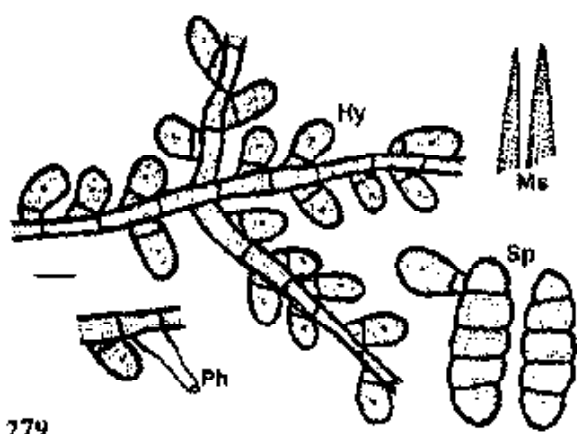
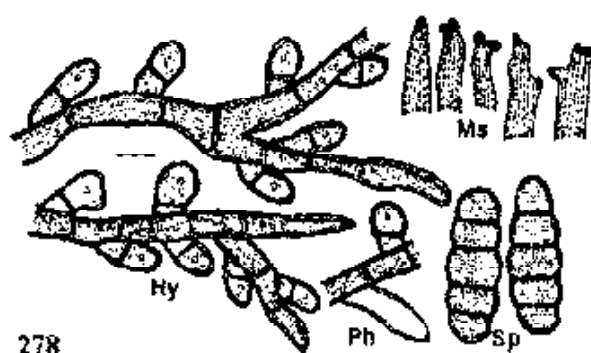
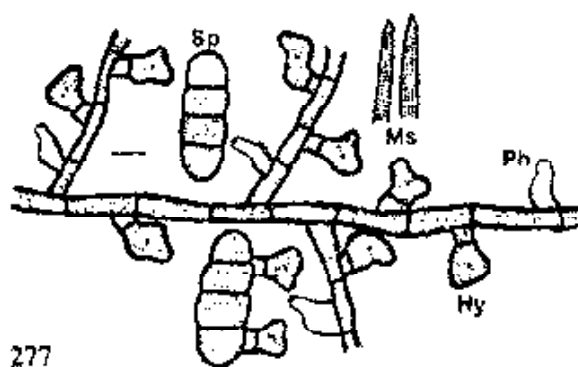
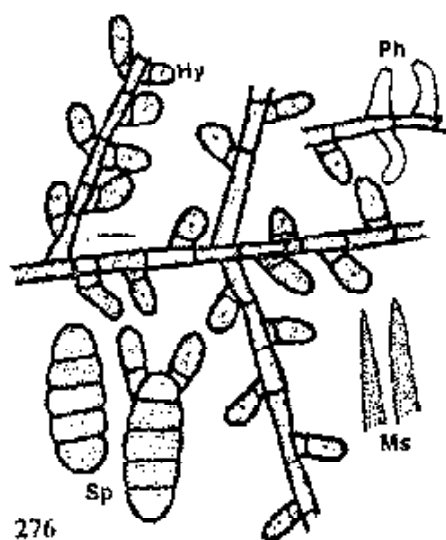
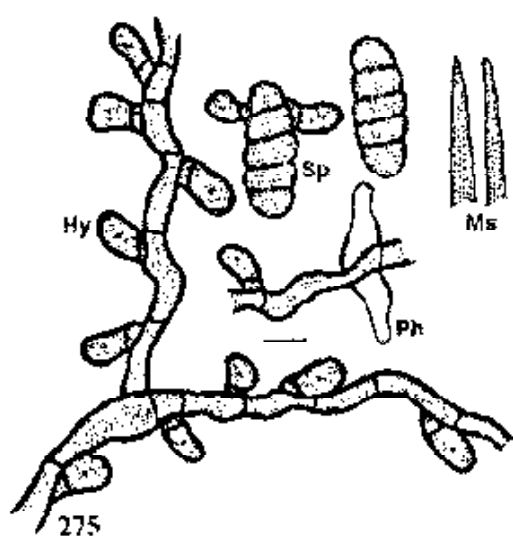
Materials examined: On leaves of *Cansjera rheedi* Gmel. (Opiliaceae), Kannothe reserve forest, Cannanore, Kerala, (Alt. \pm 125 m), November 3, 1979, V.S. Ramachandran (MH 57690), HCIO 30625; Anaikatty, Nilgiris, Tamil Nadu (875 m), March 15, 1972, G.V. Subba Rao (MH 40249) HCIO 30625; Mendasal forest, Puri dist., Orissa, October 4, 1915, Haines (MH 86814) HCIO 30624; Petlond, Sangli, Maharashtra, December 17, 1983, C.R. Patil HCIO 40010; *Lepionurus sylvestris* DC. (Opiliaceae), Sikkim Himalayas (alt. 2000 ft.), 1877, G. King (MH 64594) HCIO 30625.

Distribution: India (Kerala, Maharashtra, Orissa, Sikkim, Tamil Nadu), Ceylon.

280. *Meliola ostodis* Kapoor, Indian Phytopathol. 20: 256, 1967.

Colonies epiphyllous, dense, up to 3 mm in diameter. Hyphae straight, branching opposite at acute angles, closely reticulate, cells 18-30 x 5-8 μm . Hyphopodia opposite, antrorse, straight to slightly curved, 12-16 μm long; stalk cells cuneate, 3-5 μm long; head cells ovate to subglobose, entire, 8-10 x 6-8 μm . Phialides mixed with hyphopodia, ampulliform, 14-16 x 4-8 μm . Mycelial setae scattered to grouped around perithecia, straight to slightly curved, simple, obtuse at the apex, up to 320 μm long. Perithecia grouped in the centre, verrucose, up to 220 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 40-44 x 12-14 μm .

Materials examined: On leaves of *Ostodes paniculata* Blume (Euphorbiaceae), Singhik, Sikkim, April 24, 1962, J.N. Kapoor HCIO 28360



275. *Meliola odoratissima* (Kapoor) Hosag. 276. *M. olacicola* Hosag. 277. *M. oligomera* Sydow 278. *M. opiliae* Sydow 279. *M. opiliae* Sydow var. *singalensis* Hansf. 280. *M. ostodis* Kapoor

(type).

Distribution: India (Sikkim).

281. *Meliola osyridicola* Hansf., Proc. Linn. Soc. London 157: 184, 1946;
Sydowia Beih. 2: 362, 1961.

Colonies amphigenous, subcrustose, dense, up to 1 mm in diameter. Hyphae substraight, branching opposite at acute to wide angles, closely reticulate and almost solid at the centre, cells 14-18 x 6-10 μm . Hyphopodia alternate, antrorse, straight to curved, 18-30 μm long; stalk cells cylindrical to cuneate, 6-12 μm long; head cells ovate to clavate, broadly rounded at the apex, 12-16 x 10-12 μm . Phialides few, mixed with hyphopodia, opposite to alternate, ampulliform, 20-24 x 6-8 μm . Mycelial setae closely scattered and grouped around perithecia, simple, straight, obtuse to subacute, up to 240 μm . Perithecia mostly grouped at the centre, verrucose, up to 230 μm in diam.; ascospores oblong to subellipsoidal, 4-septate, constricted, 44-52 x 16-20 μm , middle cell slightly larger.

Materials examined: On leaves of *Osyris arborea* Wall. (Santalaceae), Ooty, March 14, 1939, C.S. Krishnaswamy HCIO 10402 (type); Nandi Hills, Karnataka, February 19, 1944, M.J. Thirumalachar HCIO 10395.

Distribution: India (Karnataka, Tamil Nadu).

282. *Meliola osyridicola* Hansf. var. *indica* Hosag. in Hosag. & Goos, Mycotaxon 37: 410, 1990.

Meliola osyridicola sensu Hosag., J. Econ. Tax. Bot. 7: 45, 1985.

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 2 mm in diameter, rarely confluent. Hyphae substraight to flexuous, branching opposite to irregular at acute angles, closely reticulate and forming solid mycelial mat, cells 12-22 x 7-9.5 μm . Hyphopodia alternate to unilateral, straight to closely antrorse, 18-25 μm long; stalk cells cuneate, 6-12.5 μm long; head cells globose, ovate, entire, 9-15.5 x 12-15.5 μm . Phialides borne on a separate mycelial branch, mostly opposite, ampulliform, 15-19 x 9-12.5 μm . Mycelial setae numerous, scattered, straight, simple, very thin, acute to obtuse at the tip, up to 150 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores obovoid, 4-septate, constricted at the septa, 43-46.5 x 15-18.5 μm .

Materials examined: On leaves of *Osyris quadrisepata* Silz. ex Decne (Santalaceae), National Orchidarium, Yercaud, Tamil Nadu, March 1, 1984, V.B.

Hosagoudar HCIO 39440 (type); MH 80359.

Distribution: India (Tamil Nadu).

283. *Meliola otophorae* Yates var. *indica* V.B. Hosagoudar et K. Ravikumar, var. nov.

Differt a var. *otophorae* hyphis rectis vel subrectis et hyphopodiis dense situs et longioris.

Colonies epiphyllous, rarely hypophyllous, subdense, up to 5 mm in diameter, confluent. Hyphae straight to substraight, branching opposite at wide angles, loosely to closely reticulate, cells 12-15.5 x 6-9.5 μm . Hyphopodia alternate, 1% opposite, antrorse to subantrorse, 18-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells globose, ovate, entire, angular to irregularly and sinuously lobate, 12-15.5 x 12-14 μm . Phialides borne on a separate mycelial branch, opposite to alternate, ampulliform, 15-18.5 x 12-15.5 μm . Mycelial setae scattered, simple, straight, acute to obtuse at the apex, up to 358 μm long. Perithecia scattered, verrucose, up to 137 μm in diam.; ascospores oblong, 4-septate, slightly constricted at the septa, 30-36.5 x 12-15.5 μm .

Materials examined: On leaves of *Lepisanthes senegalensis* (Juss. ex Poit.) Leenh. (Sapindaceae), Aliyar submergible area, near monkey falls, Coimbatore, Tamil Nadu, March 16, 1994, K. Ravikumar HCIO 41568 (type).

Distribution: India (Tamil Nadu).

284. *Meliola otonephellii* Hosag. in Hosag. & Goos, Mycotaxon 37: 242, 1990.

Colonies amphigenous, mostly epiphyllous, subdense to dense, scattered, up to 4 mm in diameter. Hyphae straight to substraight, branching mostly opposite at wide angles, loosely reticulate, cells 12-18 x 6-8 μm . Hyphopodia alternate to about 40% opposite, spreading, straight to curved, antrorse to retrorse, 16-22 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells mostly conoid, cylindrical, versiform, pyriform, straight to curved, entire, 12-14 x 6-8 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 16-22 x 8-10 μm . Mycelial setae few, grouped around perithecia, straight, simple, obtuse to variously dentate at the tip, up to 225 μm long. Perithecia few, verrucose, up to 170 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, slightly constricted, 44-48 x 16-18 μm .

Materials examined: On leaves of *Otonephelium stipulaceum* (Bedd.) Radlk. (*Nephelium stipulaceum* Bedd.) (Sapindaceae), Idukki, Kerala, December 23, 1983, V.B. Hosagoudar HCIO 40552 (type), MH 79033 (isotype); February 18, 1983, V.B. Hosagoudar MH 75845; December 21, 1983, V.B. Hosagoudar MH 78957; October 10, 1982, V.B. Hosagoudar MH 73605.

Distribution: India (Kerala).

285. *Meliola ovatipoda* Hansf. & Thirum., *Farlowia* 3: 297, 1948; Hansf., *Sydowia Beih.* 2: 330, 1961.

Colonies epiphyllous, thin, up to 3 mm in diameter, confluent. Hyphae substraight to undulate, branching opposite at wide angles, loosely reticulate, cells 15-20 x 6-8 μm . Hyphopodia alternate, antrorse, mostly straight, 16-28 μm long; stalk cells cylindrical to cuneate, 4-15 μm long; head cells ovate, entire, 10-16 x 9-12 μm . Phialides borne on a separate mycelial branch, opposite to alternate, ampulliform, 15-22 x 6-8 μm . Mycelial setae few, grouped around perithecia, straight to irregularly bent, simple, acute, up to 200 μm long. Perithecia scattered, verrucose, up to 160 μm in diam.; ascospores oblong, 4-septate, constricted, 29-37 x 13-16 μm .

Materials examined: On *Ficus* sp. (Moraceae), Balehonnur, Karnataka, April 29, 1943, M.J. Thirumalachar HCIO 10868 (type, p.p.). The colonies were not seen and the description adopted from Hansf. & Thirum. (1948).

Distribution: India (Karnataka).

286. *Meliola palmicola* Wint. var. *africana* Hansf., *Sydowia* 10: 81, 1957; *Sydowia Beih.* 2: 726, 1961.

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 7 mm in diameter. Hyphae straight to undulate, branching mostly opposite at acute to wide angles, loosely reticulate, cells 16-28 x 6-8 μm . Hyphopodia alternate, subantrorse, mostly straight, 20-28 μm long; stalk cells cylindrical to cuneate, 10-14 μm long; head cells subglobose, ovate, angulose to sublobate, 14-18 x 12-16 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-24 x 6-10 μm . Mycelial setae numerous, simple, straight, dentate, up to 550 μm . Perithecia loosely grouped, verrucose, up to 220 μm in diam.; ascospores subellipsoidal, 4-septate, slightly constricted, 50-56 x 18-22 μm .

Materials examined: On leaves of *Phoenix* sp. (Arecaceae), Mudigere,

Karnataka, September 7, 1903, E.J. Butler HCIO 1045; Bilkere, Karnataka, September 19, 1903, E.J. Butler HCIO 3941; *P. sylvestris* Roxb., Burdwan, West Bengal, July 12, 1902, Bhattacharyya HCIO 1047; Calcutta, West Bengal, S.N. Bal HCIO 3340; Hunsur, Karnataka, September 20, 1903, E.J. Butler HCIO 1048; Talaguppa, Karnataka, October 29, 1911, G.S. Kulkarni HCIO 3343; Velvae, Karnataka, September 24, 1903, E.J. Butler HCIO 3339; Godavari, Andhra Pradesh, January 1908, S. Sundaram HCIO 1049; Godavari, Andhra Pradesh, March 16, 1917, P.V. Somayajulu HCIO 10401; Jorhat, Assam, May 19, 1943, S. Chowdhuri HCIO 1047; Hurali, Karnataka, February 18, 1944, M.J. Thirumalachar HCIO 10394.

Distribution: India (Andhra Pradesh, Assam, Karnataka, Tamil Nadu, West Bengal), South Africa, Tonkin, Uganda.

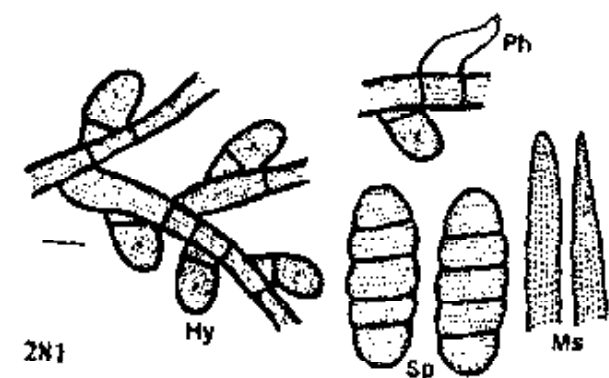
287. *Meliola panici* Earle, *Muchlenbergia* 1: 12, 1901; Hansf., *Sydowia Beih.* 2: 745, 1961; Gupta & Gupta, *Indian Phytopathol.* 58: 390, 1985; Hosag. & Goos, *Mycotaxon* 42: 136, 1991.

Colonies epiphyllous, dense, up to 2 mm in diameter. Mycelium straight to substraight, branching opposite to irregular at acute to wide angles, closely reticulate, cells 15.5-22 x 6-8 μm . Hyphopodia alternate, straight to curved, antrorse to recurved, 15.5-22 μm long; stalk cells cylindrical to cuneate, 3-7.5 μm long; head cells ovate, globose, entire, angular to sublobate, 11-15.5 x 12-15.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 12-15.5 x 6-8.5 μm . Mycelial setae few, straight, simple, acute to obtuse, up to 310 μm long. Perithecia mostly grouped, verrucose, up to 140 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 34-37 x 12-14 μm .

Materials examined: On leaves of *Ischaemum zeylanicum* Bor (Poaceae), Calvary Mount, Idukki, Kerala, August 23, 1981, V.B. Hosagoudar MH 82695; *Cenotheca lappacea* (L.) Desr. (Poaceae), Komati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30555; *Lophotherum gracile* Brongn (Poaceae), Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30556.

Distribution: India (Kerala, Tamil Nadu), Borneo, Congo Belge, Congo, Costa Rica, Ecuador, Grenad, Jamaica, Java, Malaya, Panama, Philippines, Porto Rico, San Domingo, Sierra Leone, Singapore, Surinam, Uganda, Venezuela.

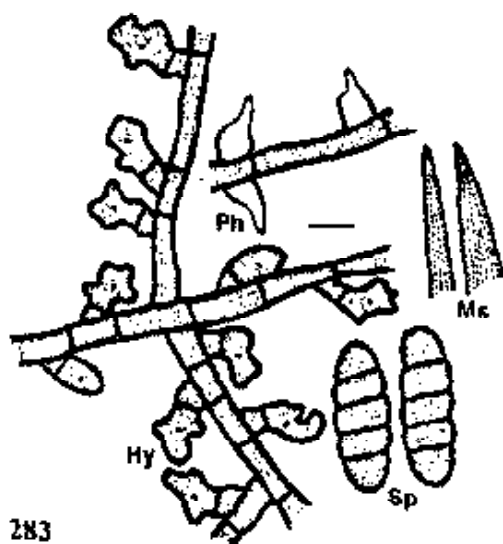
288. *Meliola panici* Earle var. *laclacidis* (Toro) Hansf., *Sydowia Beih.* 2: 746,



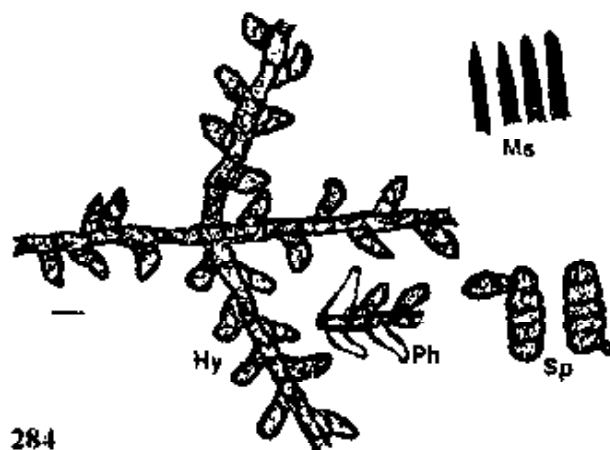
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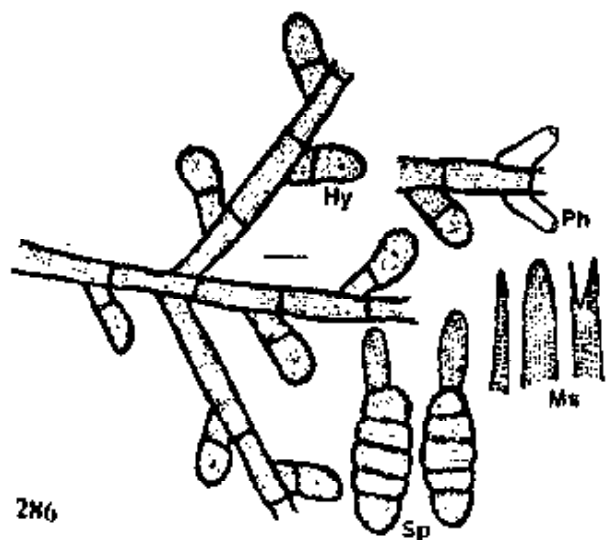
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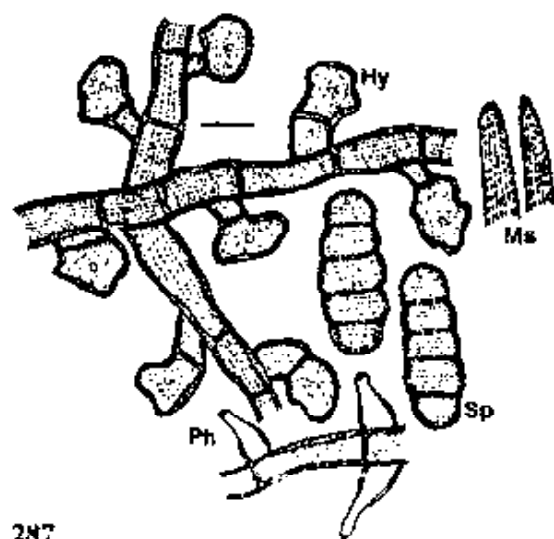
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281. *Meliola osyridicola* Hansf. 282. *M. osyridicola* Hansf. var. *indica* Hosag.
 283. *M. otophorae* Yates var. *indica* Hosag. & Ravikumar 284. *M. atomphelii* Hosag.
 286. *M. palmicola* Wint. var. *africana* Hansf. 287. *M. panici* Earle

1961.

Meliola lasacidis Toro in Chardon & Toro, Monogr. Univ. Porto Rico B: 2: 121, 1934.

Colonies amphigenous, dense, velvety, up to 2 mm in diameter, confluent. Hyphae running along the veins are straight while the cross hyphae tortuous, branching alternate to irregular at acute angles, loosely to closely reticulate, cells 18-25 x 6-8 μm . Hyphopodia alternate, straight to tortuous, antrorse to recurved, 20-24 μm long; stalk cells cylindrical to cuneate, rarely flexuous; 6-9.5 μm long; head cells globose, boot shaped, truncate, entire to shallowly lobate, 12-15.5 x 15.5-19 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 21-28 x 9-12.5 μm . Mycelial setae fairly numerous, straight, simple, acute, up to 600 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores obovoidal, cylindrical, 4-septate, constricted, 40-44 x 15-19 μm .

Materials examined: On leaves of *Desmostachys bipinnata* (L.) Stapf (Poaceae), Gorakhpur University, Uttar Pradesh, January 11, 1980, D.N. Shukla IMI 245081.

Distribution: India (Uttar Pradesh), British Guiana, Costa Rica, Ecuador, Honduras, Panama, Porto Rico, San Domingo, Venezuela.

289. *Meliola paramignya* Hosag., Indian Bot. Repr. 7: 58, 1988.

Colonies hypophyllous, crustose, thin, up to 4 mm in diam. Hyphae straight to substraight, branching opposite at acute to wide angles, loosely to closely reticulate, cells 18.5-23 x 6-8 μm . Hyphopodia alternate and about 10% opposite, antrorse to spreading, straight to curved, 18.5-22 μm long; stalk cells cylindrical to cuneate, 4-6 μm long; head cells ovate, clavate, cylindrical, entire to angulose, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18.5-22 x 9-12.5 μm . Mycelial setae scattered, straight, simple, acute, obtuse, cristate to dentate, up to 575 μm long. Perithecia scattered, verrucose, up to 171 μm diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 31-45 x 12-15.5 μm .

Materials examined: On leaves of *Paramignya armata* (Thw.) Oliver (Rutaceae), Poochipara shola, Palghat, Kerala, May 1, 1980, V.J. Nair MH 67419 (type); *P. monophylla*, Anmode, Maharashtra, October 1974, A.N. Thite HClO 31913; Gersoppa, Honnavar, Karnataka, March 23, 1992, P.A. Raghu HClO

41639.

Distribution: India (Karnataka, Kerala, Maharashtra).

290. *Meliola parvula* Sydow, Leaf. Philippine J. Sci. 6: 1925, 1913; Hansf., Sydowia Beih. 2: 414, 1961; Hosag. & Goos, Mycotaxon 42: 136, 1991.
Meliola aglaiae Sydow, Philippine J. Sci. 9: 159, 1914.

Colonies amphigenous, subdense, up to 2 mm in diameter, confluent. Hyphae straight to crooked, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 22-30 x 6-8 μ m. Hyphopodia opposite and 30% alternate, antrorse to subantrorse, 12-18.5 μ m long; stalk cells cylindrical to cuneate, 3-6 μ m long; head cells ovate, slightly attenuated at the apex, rounded, entire, 9-12 x 6-9.5 μ m. Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 6-9.5 μ m. Mycelial setae numerous, thinly scattered, simple, straight, acute at the tip, up to 550 μ m long. Perithecia scattered, verrucose, up to 200 μ m in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 30-37.5 x 12-15.5 μ m.

Materials examined: On leaves of *Aglaia* sp. (Meliaceae), Manjapparai, Sheikalmudi, Valparai, Coimbatore, Tamil Nadu, March 26, 1990, V.B. Hosagoudar HCIO 30557.

Distribution: India (Tamil Nadu), Philippines.

291. *Meliola patileana* sp. nov.

Coloniae epiphyllae, densae, velutinae, ad 2 mm diam., confluentes. Hyphae rectae, plerumque opposite acuteque vel laxe ramosae, laxe vel dense reticulatae, cellulae 12-25 x 6-8 μ m. Hyphopodia opposita, raro solitaria, antrorsa vel subantrorsa, 15-18.5 μ m longa; cellula basali cylindracea vel cuneata, 5-7 μ m longa; cellula apicali ovata, globosa, integra, rotunda vel truncata ad apicem, 10-12.5 x 9-12.5 μ m. Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 18-22 x 9-11 μ m. Setae myceliales numerosae, dense dispersae, curvatae vel uncinatae, acutae, obtusae vel 2-4 dentatae ad apicem, ad 360 μ m longae. Perithecia dispersa, verrucosa, ad 140 μ m diam.; ascosporae obovoideae vel leniter ellipsoideae, 4-septatae, constrictae, 46-50 x 18-22 μ m.

Colonies epiphyllous, dense, velvety, up to 2 mm in diameter, confluent. Hyphae straight, branching mostly opposite at acute to wide angles, loosely to closely reticulate, cells 12-25 x 6-8 μ m. Hyphopodia opposite, rarely solitary,

alternate, subantrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 5-7 μm long; head cells ovate, globose, entire, rounded to truncate at the apex, 10-12.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 9-11 μm . Mycelial setae numerous, densely scattered, curved to uncinata, acute, obtuse to 2-4 dentate at the tip, up to 360 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores obovoidal to slightly ellipsoidal, 4-septate, constricted at the septa, 46-50 x 18-22 μm .

Materials examined: On leaves of *Cryptocarya bourdillonii* Gamble (*C. wightiana* sensu Hook.f.) (Lauraceae), Kolhapur, Maharashtra, March 30, 1977, M.S. Patil HCIO 32523 (type).

Distribution: India (Maharashtra).

Opposite hyphopodia and uncinata mycelial setae distinguishes this species from others reported on Lauraceae.

292. *Meliola payakii* sp. nov.

Coloniae epiphyllae, densae, dispersae, ad 2 mm diam. Hyphae rectae, opposite laxae ramosae, dense reticulatae, cellulae 15-18.5 x 8-11 μm . Hyphopodia opposita, ad 3% alternata et solitaria, antrorsa vel subantrorsa, 15-18.5 μm longa; cellula basali cylindracea vel cuneata, 3-6 μm longa; cellula apicali ovata, cylindracea, integra, 9-12.5 x 9-11 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 17-19 x 11-13 μm . Setae myceliales dispersae, simplices, rectae, acutae ad apicem, ad 430 μm longae. Perithecia immatura. Ascosporae ellipsoideae, 4-septatae, constrictae, 37-41 x 15-18.5 μm .

Colonies epiphyllous, dense, scattered, up to 2 mm in diameter. Hyphae straight, branching opposite at wide angles, closely reticulate, cells 15-18.5 x 8-11 μm . Hyphopodia opposite, about 3% alternate and solitary, antrorse to subantrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, cylindrical, entire, 9-12.5 x 9-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 17-19 x 11-13 μm . Mycelial setae scattered, simple, straight, acute at the apex, up to 430 μm long. Perithecia immature ascospores ellipsoidal, 4-septate, constricted at the septa, 37-41 x 15-18.5 μm .

Materials examined: On leaves of *Hedera helix* L. (Araliaceae),

Narkanda, Simla Hills, Arunachal Pradesh, November 13, 1959, M.M. Payak

HCIO 26879 (type).

Distribution: India (Arunachal Pradesh)

Opposite hyphopodia brings the present new species close to *Meliola fatseae* Katumoto & Harada and *M. pectinata* Hohnel but differs from both in having phialides with hyphopodia, ellipsoidal and smaller ascospores.

293. *Meliola petchii* Hansf., Proc. Linn. Soc. London 157: 182, 1946; Sydowia Beih. 2: 527, 1961; Hosag., Lakshmanan & Viswanathan, Indian J. Bot. 11: 187, 1988; Hosag., Raghu & Pillai, Nova Hedwigia 58: 542, 1994.

Colonies epiphyllous, rarely hypophyllous, dense, thinly velvety, up to 4 mm in diameter, largely confluent. Hyphae straight, branching opposite at acute angles, loosely reticulate, cells 18-28 x 4-6 μm . Hyphopodia alternate, straight, antrorse, 18-25 μm long; stalk cells cuncate, 6-9.5 μm long; head cells ovate, broadly rounded at the apex, entire, 12-15.5 x 9-11 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 12-15.5 x 6-9.5 μm . Mycelial setae few, mostly grouped around perithecia, simple, straight, acute to obtuse, up to 232 μm long. Perithecia scattered, verrucose, up to 124 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 31-35.5 x 12-15.5 μm .

Materials examined: On leaves of *Strychnos nux-vomica* L. (Loganiaceae), Malabar, Kerala, November 17, 1912, T.R. Ranganath HCIO 10488; Taliparamba, Kerala, May 27, 1952, N.V. Sundaram HCIO 20422 (as *M. stenospora*); Londha, Karnataka, December 1971, A.N. Thite HCIO 31908; Calicut, Kerala, November 17, 1986, V.B. Hosagoudar AMH 7135; Gersoppa, Uttara Kannada, Karnataka, September 23, 1992, P.A. Raghu HCIO 40765.

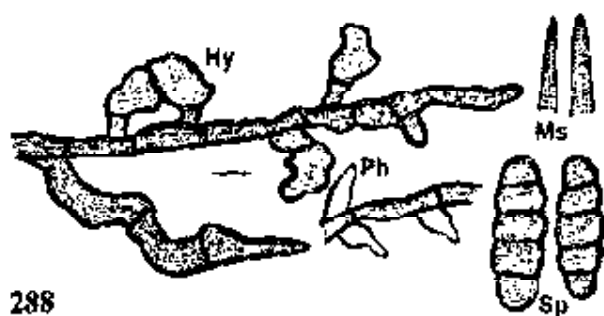
Distribution: India (Karnataka, Kerala, Maharashtra), Ceylon.

294. *Meliola petrakii* Stev. & Rold. ex Hosag.

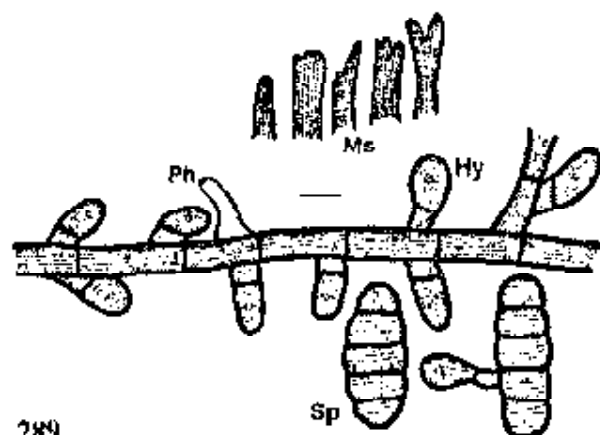
Meliola petrakii Stev. & Rold., Philippine J. Sci. 56: 65, 1935; Hansf., Sydowia Beih. 2: 416, 1961; Hosag., J. Econ. Tax. Bot. 8: 473, 1986.

Meliola petiolaris Petrak, Ann. Mycol. 39: 185, 1935, non Doidge, 1920.

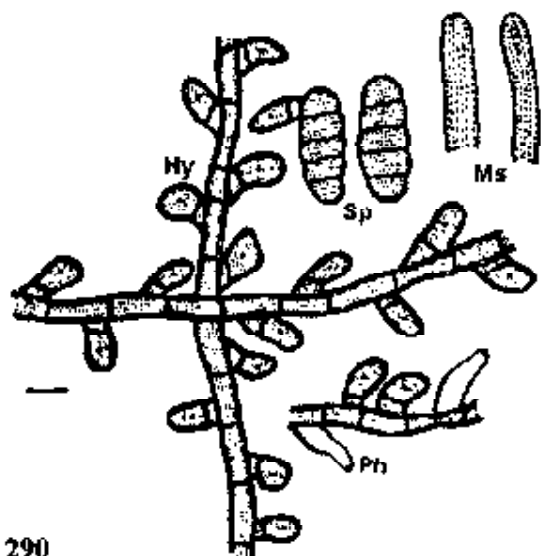
Coloniae in caule, petiolae et in costa folia hypophyllae, raro in laminae, densae, velutinae, ad 10 mm diam., confluentes. Hyphae sinuosae vel anfractuae, irregulariter acuteque ramosae, dense reticulatae et solidae, cellulae 20-30 x 10-13 μm . Hyphopodia alternate, antrorse vel petentia, recta vel leniter curvula, 20-30



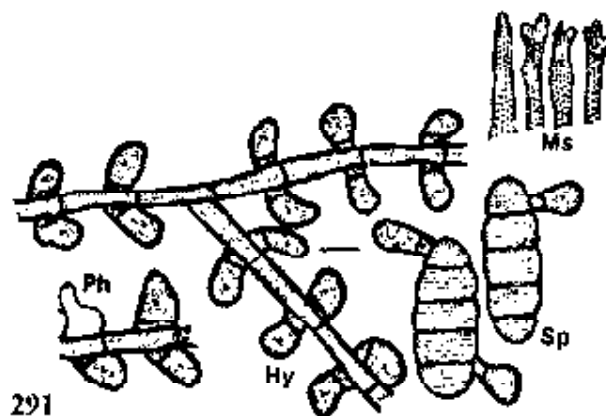
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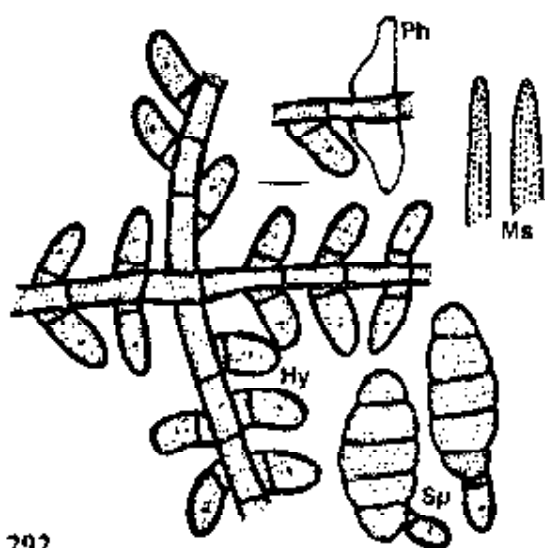
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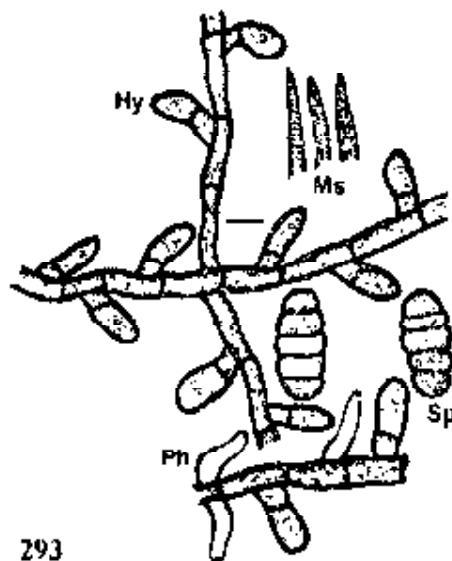
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288. *Meliola panici* Earle var. *laciacidis* Hansf. 289. *M. paramignya* Hosag.
 290. *M. parvula* Sydow 291. *M. patileana* Hosag. 292. *M. payakii* Hosag. 293. *M. petchii* Hansf.

μm longa; cellula basali cylindracea vel cuneata, 6-10 μm longa; cellula apicali ovata vel globosa, recta vel curvula, illis capitatis commixta, opposita vel alternata, ampullacea, 18-20 x 10-12 μm . Setae myceliales numerosae, rectae, simplices, acute vel obtusae, ad 300 μm longae. Perithecia dispersa, verrucosa, ad 245 μm diam.; ascosporae ellipsoideae, 4-septatae, constrictae, cellula medius leniter magniorae, 46-53 x 16-20 μm .

Materials examined: On leaves of *Dysoxylum malabaricum* Bedd. ex Hiern (Meliaceae), Chandanathode forest, Wynaad, Kerala, February 22, 1986, K.S. Santhanam AMH 6786, MH 82153.

Distribution: India (Kerala), Philippines.

According to ICBN art. 36, Hansford (1963a) validated all the new taxa of Stevens & Roldan (1935) by providing Latin diagnosis except *Meliola petrakii*. Hence, it is being validated here.

295. *Meliola phaseoli* A.N. Thite ex V.B. Hosagoudar, sp. nov.

Coloniae epiphyllae, subdensae vel densae, ad 2 mm diam., confluentes. Hyphae anfractuae, plerumque opposite acuteque ramosae, laxe reticulatae, cellulae 21-31 x 5-6.5 μm . Hyphopodia alternata, ad 5% opposita, antrorsa, subantrorsa vel patentia, 9-15.5 μm longa; cellula basali cylindracea vel cuneata, 3-6.5 μm longa; cellula apicali recta vel curvula, globosa, integra, 6-9.5 x 9-12.5 μm . Phialides illis hyphopodiis commixta, opposita vel alternata, ampullacea, 12-22 x 6-8 μm . Setae myceliales circa perithecia aggregatae, simplices, rectae, acutae ad apicem, ad 265 μm longae. Perithecia aggregata ad centre, leniter verrucose, ad 140 μm diam.; ascosporae oblongae vel cylindraceae, 4-septatae, constrictae, 31-37.5 x 9-12.5 μm .

Colonies epiphyllous, subdense to dense, up to 2 mm in diameter, confluent. Hyphae crooked, branching mostly opposite at acute angles, loosely reticulate, cells 21-31 x 5-6.5 μm . Hyphopodia alternate, about 5% opposite, antrorse, subantrorse to spreading, 9-15.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells straight to curved, globose, entire, 6-9.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 12-22 x 6-8 μm . Mycelial setae grouped around perithecia, simple, straight, acute at the tip, up to 265 μm long. Perithecia grouped at the centre, slightly verrucose, up to 140 μm in diam.; ascospores oblong to cylindrical, 4-septate, constricted, 31-37.5 x 9-12.5 μm .

Materials examined: On leaves of *Vigna khandalensis* (Sant.) Raghu & Wadhwa (*Phaseolus khandalensis* Sant.) (Fabaceae), Kolhapur, Maharashtra, December 1971, A.N. Thite HClO 31910 (type).

Distribution: India (Maharashtra).

The present new species is close to *Meliola nyanzae* Hansf. and *M. erythrinae-micropterycis* Hansf. However, it differs from the former species in not causing defoliation and from the latter species in having only 5% opposite and not variously curved hyphopodia. *Meliola cristata* Stev. reported on *Phaseolus* sp. from British Guiana but the present species differs from it in having acute mycelial setae.

296. *Meliola phyllostachydis* Yamam., Trans. Nat. Hist. Soc. Formosa 31: 26, 1941; Hansf., Sydowia Beih. 2: 740, 1961.

Meliola bambusicola Hansf., Proc. Linn. Soc. London 158: 31, 1946.

Colonies epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae straight to undulate, run mostly parallel often with cross hyphae, branching alternate to irregular at acute angles, closely reticulate, cells 21-31 x 5-7 μm . Hyphopodia alternate, antrorse, 27-40.5 μm long; stalk cells cylindrical to cuneate, 9-12.5 μm long; head cells ovate to globose, stellately to irregularly lobate, 18-25 x 15-18.5 μm . Phialides borne on a separate mycelial branch, numerous, alternate to opposite, ampulliform, 15-22 x 7-9.5 μm . Mycelial setae numerous, scattered, dichotomously branched, up to 200 μm long till branching, up to 60 μm long till second branching, final branchlets up to 50 μm long, all branches and branchlets reflexed, acute to obtuse at the tip. Perithecia loosely grouped at the centre of the colonies, verrucose, up to 235 μm in diam.; ascospores oblong to cylindrical, 4-septate, constricted at the septa, central cell slightly larger, 46-56 x 18-22 μm .

Materials examined: On leaves of *Bambusa* sp. (Poaceae), Ooty, Nilgiris, Tamil Nadu, February 23, 1923, P.V. Somayajulu HClO 10404 (type of *M. bambusicola* Hansf.).

Distribution: India (Tamil Nadu), Formosa, Japan.

297. *Meliola plectroniae* Hansf., Sydowia 9: 72, 1955; Beih. 2: 702, 1961.

Meliola coilocosa Nair & Kaul, Sydowia 36: 204, 1983; Hosag. & Goos, Mycotaxon 37: 228, 1990.

Colonies hypophyllous, thin, up to 5 mm in diameter, confluent. Hyphae substraight to flexuous, branching mostly alternate, branches of the main hyphae tortuous, loosely reticulate, cells 18-30 x 6-8 μm . Hyphopodia alternate, straight to variously curved, 24-34 μm long; stalk cells aseptate to many septate, tortuous, aseptate stalk cells 8-16 μm long, while, septate stalk cells up to 80 μm long; head cells semilunar, versiform, ovate, angular, straight to mostly curved, 16-22 x 10-14 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 20-24 x 8-10 μm . Mycelial setae thinly scattered, simple, straight, acute, up to 360 μm long. Perithecia scattered, verrucose, up to 110 μm in diam.; ascospores cylindrical, ellipsoidal, 4-septate, constricted, 52-56 x 16-18 μm .

Materials examined: On leaves of *Canthium dicoccum* (Gaertn.) Teys & Benn. (*Plectronia umbellata* Benth. & Hook.) (Rubiaceae), Matheron, Maharashtra, October 16, 1911, S.L. Ajrekar HCIO 3196 (type); Mahabaleshwar, Satara, Maharashtra, January 1978, V.P. Kaul HCIO 33807 (type of *M. coilocosa*); Idukki, Kerala, February 18, 1983, V.B. Hosagoudar HCIO 40513; *C. rheedii* DC., Mahabaleshwar, Satara, Maharashtra, January 17, 1985, C.R. Patil HCIO 40007.

Distribution: India (Kerala, Maharashtra).

298. *Meliola pogostemonis* Hansf., Sydowia 10: 83, 1957; Sydowia Beih. 2: 701, 1961; Hosag. & Goos, Mycotaxon 37: 243, 1990.

Colonies amphigenous, mostly epiphyllous, dense, up to 5 mm in diameter, confluent. Hyphae straight to undulate, branching opposite at acute angles, loosely reticulate, cells 16-32 x 6-8 μm . Hyphopodia alternate, often closely antrorse, straight, 10-22 μm long; stalk cells cuneate, 4-8 μm long; head cells ovate, bluntly pointed at the apex, entire, 10-16 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, 10-18 x 6-8 μm . Mycelial setae few, grouped around perithecia, simple, septate, acute at the tip, up to 243 μm long. Perithecia scattered to grouped, verrucose, up to 146 μm in diam.; ascospores obovoidal, 4-septate, constricted, 28-38 x 10-12 μm .

Materials examined: On leaves of *Pogostemon pubescens* Benth. (Lamiaceae), Calvary Mount, Idukki, Kerala, January 8, 1982, V.B. Hosagoudar HCIO 40553, MH 72615; Lakshmi Estate, Idukki, Kerala, December 25, 1983, V.B. Hosagoudar MH 79096; M.K. Vayal, Kanniyakumari, Tamil Nadu, February 27, 1994, V.B. Hosagoudar HCIO 41638.

Distribution: India (Kerala, Tamil Nadu), Ceylon.

299. *Meliola polygona* Srinivasulu, Nova Hedwigia Beih. 47: 432, 1974.

Colonies epiphyllous, dense, crustose, up to 2 mm in diameter. Hyphae closely reticulate, cells 20-25 x 5-7 μm . Hyphopodia alternate, antrorse to spreading, 15-19 μm long; stalk cells cylindrical to cuneate, 3-5.5 μm long; head cells globose to ovate, entire, 8-13.5 x 7-11.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 19-23 x 4-7.5 μm . Mycelial setae numerous, scattered, simple, straight, acute at the tip, up to 250 μm long. Perithecia scattered, verrucose, up to 120 μm in diam.; ascospores oblong, 4-septate, slightly constricted at the septa, 32-36 x 10-12 μm .

Type: On leaves of *Polygonum chinense* L. (Polygonaceae), Castle rock, Maharashtra, India, November 1966, B.V. Srinivasulu MUH 144.

Materials examined: Material was not available for the study.

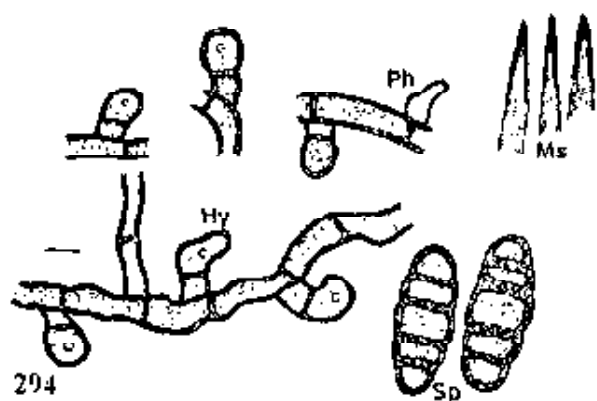
Distribution: India (Maharashtra).

300. *Meliola polygonicola* sp. nov.

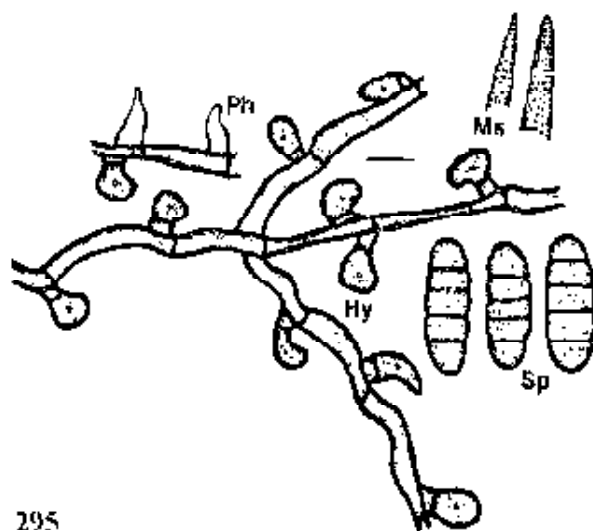
Coloniae epiphyllae, densae, ad 2 mm diam., confluentes. Hyphae rectae vel subrectae, oppositae acuteque ramosae, valde reticulatae ex solidae, cellulae 12-15.5 x 5-7 μm . Hyphopodia opposita, pauca solitaria, dense posita, antrorsa, 12-15.5 μm longa; cellula basali cuneata, 3-6.5 μm longa; cellula apicali globosa vel leniter ovata, integra, 9-12 x 8-10 μm . Phialides pauca, illis hyphopodiis commixta, dispersa vel opposita, ampullacea, 15-18.5 x 7-9.5 μm . Setae myceliales paucae, simplices, rectae, obtusae vel acutae ad apicem, ad 400 μm longae. Perithecia dispersa, ad 124 μm diam.; ascosporae oblongae vel cylindratae, 4-septatae, constrictae, 37-41 x 15-17 μm .

Colonies epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching opposite at acute angles, very closely reticulate and form almost solid mycelial mat, cells 12-15.5 x 5-7 μm . Hyphopodia opposite, very few solitary, crowded, antrorse, 12-15.5 μm long; stalk cells cuneate, 3-6.5 μm long; head cells globose to slightly ovate, entire, 9-12 x 8-11 μm . Phialides few, mixed with hyphopodia, scattered to opposite, ampulliform, 15-18.5 x 7-9.5 μm . Mycelial setae few, simple, straight, obtuse to acute, up to 400 μm long. Perithecia scattered, up to 124 μm in diam.; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 37-41 x 15-17 μm .

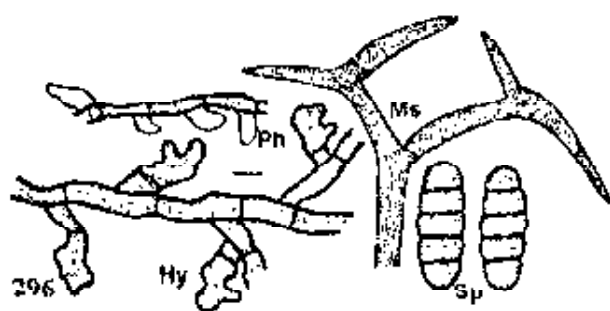
Materials examined: On leaves of *Polygonum chinense* L. (Polygonaceae),



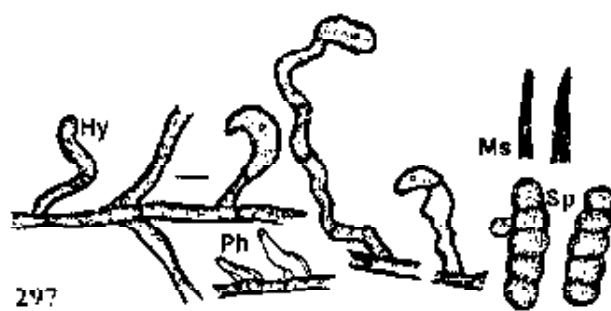
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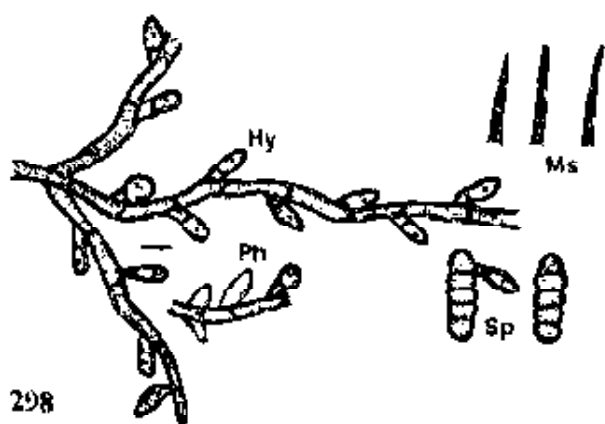
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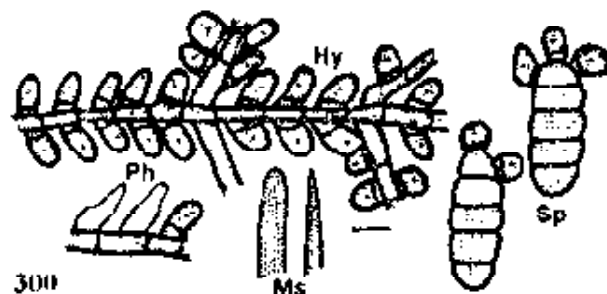
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297



298



300

294. *Meliola petrakii* Stev. & Rold ex Hosag. 295. *M. phaseoli* Thite ex Hosag.
 296. *M. phyllostachydis* Yamam. 297. *M. plectroniae* Hansf. 298. *M. pogostemonis*
 Hansf. 300. *M. polygonicola* Hosag.

Ambe Ghats, Maharashtra, December 1972, A.N. Thite HClO 31909 (type).

Distribution: India (Maharashtra).

This species is close to *Meliola macrantha* (Cif.) Hansf. in having crowded and opposite hyphopodia but differs from it in having smaller and all opposite hyphopodia, smaller mycelial setae, perithecia and ascospores.

301. *Meliola polytricha* Kalch. & Cooke, *Grevillea* 8: 72, 1879; Hansf., *Sydowia Beih.* 2: 104, 1961.

Colonies epiphyllous, dense, velvety, up to 5 mm in diameter, rarely confluent. Hyphae straight to substraight, branching mostly opposite at acute angles, very closely reticulate and form solid mycelial mat, cells 15-20 x 7-9 μm . Hyphopodia alternate, antrorse to closely antrorse, 20-28 μm long; stalk cells mostly cuneate, 6-8 μm long; head cells globose, clavate, entire to angular, 15.5-18 x 12.5-15.5 μm . Phialides borne on separate mycelial branch, mostly opposite, ampulliform, 12.5-15.5 x 6-8 μm . Mycelial setae numerous, densely scattered, simple, straight, acute at the tip, up to 360 μm long. Perithecia scattered, up to 200 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 52-58 x 18.5-22 μm .

Materials examined: On leaves of *Pittosporum dasycaulon* Miq. (Pittosporaceae), Ghat forest, North Canara, Karnataka, October 1919, L.J. Sedgwick HClO 1983.

Distribution: India (Karnataka), New South Wales, South Africa, Uganda.

302. *Meliola premnicola* Hosag. in Hosag. & Goos, *Mycotaxon* 37: 243, 1990.

Colonies epiphyllous, subdense, up to 5 mm in diameter, rarely confluent. Hyphae substraight to flexuous, branching opposite at acute angles, closely reticulate, cells 26-30 x 8-10 μm . Hyphopodia alternate, about 30% opposite, antrorse, 16-20 μm long; stalk cells cuneate, 4-6 μm long; head cells globose, ovate, entire, 12-14 x 10-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, neck elongated and twisted, 18-22 x 8-10 μm . Mycelial setae grouped around perithecia, straight, simple, variously dentate at the apex, up to 720 μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores ellipsoidal, 4-septate, deeply constricted, 42-48 x 14-16 μm .

Materials examined: On leaves of *Premna glaberrima* Wight (Verbenaceae), Idukki, Kerala, February 18, 1983, V.B. Hosagoudar HCIO 40554 (type), MH 75837 (isotype).

Distribution: India (Kerala).

303. *Meliola psychotriae* Earle, Bull. New York Bot. Gard. 3: 308, 1905; Hansf., Sydowia Beih. 2: 597, 1961; Hosag. & Goos, Mycotaxon 37: 244, 1990. *Meliola microspora* Pat. & Gaill. var. *africana* Doidge, Trans. Roy. Bot. South Africa 5: 732, 1917.

Colonies amphigenous, mostly hypophyllous, thin to dense, up to 3 mm in diameter, confluent. Hyphae substraight to slightly undulate, branching alternate to opposite at acute angles, closely reticulate, cells 30-40 x 6-8 μm . Hyphopodia alternate to unilateral, straight to curved, spreading, antrorse 20-30 μm long; stalk cells cuneate to cylindrical, 6-10 μm long; head cells ovate, entire, broadly rounded at the apex, 14-20 x 10-12 μm . Phialides numerous, mixed with hyphopodia and borne on a separate mycelial branch, opposite to alternate, ampulliform, 16-22 x 6-10 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute to subacute at the tip, up to 540 μm long. Perithecia scattered, verrucose, up to 164 μm in diam.; ascospores obovoidal, 4-septate, constricted, 30-40 x 12-18 μm .

Materials examined: On leaves and stems of *Pavetta indica* L. (Rubiaceae), Idukki, Kerala, December 11, 1982, V.B. Hosagoudar MH 75721; Lakshmi Estate, Idukki, Kerala, December 15, 1982, V.B. Hosagoudar MH 75767; October 6, 1983, V.B. Hosagoudar MH 78179; Idukki, Kerala, December 21, 1983, V.B. Hosagoudar MH 78969; Lakshmi Estate, Idukki, Kerala, December 25, 1983, V.B. Hosagoudar MH 79097.

Distribution: India (Kerala), Borneo, Brazil, Congo Belge, Ecuador, Java, Philippines, Porto Rico, San Domingo, Sierra Leone, Uganda, Venezuela.

304. *Meliola psychotriae-nudiflorae* sp. nov.

Coloniae hypophyllae, subdensae, patentiae, ad 8 mm diam. Hyphae flexuosae, opposite acuteque ramosae, laxe reticulatae, cellulae 31-37.5 x 5-7 μm . Hyphopodia dispersa, alternata, antrorsa vel subantrorsa, 21-31 μm longa; cellula basali cylindracea vel cuneate, 6-12.5 μm longa; cellula apicali globosa, integra, angulosa vel irregulariter sublobata, 15-18.5 x 12-18.5 μm . Phialides illis capitatis

commixta, alternata vel opposita, ampullacea, 15-18.5 x 5-7 μm . Setae myceliales dispersae vel aggregatae circa peritheciae, simplices, rectae vel curvulae, obtusae ad apicem, ad 600 μm longae. Perithecia dispersa, verrucosa, ad 130 μm diam.; ascosporae cylindratae, plerumque curvulae, 4-septatae, leniter constrictae, cellulae medietas leniter magniorae, 27-34 x 9-12.5 μm .

Colonies hypophyllous, subdense, spreading, up to 8 mm in diameter. Hyphae flexuous, branching opposite at acute angles, loosely reticulate, cells 31-37.5 x 5-7 μm . Hyphopodia scattered, alternate, antrorse to subantrorse, 21-31 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells globose, entire, angular to irregularly sublobate, 15-18.5 x 12-18.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 5-7 μm . Mycelial setae scattered and grouped around perithecia, simple, straight to curved, obtuse at the tip, up to 600 μm long. Perithecia scattered, verrucose, up to 130 μm in diam.; ascospores cylindrical, mostly curved, 4-septate, slightly constricted at the septa, middle cell slightly larger, 27-34 x 9-12.5 μm .

Materials examined: On leaves of *Psychotria nudiflora* Wight & Arn. (Rubiaceae), Kudrevetti, Tirunelveli dist., Tamil Nadu, February 25, 1994, V.B. Hosagoudar HCIO 41604 (type); *Ixora coccinea* L. (Rubiaceae), Nivale, Sangli, Maharashtra, January 22, 1992, C.R. Patil HCIO 40783 (p.p.)

Distribution: India (Maharashtra, Tamil Nadu).

Based on the morphology of the ascospores, the present species is close to *Meliola mephitidae* Yamam., *M. eveae* Stev. and *M. imperspicua* Deight. However, more scattered hyphopodia with entire, angular to sublobate head cells distinguishes the present species.

305. *Meliola pterocarpi* Yates, Philippine J. Sci. 13: 235, 1918; Hansf., Sydowia Beih. 2: 299, 1961; Hosag., Dayal & Goos, Mycotaxon 46: 208, 1993.

Colonies amphigenous, mostly epiphyllous, dense, up to 3 mm in diam., rarely confluent. Hyphae substraight to flexuous, branching opposite at acute angles, loosely to closely reticulate, cells 18-31 x 6-9.5 μm . Hyphopodia alternate, straight to curved, antrorse to reflexed, 15-18 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm ; head cells globose to obovoid, entire to rarely slightly angulose, 12-16 x 12-15.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 7-9.5 μm . Mycelial setae mostly grouped around perithecia, simple, straight, obtuse at the apex, up to 300 μm long. Perithecia scattered, globose, up to 168 μm in diam.; ascospores obovoidal, 4-septate,

slightly constricted at the septa, 40-43.5 x 15-18.5 μm .

Materials examined: On leaves of seedlings of *Pterocarpus marsupium* Roxb. (Fabaceae), Sampaje forest nursery, Sampaje, Kodagu, Karnataka, December 22, 1991, B.R. Dayal HClO 30835.

Distribution: India (Karnataka), Borneo, Philippines, Sumatra.

The Indian collection differs from the species description in having slightly larger hyphopodia, larger head cells and larger mycelial setae.

306. *Meliola pterospermi* Stev. var. *microspora* Hosag. & Raghu, New Botanist 20: 70, 1993.

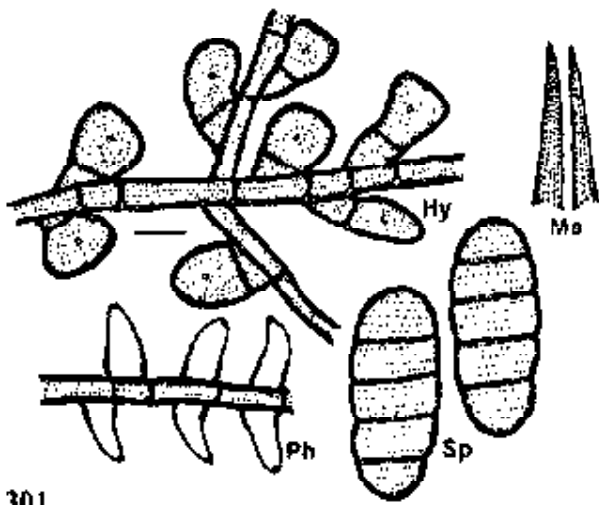
Colonies epiphyllous, dense, crustose to velvety, up to 2 mm in diameter, confluent. Hyphae mostly substraight, rarely crooked, branching opposite to irregular at acute to wide angles, closely reticulate, cells 18-22 x 6-8 μm . Hyphopodia alternate, 5-10% opposite, antrorse, subantrorse to cuneate, 3-9.5 μm long; head cells ovate to globose, entire to angular in young colonies while irregularly sublobate in mature colonies, 15-18.5 x 12-18.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, rarely neck elongated, 15-25 x 6-9.5 μm . Mycelial setae scattered, straight, simple, acute to obtuse at the tip, up to 500 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Pterospermum reticulatum* Wight & Arn. (Sterculiaceae), Gersoppa, Karnataka, October 21, 1992, P.A. Raghu HClO 40982 (type).

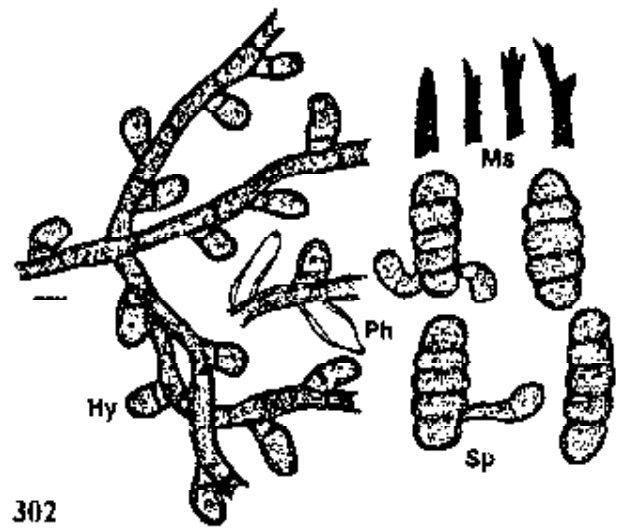
Distribution: India (Karnataka).

307. *Meliola pudukadensis* Hosag., Sydowia 40: 119, 1987.

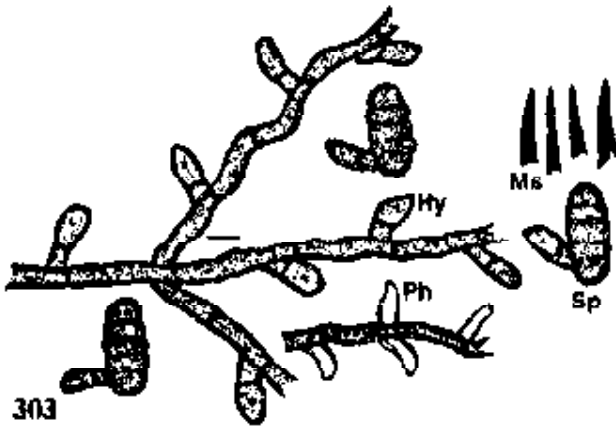
Colonies epiphyllous, thin to subdense, up to 3 mm in diameter. Hyphae straight to crooked, branching opposite, alternate to irregular at wide angles, loosely reticulate, cells 37-46.5 x 9-12.5 μm . Hyphopodia alternate to unilateral, straight to curved, subantrorse to spreading, 21.5-28 μm long; stalk cells cylindrical to cuneate, 6-7 μm long; head cells ovate to globose, straight to curved, entire to slightly angulose, 15.5-21.5 x 9-12.5 μm . Phialides mixed with hyphopodia, mostly alternate, ampulliform, 21.5-25 x 9-12.5 μm . Mycelial setae



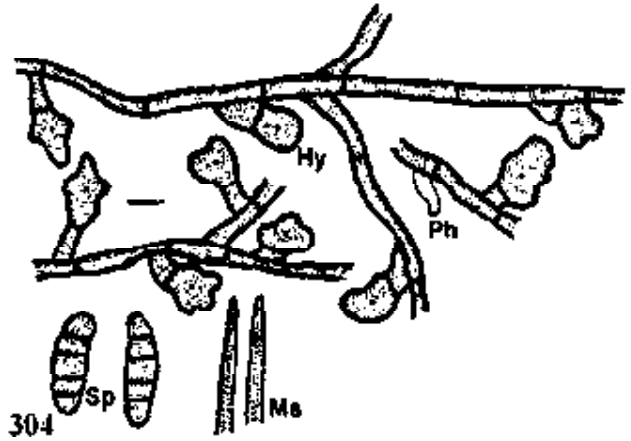
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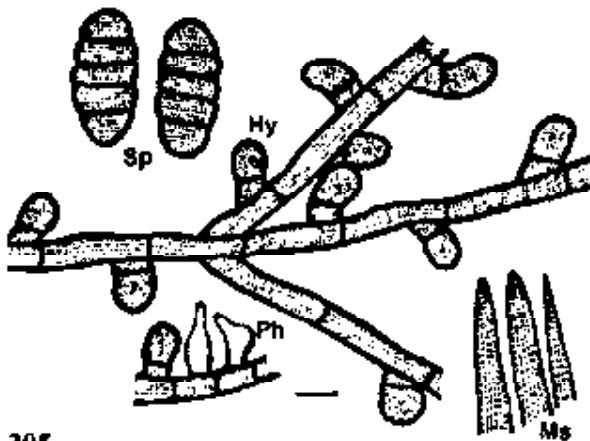
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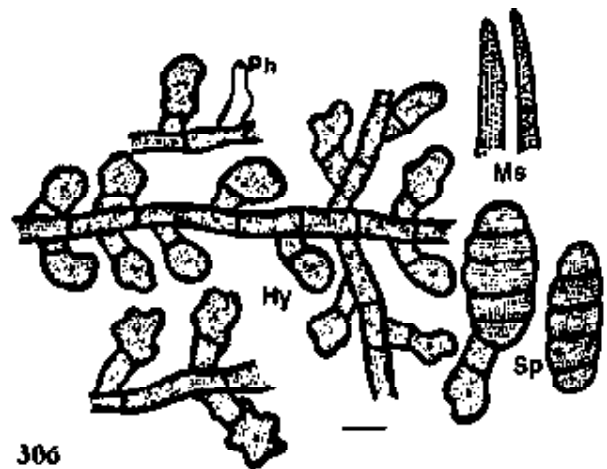
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304



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306

301. *Meliola polytricha* Kalch. & Cooke 302. *M. prennicola* Hosag. 303. *M. psychotriae* Earle 304. *M. psychotriae-nudiflorae* Hosag. 305. *M. pterocarpi* Yates 306. *M. pteraspermi* Stev. var. *microspora* Hosag. & Raghu

scattered, simple, straight, acute to obtuse at the tip, up to 860 μm long. Perithecia scattered, verrucose, up to 186 μm in diam.; ascospores obovate, 4-septate, constricted, 49.5-52.5 x 18-21.5 μm .

Materials examined: On *Litsea* sp. (Lauraceae), Sheikalmudy, Anamalai, Tamil Nadu, January 17, 1987, V.B. Hosagoudar HCIO 39315 (type).

Distribution: India (Tamil Nadu).

308. *Meliola pulchella* Speg. var. *syzygii* Hosag. in Hosag. & Goos, Mycotaxon 42: 136, 1991.

Colonies epiphyllous, very thin, diffused. Hyphae substraight to flexuous, branching alternate to irregular at acute angles, loosely reticulate, cells 27-45 x 6-8 μm . Hyphopodia alternate, straight to curved, antrorse to recurved, rarely flexuous to crooked, 21-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, globose, entire to slightly and irregularly sublobate, 15-18.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-28 x 9-12.5 μm . Mycelial setae very few, straight, acute to obtuse at the apex, up to 300 μm long. Perithecia scattered, up to 170 μm in diam.; ascospores obovoidal to ellipsoidal, 3-septate, mostly curved, 43-50 x 15-17 μm .

Materials examined: On leaves of *Syzygium laetum* (Buch.-Ham.) Gandhi (Myrtaceae), near Manambuli Power House, Coimbatore, Tamil Nadu, March 28, 1990, V.B. Hosagoudar HCIO 30558 (type).

Distribution: India (Tamil Nadu).

309. *Meliola quadrispina* Racib., Parasit. Algen und Pilze Java's 3: 33, 1900; Hansf., Sydowia Beih. 2: 646, 1961; Thite & Patil, Kavaka 10: 30, 1982; Hosag. & Goos, Mycotaxon 37: 244, 1990.

Meliola quadrifurcata Rehm, Philippine J. Sci. 8: 181, 1913; Leaf. Philippine Bot. 6: 2194, 1914.

Colonies amphigenous, caulicolous, mostly epiphyllous, dense, up to 4 mm in diameter, confluent. Hyphae undulate to tortuous, branching irregular, loosely to closely reticulate, cells 20-40 x 6-8 μm . Hyphopodia alternate to unilateral, antrorse, spreading, straight to curved, 16-24 μm long; stalk cells cylindrical to cuneate, 6-14 μm long; head cells ovate, versiform, angulose, rarely irregularly sublobate, 10-16 x 12-16 μm . Phialides mixed with hyphopodia,

alternate to opposite, ampulliform, 20-24 x 6-10 μm . Mycelial setae numerous, uniformly scattered, dichotomously branched, the first branching up to 162 μm , from first to second branching up to 24 μm long and the final branchlets up to 136 μm long, obtuse to acute at the tip. Perithecia mostly grouped, verrucose, up to 261 μm in diam.; ascospores broadly obovoidal, 4-septate, constricted, 40-50 x 14-22 μm .

Materials examined: On leaves of *Argyria speciosa* Sweet (Convolvulaceae), Radhanagari, Kolhapur, Maharashtra, January 21, 1975, M.S. Patil HCIO 31947; *A. elliptica* (Roth) Choisy, Idukki, Kerala, October 11, 1982, V.B. Hosagoudar HCIO 40555, MH 73622; *A. hookeri* Clarke, Idukki, Kerala, October 6, 1983, V.B. Hosagoudar MH 78189.

Distribution: India (Kerala, Maharashtra), Ambonia, Congo Belge, Java, Philippines.

On the members of the family Convolvulaceae, three species of the genus *Meliola* namely *M. pallida* Stev., *M. permixta* Sydow and *M. quadrispina* Racib. occur with dichotomously branched mycelial setae. But the present species is distinct from the other two in having only alternate hyphopodia. *Meliola argyreiae* Patil is quite similar to this taxon.

310. *Meliola radhanagariensis* sp. nov.

Coloniae hypophyllae, tenues, patentiae, ad 5 mm diam. Hyphae rectae vel leniter anfractuae, irregulariter acuteque ramosae, laxe reticulatae, cellulae 27-31 x 4-5 μm . Hyphopodia alternata, ad 2% opposita, antrorsa vel subantrorsa, 12-15.5 μm longa; cellula basali cylindracea vel cuneata, 3-6.5 μm longa; cellula apicali globosa, integra, raro angularia, 9-11 x 9-10 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, collum elongatus, 12-18.5 x 9-11 μm . Setae myceliales dispersae, simplices, rectae vel leniter flexuosae, obtusae ad apicem, ad 575 μm longae. Perithecia dispersa, verrucosa, ad 124 μm diam.; ascosporae oblongae, rectae vel leniter curvulae, 4-septatae, constrictae, 34-37.5 x 15-18.5 μm .

Colonies hypophyllous, thin, spreading, up to 5 mm in diameter. Hyphae substraight to slightly crooked, branching irregular at acute to wide angles, loosely reticulate, cells 27-31 x 4-5 μm . Hyphopodia alternate, about 2% opposite, antrorse to subantrorse, 12-15.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose, entire, rarely angular, 9-11 x 9-10 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, neck elongated, 12-

18.5 x 9-11 μm . Mycelial setae scattered, simple, straight to slightly flexuous, obtuse at the tip, up to 575 μm long. Perithecia scattered, verrucose, up to 124 μm in diam.; ascospores oblong, straight to slightly curved, 4-septate, constricted 34-37.5 x 15-18.5 μm .

Materials examined: On leaves of the member of Euphorbiaceae, Radhanagari, Maharashtra, November 24, 1974, M.S. Patil HCIO 36748 (type).

Distribution: India (Maharashtra).

This species is close to *Meliola luzonensis* Sydow but differs from it in having smaller hyphopodia; straight to flexuous, shorter and obtuse mycelial setae.

311. *Meliola ramacharii* Hosag., Kavaka 15: 5, 1987.

Colonies epiphyllous, each on black leaf spots, subdense to dense, up to 2 mm in diameter. Hyphae straight to substraight, branching mostly opposite at wide angles, loosely reticulate, cells 21.5-28 x 9-12.5 μm . Hyphopodia alternate, mostly antrorse, rarely spreading, straight to curved, 18.5-25 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, versiform to cylindrical, entire, straight to slightly curved, 15.5-18.5 x 12.5-15.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15.5-31 x 7.5-9.5 μm . Mycelial setae few, grouped around perithecia, straight, simple, acute to obtuse, up to 500 μm . Perithecia scattered, verrucose, up to 130 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 37-40.5 x 15.5-18.5 μm .

Materials examined: On leaves of *Persea macrantha* (Nees) Kosterm. (Lauraceae), April 17, 1987, Pudukadu, Valparai, Coimbatore, Tamil Nadu, V.B. Hosagoudar HCIO 39316 (type).

Distribution: India (Tamil Nadu).

312. *Meliola ramosii* Sydow & Sydow, Ann. Mycol. 12: 552, 1914; Ann. Mycol. 15: 191, 1917; Hansf., Sydowia Beih. 2: 226, 1961; Hosag. & Goos, Mycotaxon 37: 244, 1990.

Colonies epiphyllous, thin, up to 5 mm in diameter, confluent. Hyphae straight to slightly undulate, branching opposite at acute angles, loosely reticulate, cells 22-32 x 6-8 μm . Hyphopodia alternate, straight to slightly bent, antrorse to spreading, 14-20 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells ovate to subglobose, slightly angulose, entire, 10-14 x 10-12 μm . Phialides

fairly numerous, mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 6-8 μm . Mycelial setae scattered to grouped around perithecia, straight, *pl.* obtuse at the tip, up to 243 μm long. Perithecia scattered, verrucose, up to 162 μm in diam.; ascospores oblong, 4-septate, slightly constricted, 32-36 x 12-16 μm .

Materials examined: On leaves of *Homonoia riparia* Lour. (Euphorbiaceae), Panamkutty, Idukki, Kerala, December 12, 1982, V.B. Hosagoudar HCIO 40556, MH 75810; Pooyankutty, Kerala, June 16, 1983, V.B. Hosagoudar MH 79020; Panamkutty, Kerala, June 16, 1983, V.B. Hosagoudar MH 79020; Panamkutty, Idukki, Kerala, October 10, 1984, A. Diraviadoss MH 82609.

Distribution: India (Karnataka, Kerala), Philippines.

313. *Meliola randlicola* Hansf., Sydowia 10: 87, 1957; Sydowia Beih. 2: 589, 1961.

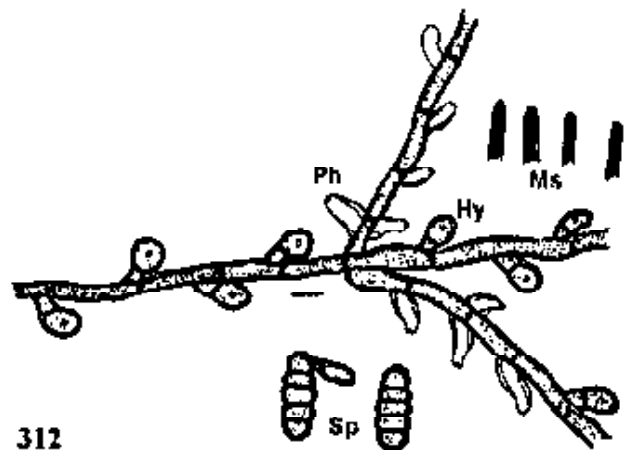
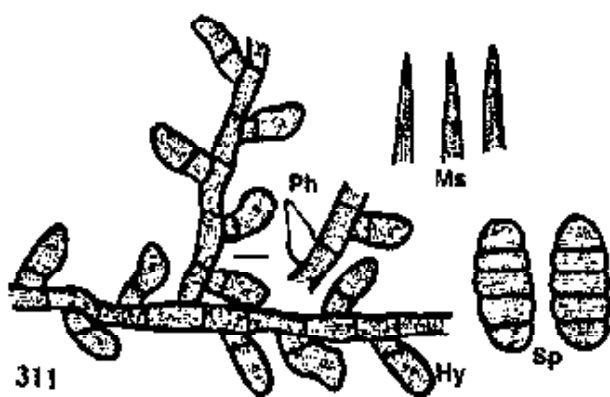
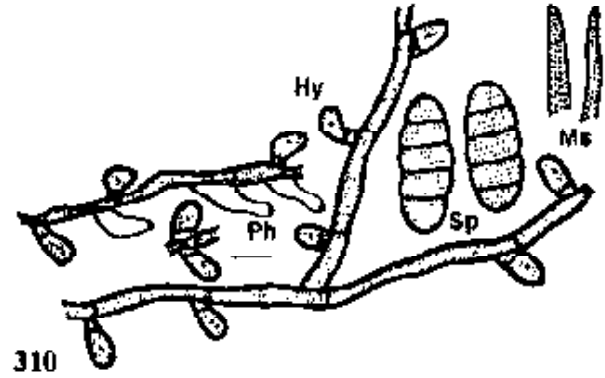
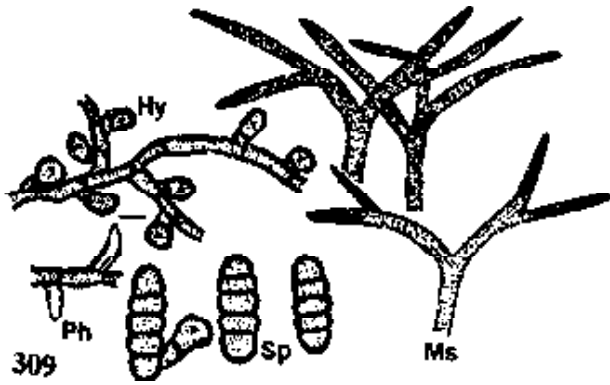
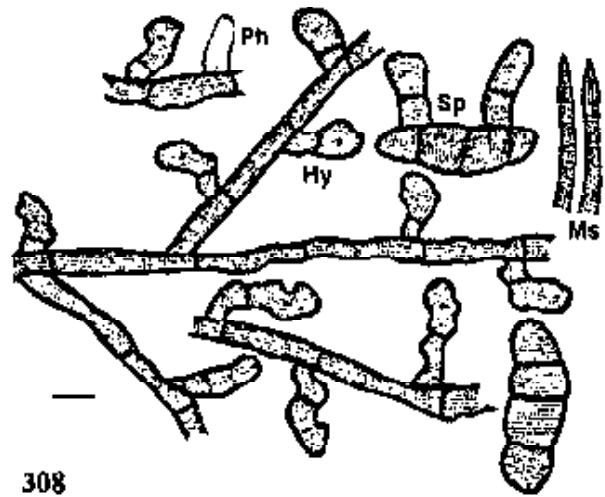
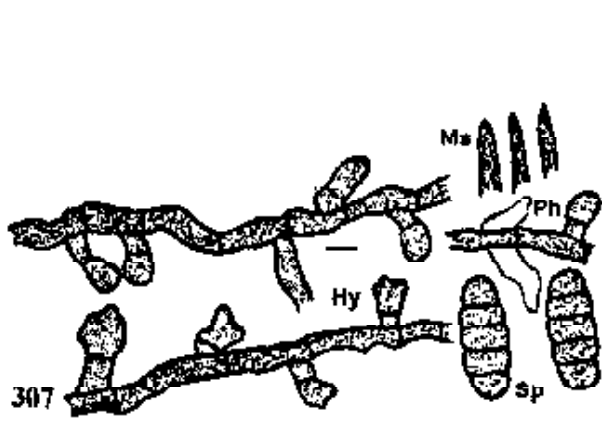
Colonies amphigenous, dense, up to 5 mm in diameter, confluent. Hyphae more or less straight, branching mostly opposite at acute to wide angles, closely reticulate, cells 21-25 x 9-10 μm . Hyphopodia opposite, crowded, antrorse to subantrorse, 18-22 μm long; stalk cells cylindrical to cuneate, 6-8 μm long; head cells ovate to cylindrical, rounded to rarely truncate at the apex, entire, 12-15.5 x 9-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-25 x 6-9.5 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute at the apex, up to 886 μm long. Perithecia scattered, verrucose, up to 190 μm in diam.; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 43-46.5 x 17-18.5 μm .

Materials examined: On leaves of *Ixora coccinea* L. (Rubiaceae), Navale, Sangli, Maharashtra, January 22, 1992, C.R. Patil HCIO 40733 (p.p.); *I. brachiata* Roxb. ex DC., Amboli, Maharashtra, March 1992, C.R. Patil HCIO 40729 (p.p.).

Distribution: India (Maharashtra), Java.

314. *Meliola rangathanii* Hansf., Proc. Linn. Soc. London 151: 185, 1946; Sydowia Beih. 2: 147, 1961.

Colonies amphigenous, dense, up to 3 mm in diameter, confluent. Hyphae straight to slightly undulate, branching alternate to opposite at acute angles, closely reticulate, cells 9-18.5 x 9-10 μm . Hyphopodia alternate, antrorse to



307. *Meliola pudukadensis* Hosag. 308. *M. pulchella* Speg. var. *syzygii* Hosag.
 309. *M. quadrispina* Racib. 310. *M. radhanagariensis* Hosag. 311. *M. ramacharii*
 Hosag. 312. *M. ramosii* Sydow

subantrorse, straight to slightly curved, 21-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells oblong to cylindrical, rarely ovate, 15-18.5 x 8-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 6-8 μm . Mycelial setae few, scattered, simple, straight, acute at the apex, up to 365 μm long. Perithecia scattered, up to 180 μm in diam.; ascospores cylindrical, 4-septate, 38-46.5 x 16-18.5 μm .

Materials examined: On leaves of *Eugenia* sp. (Myrtaceae), South Canara, Karnataka, March 27, 1913, T.R. Ranganath HCIO 10399 (type).

Distribution: India (Karnataka).

315. *Meliola rapaneae* Sydow var. *microspora* V.B. Hosagoudar et R. Ganesan, var. nov.

Differt a var. *rapaneae* hyphopodiis, setis myceliales et ascosporis brevioribus.

Colonies hypophyllous, dense to subdense, subvelvety, spreading and covering most of the leaf surface. Hyphae straight to substraight, branching irregular at acute to wide angles, loosely to closely reticulate, cells 18-25 x 6-8 μm . Hyphopodia alternate and about 10% opposite, straight to curved, subantrorse to antrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 5-6.5 μm long; head cells ovate, obovate, cylindrical, globose, entire to angular, often truncate at the apex, 9-12 x 9-13 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, often neck elongated, 15-18.5 x 6-7 μm . Mycelial setae scattered to grouped around perithecia, straight, simple, acute to obtuse at the tip, up to 520 μm long. Perithecia scattered, verrucose, up to 220 μm in diam.; ascospores obovoidal, 4-septate, constricted, rarely slightly curved, 46-50 x 12-15.5 μm .

Materials examined: On leaves of *Rapanea wightiana* (Wall. ex DC.) Mez (Myrsinaceae), Kakkachi forest, Kalakad, Tirunelveli, Tamil Nadu, April 22, 1993, R. Ganesan HCIO 41126 (type).

Distribution: India (Tamil Nadu).

Meliola australis Hino & Katumoto and *M. rapaneae* Sydow have been reported on this host genus. The present collection is close to *M. rapaneae* Sydow in having only hypophyllous colonies. However, the new variety differs from the

var. *rapaneae* in having smaller hyphopodia, shorter mycelial setae and smaller ascospores.

316. *Meliola reevesiae* Maity, Indian J. Mycol. Res. 16: 23, 1982.

Colonies amphigenous, mostly epiphyllous, up to 3 mm in diameter. Hyphae straight to substraight, branching opposite to irregular at acute angles, loosely reticulate, cells 18-39 x 7-12 μ m. Hyphopodia alternate, straight, antrorse, 18-34 μ m long; stalk cells cuneate, 3-9.5 μ m; head cells ovate, pyriform, entire, 15-25 x 12-15.5 μ m. Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 21-25 x 12-15.5 μ m. Mycelial setae mostly grouped around perithecia, simple, straight, acute to obtuse, up to 650 μ m. Perithecia scattered, verrucose, up to 186 μ m in diam.; ascospores oblong, cylindrical, 4-septate, constricted, 42-51 x 18-24 μ m.

Materials examined: On leaves of *Reevesia pubescens* Mast. (Sterculiaceae), Sukhiapokhari, Darjeeling, West Bengal, August 17, 1977, M.K. Maity IMI 224589 (type).

Distribution: India (West Bengal).

317. *Meliola reinwardtioidendri* sp. nov.

Coloniae epiphyllae, densae, crustosae, ad 5 mm diam. Hyphae rectae, opposite vel irregulariter acuteque vel laxe ramosae, dense reticulatae, cellulae 15-18.5 x 7-9.5 μ m. Hyphopodia opposita, raro solitaria, subantrorsa vel antrorsa, 18-22 μ m longa; cellula basali cylindracea vel cuneata, 3-6.5 μ m longa; cellula apicali ovata, cylindracea, rotunda vel truncata ad apicem, integra vel angulosa, plerumque recta, raro curvula, 14-16 x 12-14 μ m. Phialides illis commixta, conoidea, 18-22 x 6-8 μ m. Setae myceliales paucae, dispersae vel aggregatae circa peritheciae, rectae, flexuosae, curvatae, uncinatae, obtusae ad apicem, ad 360 μ m longae. Perithecia dispersa, verrucosa, ad 155 μ m diam.; ascospores obovoideae, 4-septatae, leniter constrictae, 42-45 x 18-22 μ m.

Colonies epiphyllous, dense, crustose, up to 5 mm in diameter. Hyphae straight, branching opposite to irregular at acute to wide angles, closely reticulate, cells 15-18.5 x 7-9.5 μ m. Hyphopodia opposite, rarely solitary, subantrorse to antrorse, 18-22 μ m long; stalk cells cylindrical to cuneate, 3-6.5 μ m long; head cells ovate, cylindrical, rounded to truncate at the tip, entire to angular, mostly straight, rarely curved, 14-16 x 12-14 μ m. Phialides mixed with hyphopodia, conoid, 18-22 x 6-8 μ m. Mycelial setae not numerous, scattered to grouped

around perithecia, straight, flexuous, curved, uncinata, obtuse at the tip, up to 360 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 42-45 x 18-22 μm .

Materials examined: On leaves of *Reinwardtiadendron anamallayanum* (Bedd.) Saldana (Meliaceae), Varagaliar, Anamalai, Coimbatore, Tamil Nadu, March 12, 1994, V.B. Hosagoudar HCIO 41553 (type).

Distribution: India (Tamil Nadu).

The present collection is close to *Meliola obvallata* Sydow and *M. dysoxyl-nitidi* Huguenin var. *major* Huguenin (Hansford, 1961; Huguenin, 1969) in having straight to uncinata mycelial setae. However, the present new species differs from both in having opposite hyphopodia.

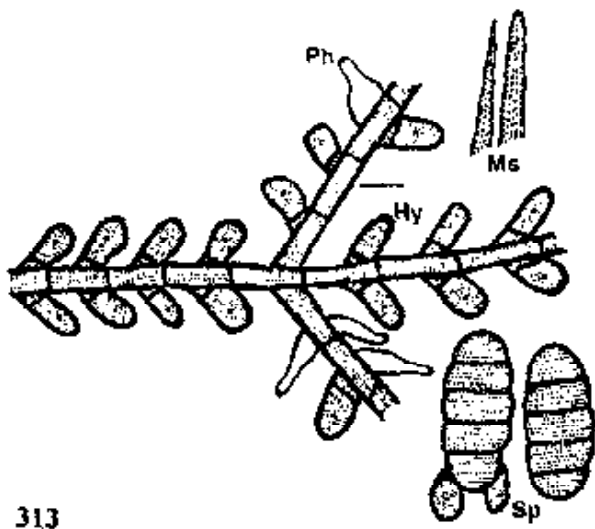
318. *Meliola rickiana* Hansf. var. *zanthoxyli* Hosag. in Hosag. & Goos, Mycotaxon 37: 245, 1990; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 113, 1994.

Colonies amphigenous, mostly hypophyllous, subdense, up to 4 mm in diameter, confluent. Hyphae mostly straight, branching mostly opposite, rarely alternate at acute angles, closely reticulate, cells 12-22 x 8-10 μm . Hyphopodia alternate, about 10% opposite, straight to curved, antrorse to spreading, 20-22 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells ovate, versiform, often angular, straight to curved, entire, 14-16 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, mostly ampulliform, 18-20 x 8-10 μm . Mycelial setae numerous, straight, acute to 2-3 dentate at the apex, up to 810 μm long. Perithecia mostly grouped, verrucose, up to 200 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 36-40 x 16-18 μm .

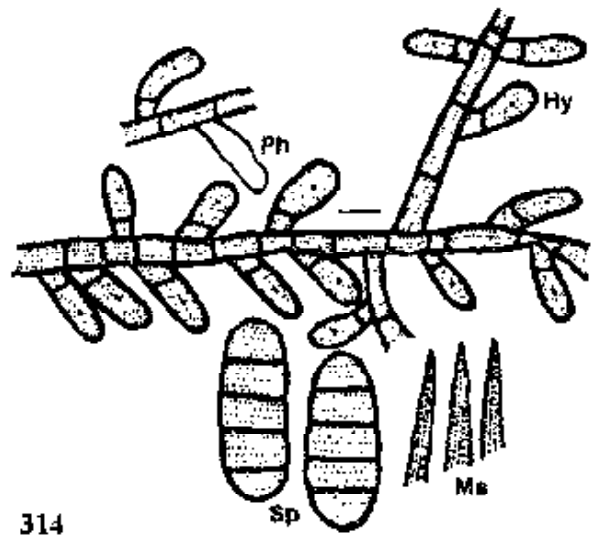
Materials examined: On leaves of *Zanthoxylum ovata* Wight (Rutaceae), Lakshmi Estate, Idukki, Kerala, August 12, 1983, V.B. Hosagoudar HCIO 40557 (type), MH 75082 (isotype); October 6, 1983, V.B. Hosagoudar MH 78181, 79091; *Z. ovalifolium* Wight, Seithur hills, Kamarajar dist., Tamil Nadu, November 7, 1992, V.B. Hosagoudar HCIO 40875.

Distribution: India (Tamil Nadu, Kerala).

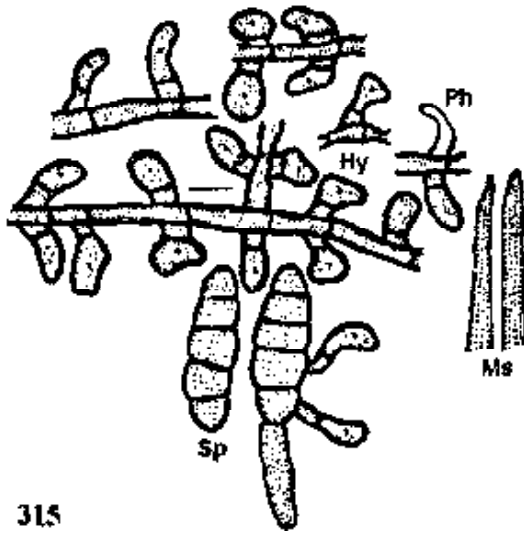
319. *Meliola roureae* Sydow var. *major* Hansf. & Deight, Mycol. Pap. 23: 48, 1948; Hansf., Sydowia Beih. 2: 475, 1961; Hosag., Nova Hedwigia 52: 501, 1991.



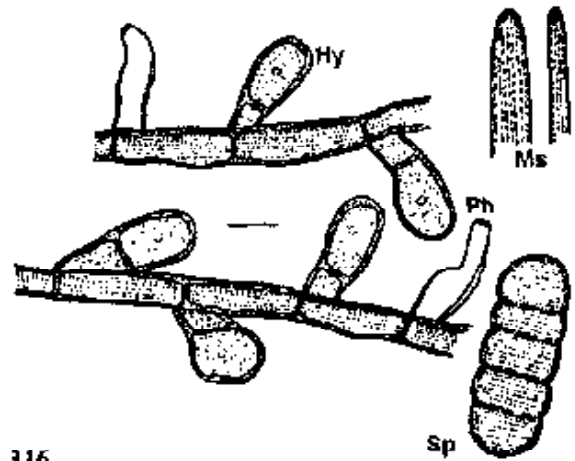
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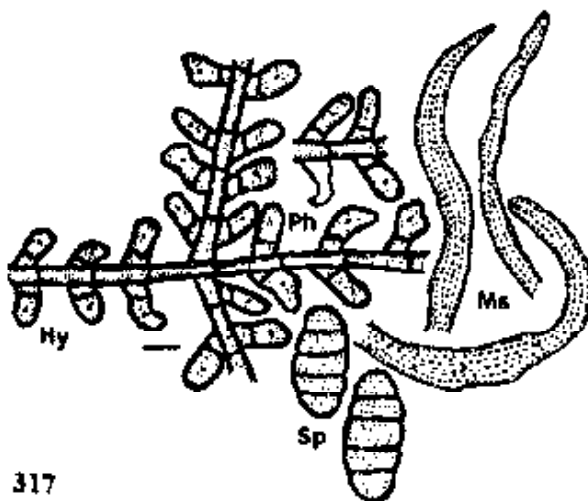
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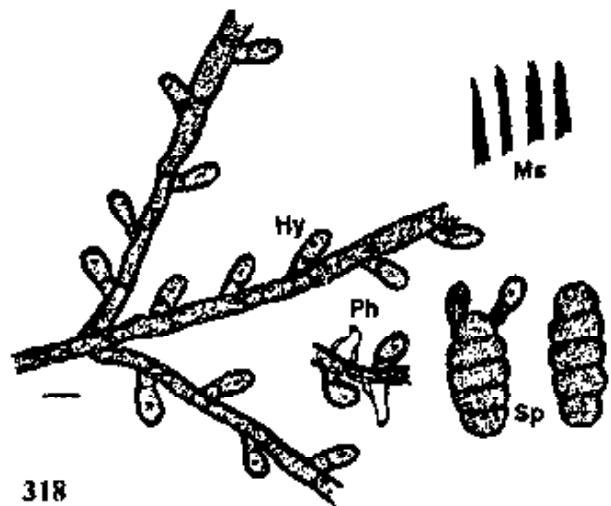
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313. *Meliola randiicola* Hansf. 314. *M. ranganahtii* Hansf. 315. *M. rapanae* Sydow var. *microspora* Hosag. & Ganesan 316. *M. reevesiae* Maity 317. *M. reinwardtioidendri* Hosag. 318. *M. rickiana* Hansf. var. *zanthaxyl*i Hosag.

Colonies epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae straight, substraight to tortuous, branching opposite to irregular at wide angles, loosely reticulate, cells 12-33 x 8-9.5 μm . Hyphopodia alternate, often distantly arranged, antrorse to retrorse, 27-31 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells straight to curved, ovate, globose, entire to angular, 18-21 x 10-18.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-31 x 9-12.5 μm . Mycelial setae numerous, simple, straight, acute to obtuse at the tip, up to 930 μm long. Perithecia scattered, up to 200 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 43-53 x 18-21.5 μm .

Materials examined: On leaves of *Connarus wightii* Hook.f. (Connaraceae), on the way to Nooradi Settlement, Valparai, Coimbatore, Tamil Nadu, March 23, 1990, V.B. Hosagoudar HCIO 30395.

Distribution: India (Tamil Nadu), Sierra Leone.

320. *Meliola rubi* Stev. & Rold. ex Hansf. var. *garhwalensis* (Srivastava & Topal) Hosag. & Balakr. in Hosag., Patil & Balakr., J. Econ. Tax. Bot. 13: 81. 1989.

Meliola garhwalensis Srivastava & Topal, Geophytology 11: 264, 1981.

Colonies epiphyllous, dense, crustose, up to 2 mm in diameter. Hyphae straight to substraight, branching opposite, alternate to irregular at acute angles, closely reticulate and solid at the centre, cells 15.5-18.5 x 9-12.5 μm . Hyphopodia opposite and alternate, antrorse, 18.5-21.5 μm long; stalk cells mostly cuneate, 6-9.5 μm long; head cells globose, ovate, entire, angular to rarely lobate, 12-15.5 μm . Phialides few, mixed with hyphopodia, alternate to opposite, ampulliform, 18.5-21.5 x 9-12.5 μm . Mycelial setae densely scattered, straight, simple, acute to obtuse at the tip, up to 550 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores obovoidal to ellipsoidal, 4-septate, constricted at the septa, 46-55 x 15-19 μm .

Materials examined: On leaves of *Pyracantha crenulata* Roem. (Rosaceae), Pauri, Garhwal, Uttar Pradesh, April 24, 1981, S.L. Srivastava IMI 257869 (type)

Distribution: India (Uttar Pradesh).

321. *Meliola rubiella* Hansf., Sydow Beih. 1: 115, 1957; Sydowia Beih. 2: 240, 1961; Kapoor, Indian Phytopathol. 20: 158, 1967.

Colonies mostly epiphyllous, thin, up to 3 mm in diameter. Hyphae substraight to undulate, branching opposite at wide angles, loosely reticulate, cells 20-28 x 4-6 μm . Hyphopodia alternate, more or less antrorse, 12-16 μm long; stalk cells cylindrical to cuneate, 4-5 μm long; head cells ovate to subglobose, mostly entire, rarely slightly angulose, 12-14 x 10-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 13-18 x 4-6 μm . Mycelial setae mostly grouped around perithecia, straight, simple, acute to obtuse, up to 350 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores oblong, 4-septate, constricted, 32-36 x 10-12 μm .

Materials examined: On leaves of *Rubus* sp. (Rosaceae), Senghila, Sikkim, April 14, 1962, J.N. Kapoor HCIO 28365; *R. ellipticus* Smith, Kalipong, Sikkim, April 19, 1951, J.N. Kapoor HCIO 26605.

Distribution: India (Sikkim), Philippines.

The colonies of *M. rubiella* were mixed with *Appendiculella calostroma* (Desm.) Hohnel.

322. *Meliola rubiella* Hansf. var. *indica* var. nov.

Differt a var. *rubiella* hyphis myceliales rectis, anfractus vel flexuosis et ascosporis longioribus.

Colonies epiphyllous, very thin, up to 4 mm in diam., rarely confluent. Hyphae straight, flexuous to crooked, branching opposite at acute angles, loosely reticulate, cells 30-37 x 6-9.5 μm . Hyphopodia alternate, about 1% opposite, mostly antrorse, 12-18.5 μm long; stalk cells cylindrical to cuneate, 4-9.5 μm ; head cells globose, entire, 8-9.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 9-11 μm . Mycelial setae very few, grouped around perithecia, simple, straight, obtuse at the apex, rarely curved, up to 155 μm ; ascospores cylindrical, 4-septate, slightly constricted at the septa, 37-41. x 12-14 μm .

Materials examined: On leaves of *Rubus niveus* Thunb. (Rosaceae), Veerapuli Reserve Forest, Kanniyakumari, Tamil Nadu, February 22, 1994, V.B. Hosagoudar HCIO 41640 (type p.p.).

Distribution: India (Tamil Nadu).

The new variety differs from the var. *rubiella* in having straight to flexuous hyphae and longer ascospores.

323. *Meliola sacchari* Sydow, Ann. Mycol. 12: 548, 1914; Hansf., Sydowia Beih. 2: 741, 1961.

Colonies amphigenous, mostly epiphyllous, subdense, velvety, up to 2 mm in diameter, confluent. Hyphae straight to crooked, branching mostly opposite at wide angles, loosely to closely reticulate, cells 18-22 x 6-8 μm . Hyphopodia alternate, antrorse to subantrorse, 21-37 μm long; stalk cells cylindrical to cuneate, 15-18.5 μm long; head cells globose, mostly angular, rarely slightly lobate, 12-18.5 x 15-18.5 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 15-22 x 6-9.5 μm . Mycelial setae numerous, scattered to grouped around perithecia, 2-3 times furcate and dentate at the apex, up to 572 μm long. Perithecia scattered, verrucose, up to 186 μm in diam.; ascospores slightly ellipsoidal to cylindrical, 4-septate, slightly constricted at the septa, 43-46.5 x 12-15.5 μm .

Materials examined: On leaves of *Saccharum spontaneum* L. (Poaceae), Subprovince Ifugo, Luzon, February 1913, R.C. Mcgregor HCIO 3367.

Distribution: India (Maharashtra), Philippines.

Since Indian collection was not available for the present study, the description and illustrations are based on the Luzon material.

324. *Meliola salaciae* Hansf., Proc. Linn. Soc. London 157: 182, 1946; Sydowia Beih. 2: 346, 1961.

Colonies epiphyllous, rarely amphigenous, thin to subdense, up to 3 mm in diameter. Hyphae straight to slightly undulate, branching opposite at wide angles, loosely reticulate, cells 15-20 x 6-7 μm . Hyphopodia alternate and about 20% opposite, usually antrorse, straight to curved, 14-18 μm long; stalk cells cylindrical to cuneate, 3-6 μm long; head cells ovate, entire, 10-14 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 12-20 x 6-9 μm . Mycelial setae scattered, straight, simple, acute, obtuse to dentate, up to 480 μm . Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores oblong, 4-septate, constricted, 36-43 x 13-15 μm .

Materials examined: On leaves of *Salacia* sp. collected by M.J. Thirumalachar from Karnataka. Indian material was not available for the present study and the description is based on Hansford (1961).

Distribution: India (Karnataka), Sierra Leone, Uganda.

325. *Meliola salleana* Hansf. var. *smilacis* Hosag. in Hosag. & Goos, *Mycotaxon* 37: 245, 1990.

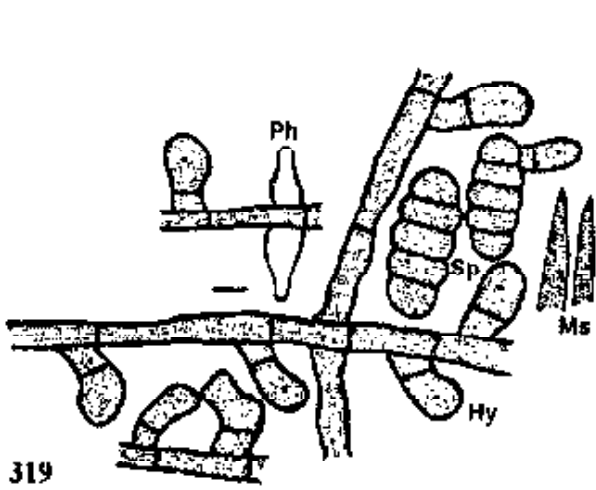
Colonies amphigenous, mostly epiphyllous, subdense, up to 4 mm in diameter, rarely confluent. Hyphae straight, branching opposite at acute angles, loosely to closely reticulate, cells 10-30 x 6-9 μm . Hyphopodia alternate, straight, antrorse, 18-32 μm long; stalk cells cuneate, 5-14 μm long; head cells ovate, bluntly pointed, entire, 12-16 x 8-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-28 x 8-12 μm . Mycelial setae mostly grouped around perithecia, straight, simple, acute at the apex, up to 855 μm long. Perithecia scattered, verrucose, up to 198 μm in diam.; ascospores obovoidal, 4-septate, constricted, 42-50 x 18-20 μm .

Materials examined: On leaves of *Smilax zeylanica* L. (Smilacaceae), Idukki, Kerala, January 11, 1982, V.B. Hosagoudar HCIO 40558 (type), MH 72660 (isotype); December 24, 1983, V.B. Hosagoudar MH 79066; February 23, 1984, V.B. Hosagoudar MH 80365.

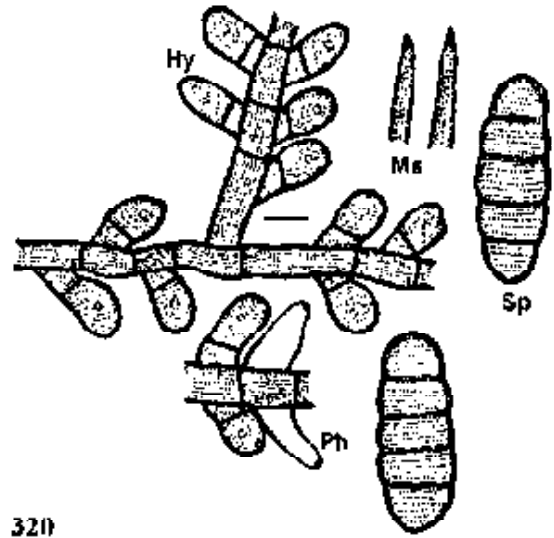
Distribution: India (Kerala).

326. *Meliola sarcostigmatis* Hosag. in Hosag. & Goos, *Mycotaxon* 37: 246, 1990 (*sarcostigmae*).

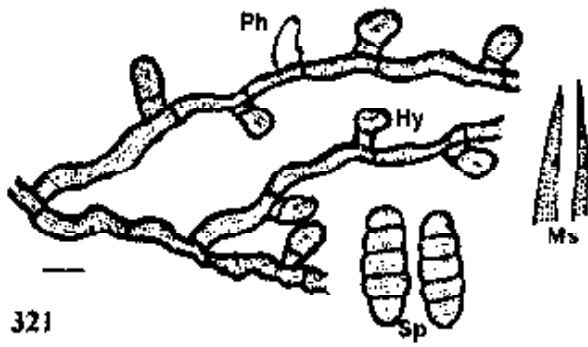
Colonies hypophyllous, dense, velvety, up to 5 mm in diameter, rarely confluent. Hyphae substraight to undulate, branching mostly opposite at wide angles, closely reticulate, cells 24-32 x 6-10 μm . Hyphopodia alternate, about 10% opposite, straight to curved, antrorse, spreading, 14-24 μm long; stalk cells cylindrical to cuneate, 4-10 μm long; head cells ovate, globose, entire, 10-14 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 22-26 x 6-10 μm . Mycelial setae numerous, scattered, straight, simple, acute to obtuse at the tip, up to 468 μm long. Perithecia scattered, surface cells projecting, up to 170 μm in diam.; ascospores obovoid, 4-septate, constricted, 38-44 x 14-16 μm .



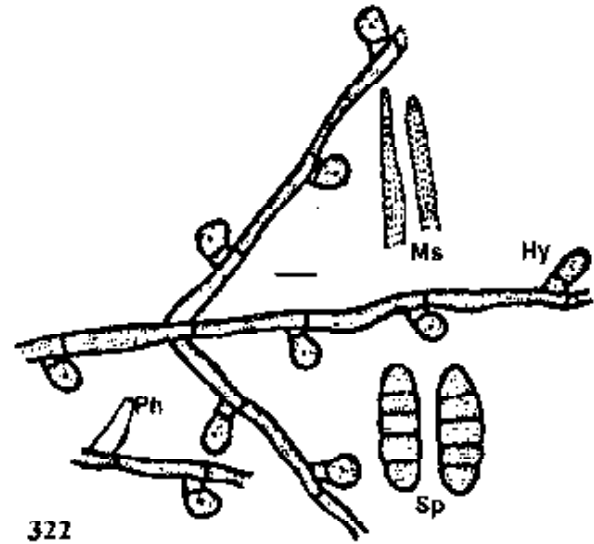
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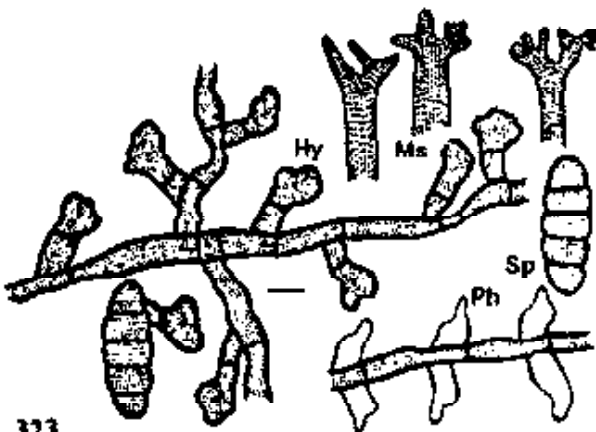
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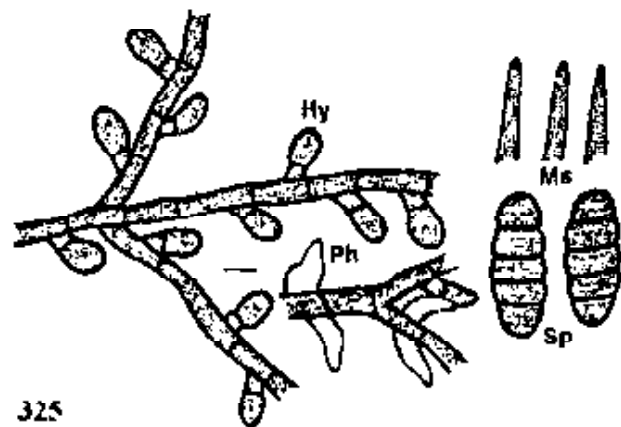
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319. *Meliola roureae* Sydow var. *major* Hansf. & Deight. 320. *M. rubi* Stev. & Rold. ex Hansf. var. *garhwalensis* (Srivastava & Topal) Hosag. & Balakr. 321. *M. rubiella* Hansf. 322. *M. rubiella* Hansf. var. *indica* Hosag. 323. *M. sacchari* Sydow 325. *M. salleana* Hansf. var. *smilacis* Hosag.

Materials examined: On leaves of *Sarcostigma kleinii* Wight & Arn. (Icacaceae), Idukki, Kerala, February 18, 1983, V.B. Hosagoudar HCIO 40561 (type), MH 75835 (isotype).

Distribution: India (Kerala).

327. *Meliola scleropyri* Hosag. in Hosag. & Goos, Mycotaxon 37: 247, 1990.

Colonies amphigenous, mostly hypophyllous, dense, velvety, up to 4 mm in diameter, confluent. Hyphae substraight to slightly undulate, branching opposite to irregular at acute angles, loosely reticulate, cells 10-14 x 6-8 μm . Hyphopodia alternate to unilateral, subantrorse to antrorse, 22-28 μm long; stalk cells mostly cuneate, 8-13 μm long; head cells ovate, pyriform, entire, 13-18 x 12-14 μm . Phialides few, mixed with hyphopodia, alternate to opposite, ampulliform, 18-20 x 8-10 μm . Mycelial setae numerous, grouped around perithecia, straight, simple, acute to obtuse at the tip, up to 280 μm long. Perithecia scattered to grouped, verrucose, up to 153 μm in diam.; ascospores obovate, 4-septate, constricted, 32-36 x 11-12 μm .

Materials examined: On leaves of *Scleropyrum pentandrum* (Dennst.) Mabberey (*S. wallichianum* (Wight & Arn.) Arn.) (Santalaceae), Calvary Mount, Idukki, Kerala, April 25, 1982, V.S. Raju HCIO 40563 (type), MH 73771 (isotype); February 21, 1983, V.B. Hosagoudar MH 75880; February 25, 1983, V.B. Hosagoudar MH 75024; February 24, 1984, M. Ali MH 80373.

Distribution: India (Kerala).

328. *Meliola scolopiae* Doidge var. *indica* var. nov.

Differt a var. *scolopiae* hyphopodiis 1% oppositis, dense positis et brevibus.

Colonies amphigenous, carbonaceous black, dense, velvety, up to 2 mm in diameter, confluent. Hyphae straight to crooked, branching irregular at acute angles, very closely reticulate and form solid mycelial mat, cells 12-18.5 x 6-9.5 μm . Hyphopodia alternate, about 1% opposite, antrorse, spreading, 31-46.5 μm long; stalk cells cylindrical to cuncate, 12-18.5 μm long; head cells globose, irregularly and deeply stellately lobate, 15-22 x 18-25 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 12-15.5 μm . Mycelial setae densely scattered, simple, straight, obtuse at the tip, up to 500 μm long. Perithecia scattered, verrucose, up to 235 μm in diam.; ascospores fusiform,

straight but mostly curved, 3-septate, slightly constricted at the septa, 52-59 x 18-22 μm .

Materials examined: On leaves of *Scolopia crenata* (Flacourtiaceae), Veerapuli Reserve Forest, Kanniyakumari dist., Tamil Nadu, February 22, 1994, V.B. Hosagoudar HCIO 41616 (type).

Distribution: India (Tamil Nadu).

The new variety differs from the var. *scolopiae* in having 1% opposite densely arranged and smaller hyphopodia.

329. *Meliola semecarpi-anacardii* Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 114, 1994.

Colonies epiphyllous, dense, crustose, up to 3 mm in diameter. Hyphae straight, branching opposite at acute to wide angles, closely reticulate and form dense mycelial mat, cells 15-18.5 x 6-9.5 μm . Hyphopodia alternate, antrorse to subantrorse, 18-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovoid to globose, entire to angular, 12.5-18.5 x 12-15.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 9-12.5 μm . Mycelial setae numerous, simple, straight, acute at the tip, up to 500 μm long. Perithecia scattered to loosely grouped, verrucose, up to 250 μm in diam; ascospores obovoidal, 4-septate, deeply constricted at the septa, 49-56 x 21-25 μm .

Materials examined: On leaves of *Semecarpus anacardium* L.f. (Anacardiaceae), Dakhina Kannada, Mangalore, Karnataka, November 24, 1992, P.A. Raghu HCIO 40877 (type).

Distribution: India (Karnataka).

330. *Meliola semecarpicola* Hansf., Sydowia 11: 58, 1958; Sydowia Beih. 2: 470, 1961; Hosag. & Goos, Mycotaxon 37: 248, 1990.

Colonies amphigenous. Epiphyllous colonies small, thin, scattered, up to 2 mm in diameter. Hyphae straight, branching opposite at acute angles, closely reticulate and forming almost solid mycelial mat, cells 12-24 x 6-8 μm . Hyphopodia alternate, antrorse, closely arranged. Hypophyllous colonies dense, velvety, up to 4 mm in diameter, confluent. Hyphae substraight to tortuous, branching opposite at acute angles, loosely reticulate, cells 14-26 x 6-10 μm .

Hyphopodia alternate, distantly arranged, spreading, antrorse to reflexed, 18-24 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells ovate, globose, versiform, often angulose, entire, straight to curved, 12-16 x 8-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, neck twisted variously, 12-18 x 6-8 μm . Mycelial setae numerous, simple, acute to obtuse to 2-3 dentate at the tip, up to 450 μm long. Perithecia scattered, verrucose, up to 220 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 40-48 x 14-22 μm .

Materials examined: On leaves of *Semecarpus travancorica* Bedd. (Anacardiaceae), Idukki, Kerala, December 19, 1982, A. Diraviadoss HCIO 40562.

Distribution: India (Kerala), Philippines.

The Indian collection slightly varies from the species description in having dentate setae, larger ascospores and the fungus did not show the pathogenic effect on the host.

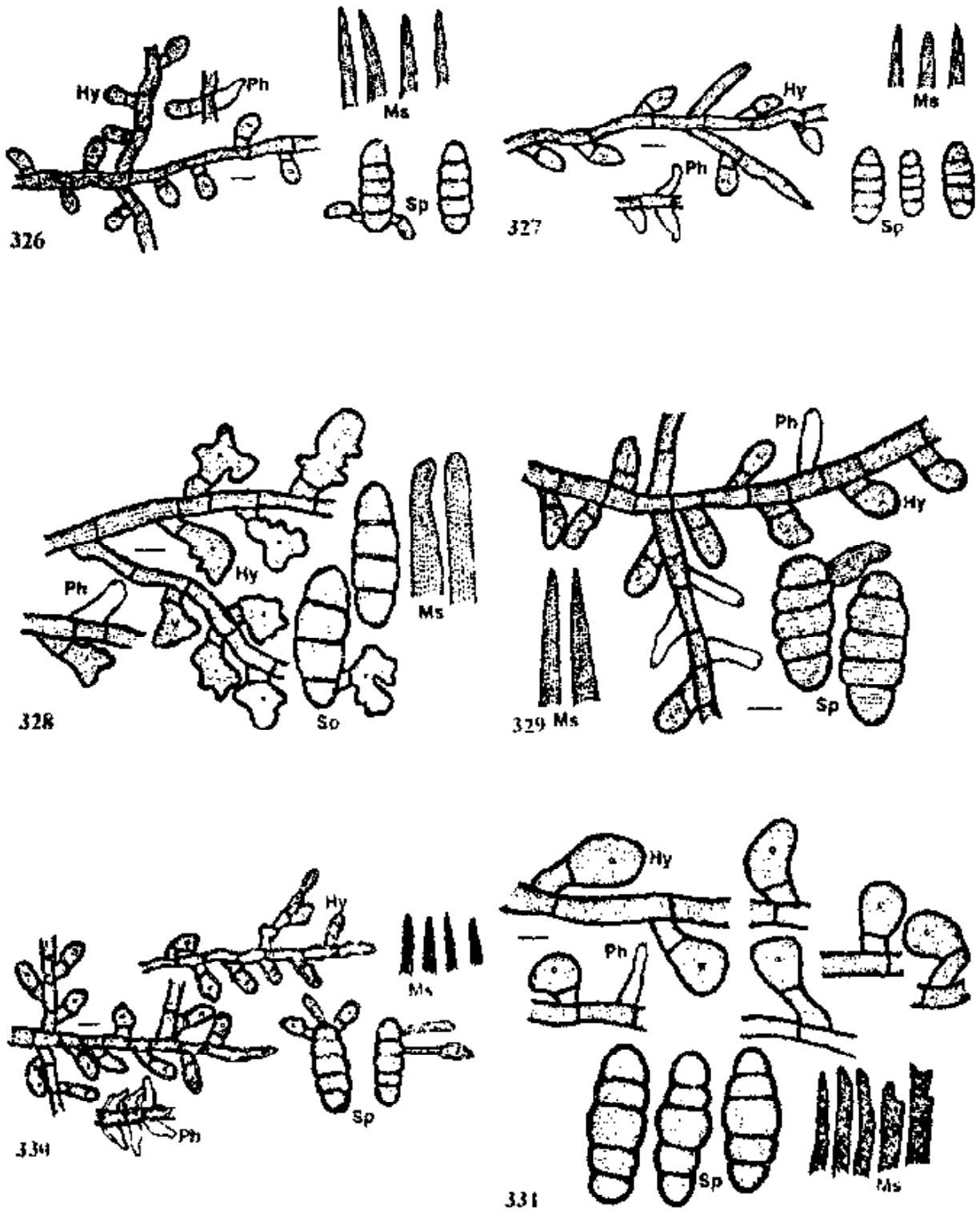
331. *Meliola sempelensis* Yamam. var. *nicobarica* Lakshmanan, Bhargavan & Hosag., J. Andaman Sci. Asso. 6: 151, 1990.

Colonies hypophyllous, dense, strongly appressed to the host surface, up to 4 mm in diameter. Hyphae straight to crooked, branching alternate to irregular at acute angles, loosely to closely reticulate, cells 27-31 x 7-9.5 μm . Hyphopodia alternate, straight to curved, antrorse to spreading, 27-31 μm long; stalk cells cylindrical to cuneate, mostly straight, rarely curved, 9-12.5 μm long; head cells ovoid to globose, mostly straight, rarely curved, entire, 18-22 x 15-22 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, neck elongated, 27-31 x 12-15.5 μm . Mycelial setae numerous, straight to curved, acute to dentate at the apex, up to 1050 μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores ellipsoid to obovoid, 4-septate, constricted, 49-59 x 18-22 μm , middle cell larger than the remaining.

Materials examined: On leaves of *Litsea* sp. (Lauraceae), Great Nicobar Island, March 18, 1990, V. Lakshmanan HCIO 30396 (type).

Distribution: India (Nicobar Isl.).

332. *Meliola serjaniae* Stev. var. *major* Hansf., Sydowia 9: 49, 1955; Beih. 2: 444, 1961; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 114, 1994.



326. *Meliola sarcostigmatis* Hosag. 327. *M. scleropyri* Hosag. 328. *M. scolopiae* Doidge var. *indica* Hosag. 329. *M. semecarpi-anacardii* Hosag. et al. 330. *M. semecarpicola* Hansf. 331. *M. sempeiensis* Yamam. var. *nicobarica* Lakshmanan et al.

Colonies epiphyllous, dense, velvety, up to 5 mm in diameter. Hyphae straight to substraight, branching mostly opposite at wide angles, loosely reticulate, cells 24-32.5 x 6-9.5 μm . Hyphopodia alternate, about 1% opposite, antrorse to subantrorse, straight to curved, 18-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovoid, clavate, entire to angular, 12-15.5 x 9-15.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 6-9.5 μm . Mycelial setae evenly scattered over the colonies, straight, simple, acute to obtuse at the tip, up to 510 μm long. Perithecia scattered, verrucose, up to 175 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, slightly constricted, 40-45 x 12-16 μm .

Materials examined: On leaves of *Sapindus laurifolia* Vahl (Sapindaceae), Kasaragod, Kerala, November 25, 1992, J. Bhandary HClO 40876.

Distribution: India (Karnataka), Brazil, Costa Rica.

333. *Meliola shettyi* V.B. Hosagoudar, C.M. Pillai et P.A. Raghu, sp. nov.

Coloniae hypophyllae, densae, ad 5 mm diam. Hyphae fortiter appressae ad hospes; anfractuae, irregulariter acuteque ramosae, laxae vel densae reticulatae, cellulae 12-28 x 6-8 μm . Hyphopodia remote posita, alternata, ad minusve 1% opposita, recta vel diverse curvula, 18-28 μm longa; cellula basali cylindracea vel cuneata, 6-12.5 μm longa; cellula apicali ovata, oblonga, globosa, piriformia, integra, angularia vel raro sublobata, 12-15.5 x 9-18.5 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 24-31 x 6-8 μm . Setae myceliales dispersae vel juxta perithecia aggregatae, simplices, rectae, setae myceliales juxta perithecia diverse dentatae et setae on myceliae obtusae, ad 730 μm longae. Perithecia dispersa, ad 155 μm diam.; ascosporae obovoideae vel ellipsoideae, 4-septatae, leniter vel profundae constrictae, 43-46.5 x 18-20 μm .

Colonies hypophyllous, dense, up to 5 mm in diameter. Hyphae closely appressed to the host surface, crooked, branching irregular at acute angles, loosely to closely reticulate, cells 12-28 x 6-8 μm . Hyphopodia distantly placed, alternate, about less than 1% opposite, straight to variously curved, 18-28 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells ovate, oblong, globose, pyriform, entire, angular to sublobate, 12-15.5 x 9-18.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 24-31 x 6-8 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, setae around perithecia variously dentate at apex, setae on mycelia acute to obtuse at the apex, up to 730 μm long. Perithecia scattered, up to 155 μm in diam.; ascospores obovoidal to ellipsoidal, 4-septate, slightly constricted at the septa, 43-46.5 x 18-20 μm .

Materials examined: On leaves of *Actinodaphne* sp. (Lauraceae), Gersoppa, Uttar Kannada, Karnataka, May 17, C.M. Pillai HCIO 30999 (type).

Distribution: India (Karnataka).

The present new species is close to *Meliola actinodaphnes* Hansf. in having crooked mycelia and in the morphology of the hyphopodia. However, it differs from it in having only epiphyllous colonies, distantly placed hyphopodia, obtuse to dentate mycelial setae and smaller perithecia and ascospores.

This species is named in honour of Mr. B.V. Shetty who has done extensive studies on the Vitaceae of India.

334. *Meliola simillima* Ellis & Everh. var. *major* Hansf., Sydowia 10: 89, 1957; Sydowia Beih. 2: 552, 1961.

Meliola holarrhenae Hansf. & Thirum. var. *major* Hansf., Sydowia 10: 75, 1957.

Colonies hypophyllous, rarely amphigenous, epiphyllous colonies dense, velvety, while hypophyllous colonies thin to subdense, spreading, up to 5 mm in diameter, confluent. Hyphae flexuous, branching mostly opposite at acute angles, loosely to closely reticulate, cells 27-31 x 5-6.5 μm . Hyphopodia alternate, antrorse, 12-15.5 μm long; stalk cells cuneate, 3-6.5 μm long; head cells ovate, globose, entire, 9-11 x 8-10 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, neck elongated, 21-25 x 5-6.5 μm . Mycelial setae scattered, straight, flexuous, few uncinatate to coiled, tip acute to obtuse at the tip, up to 320 μm long. Perithecia scattered, verrucose, up to 155 μm in diam.; ascospores cylindrical, 4-septate, constricted, 33-36.5 x 14-16 μm .

Materials examined: On leaves of *Holarrhena antidysenterica* (Roxb. ex Fleming) Wall. (Apocynaceae), West Bengal, March 12, 1913, A.L. Som HCIO 1988 (type); Daragatta forest, Maredumilli, East Godavari, Andhra Pradesh, December 17, 1993, M. Mohanan HCIO 41638.

Distribution: India (Andhra Pradesh, West Bengal).

335. *Meliola spigellae* Hansf., Sydowia 9: 49, 1955; Sydowia Beih. 2: 527, 1961; Hosag., Siddappa & Udaiyan, Nova Hedwigia 56: 200, 1993.

Colonies amphigenous, subdense to dense, up to 2 mm in diameter, confluent. Hyphae straight to undulate, branching opposite at acute to wide

angles, loosely to closely reticulate, cells 18-37 x 5-7 μm . Hyphopodia alternate, antrorse, 18-22 μm long; stalk cells cuneate, 6-9.5 μm long; head cells ovate, versiform, entire, attenuated and rounded to truncate at the apex, entire, 12-15.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-25 x 3-6.5 μm . Mycelial setae fairly numerous, scattered, simple, straight, acute to obtuse at the apex, up to 250 μm long. Perithecia scattered, up to 155 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted at the septa, 31-34 x 12-15.5 μm .

Materials examined: On leaves of *Strychnos nux-vomica* L. (Loganiaceae), Londa, Karnataka, December 1971, A.N. Thite HClO 31908.

Distribution: India (Karnataka), Brazil, Ecuador, Honduras, Panama.

The present species is close to *M. petchii* Hansf. but is distinct in having bluntly attenuated head cells of the hyphopodia.

336. *Meliola srinivasulii* nom. nov.

Meliola plumeriae Srinivasulu, Nova Hedwigia Beih. 47: 432, 1974. (*non*. Cifferi, 1954).

Colonies epiphyllous, subdense, crustose, up to 6 mm in diameter, confluent. Hyphae almost straight, branching opposite at wide angles, closely reticulate, cells 18-29 x 5-6 μm . Hyphopodia alternate, antrorse, 13-19 μm long; stalk cells cuneate, 4-6 μm long; head cells ovate to cylindrical, entire, 9-13 x 10-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 13-19 x 4-9 μm . Mycelial setae numerous, scattered, simple, straight, acute to obtuse, up to 500 μm long. Perithecia scattered, verrucose, up to 175 μm in diam.; ascospores oblong, 4-septate, constricted, 34-39 x 11-14 μm .

Type: On leaves of *Plumeria alba* L. (Apocynaceae), Castle Rock, Maharashtra, November 1967, B.V. Srinivasulu MUH 143.

Materials examined: Material was not available for the study.

Distribution: India (Maharashtra).

337. *Meliola staphyleacearum* Hosag., Nova Hedwigia 52: 502, 1991.

Colonies epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae straight, branching opposite at acute angles, closely reticulate, cells 12-29 x 9-12.5

μm . Hyphopodia opposite, straight, subantrorse, 15-18.5 μm long; stalk cells cuneate, 3-6.5 μm long; head cells ovoid to versiform, entire, 16-18.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-31 x 9-12.5 μm . Mycelial setae scattered, simple, straight flexuous to crooked at the upper portion, acute obtuse at the tip, up to 250 μm long. Perithecia scattered, up to 100 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, 34-40.5 x 12-15.5 μm .

Materials examined: On leaves of *Turpinia* sp. (Staphyleaceae), on the way to Nooradi Settlement, Valpari, Coimbatore, Tamil Nadu, March 23, 1990, V.B. Hosagoudar HCIO 30397 (type).

Distribution: India (Tamil Nadu).

338. *Meliola stemonuri* Hosag. in Hosag. & Goos, Mycotaxon 37: 248, 1990.

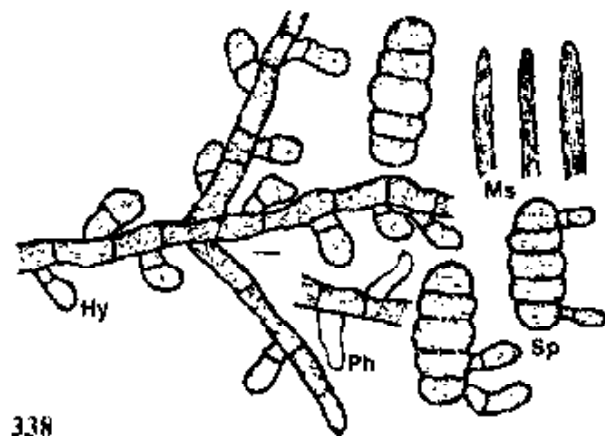
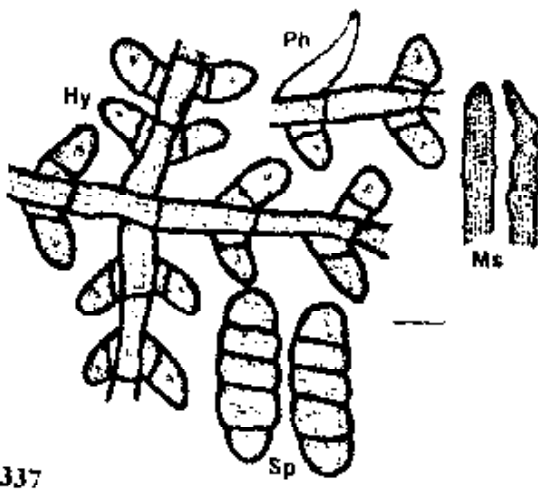
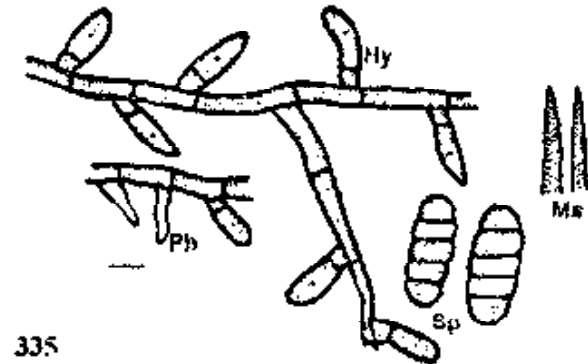
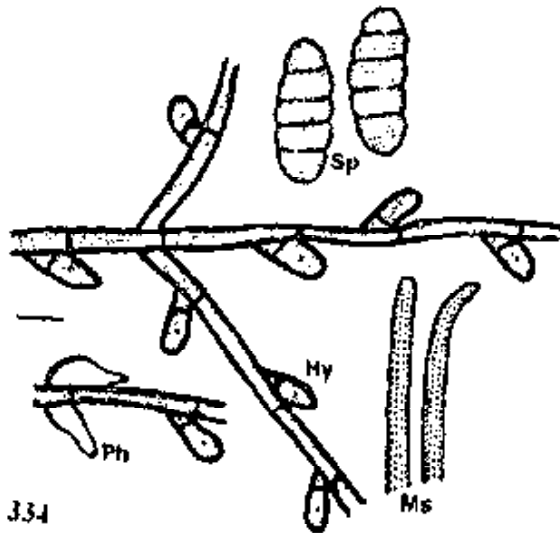
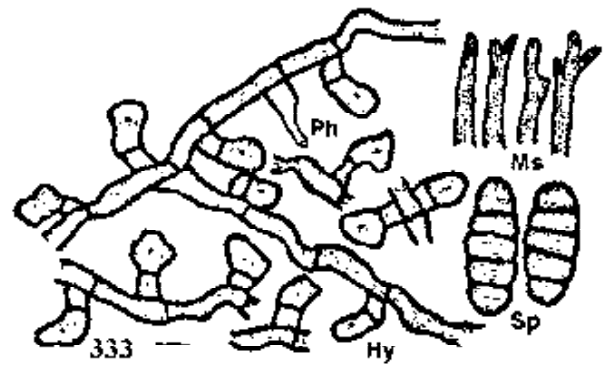
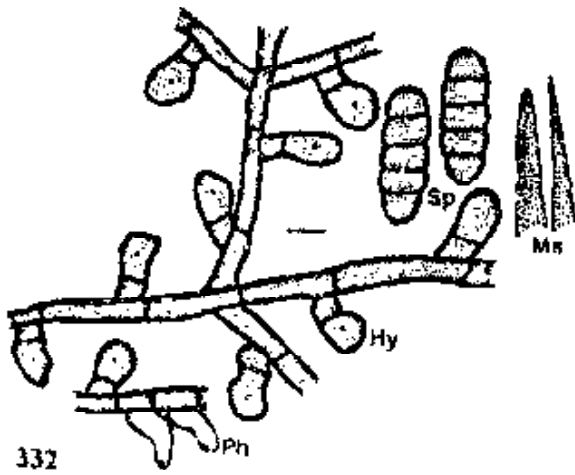
Colonies amphigenous, caulicolous, dense, velvety, up to 3 mm in diameter, confluent. Hyphae straight to substraight, branching alternate to opposite at acute angles, closely reticulate, cells 22-28 x 10-14 μm . Hyphopodia alternate to unilateral, straight to curved, antrorse to reflexed, 24-32 μm long; stalk cells cylindrical to cuneate, 8-16 μm long; head cells globose, ovate, entire, 14-16 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 22-30 x 8-10 μm . Mycelial setae scattered and grouped around perithecia, simple, curved, acute to obtuse at the tip, up to 648 μm long. Perithecia scattered, verrucose, up to 198 μm in diam.; ascospores obovoidal, 4-septate, constricted, 54-60 x 16-24 μm .

Materials examined: On leaves, petioles and stems of *Stemonurus tetrandrus* Wall. ex Roxb. (*S. tetrandrus* (Wall. ex Roxb.) Alston) (Icacinaeae), Idukki, Kerala, December 21, 1983, V.B. Hosagoudar HCIO 40560 (type), MH 78962 (isotype); Idukki, Kerala, October 9, 1982, V.B. Hosagoudar MH 75830; Lakshmi Estate, Idukki, Kerala, December 12, 1982, V.B. Hosagoudar MH 75769; December 23, 1983, V.B. Hosagoudar MH 79040; December 28, 1983, V.B. Hosagoudar MH 80319; December 28, 1983, V.B. Hosagoudar MH 80331.

Distribution: India (Kerala).

339. *Meliola stenospora* Wint., Hedwigia 25: 97, 1886; Hansf., Sydowia Beih. 2: 75, 1961; Hosag. & Raghu, New Botanist 20: 72, 1993.

Colonies amphigenous, mostly hypophyllous, thin, spreading, up to 5 mm



332. *Meliola serjantiae* Stev. var. *major* Hansf. 333. *M. shettyi* Hosag. et al. 334. *M. simillima* Ellis & Everh. var. *major* Hansf. 335. *M. spigeliae* Hansf. 337. *M. staphyleacearum* Hosag. 338. *M. stemonuri* Hosag.

in diameter. Hyphae substraight to flexuous, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 18-25 x 6-9.5 μm . Hyphopodia alternate, antrorse to spreading, 15-25 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate to globose, angular to very slightly lobate, 9-16 x 9-15 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 15-18.5 x 6-9.5 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, acute to obtuse at the tip, up to 530 μm long. Perithecia scattered, verrucose, up to 150 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 40-46.5 x 12-18.5 μm .

Materials examined: On leaves of *Piper* sp. (Piperaceae), Gersoppa, Uttar Kannada, Karnataka, October 20, 1992, P.A. Raghu HCIO 40888; *P. trichostachyon* (Miq.) DC., Petland, Sangli, Maharashtra, March 20, 1984, C.R. Patil HCIO 40005.

Distribution: India (Karnataka, Maharashtra), Gold Coast, Malaya, Philippines, San Thome, Surinam, Uganda.

This taxon differs from its variety *major* Hansf. in having only angular head cells in contrast to crenately lobate head cells.

340. *Meliola stenospora* Wint. var. *major* Hansf., Sydowia 16: 303, 1963; Patil & Pawar, Indian Phytopathol. 39: 306, 1986.

Meliola stenospora Wint. var. *major* Hansf., Sydowia Beih. 2: 75, 1961.

Colonies mostly epiphyllous, subdense, thinly velvety, up to 3 mm in diameter, confluent. Hyphae substraight to slightly undulate, branching opposite to irregular at wide angles, closely reticulate, cells 20-25 x 8-10 μm . Hyphopodia alternate, about 1% opposite, spreading to antrorse, straight to curved, 17-23 μm long; stalk cells cuneate to cylindrical, 3-9 μm long; head cells subglobose with crenate to lobulate margin, 11-15 x 12-20 μm . Phialides borne on a separate mycelial branch, opposite to alternate, ampulliform, 17-20 x 7-9 μm . Mycelial setae mostly grouped around perithecia, straight, simple, acute, up to 1000 μm long. Perithecia loosely grouped, verrucose, up to 170 μm in diam.; ascospores oblong, 4-septate, slightly constricted, 37-43 x 11-15 μm .

Materials examined: On leaves of *Piper nigrum* L. (Piperaceae), Mahabaleshwar, Satara, Maharashtra, March 22, 1980, M.S. Patil HCIO 36749; Veerapuli Reserve Forest, Kanniyakumari, Tamil Nadu, February 25, 1994, V.B. Hosagoudar HCIO 41610.

Distribution: India (Maharashtra, Tamil Nadu), Java, Philippines.

341. *Meliola stephaniae* Hansf. *Reinwardtia* 3: 93, 1954; *Sydowia Beih.* 2: 64, 1961; Hosag., *Crypt. Bot.* 2/3: 186, 1991.

Colonies epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae straight to flexuous, branching mostly opposite at acute angles, loosely to closely reticulate, cells 24-37 x 9-12.5 μm . Hyphopodia alternate, antrorse, straight to slightly curved, 24-31 μm long; stalk cells cylindrical to cuneate, 9-12.5 μm long; head cells globose, ovate, entire, 15-18.5 x 12-15.5 μm . Phialides borne on a separate mycelial branch, mostly opposite, ampulliform, 15-22 x 9-12.5 μm . Mycelial setae numerous, densely scattered, straight, simple, acute to obtuse, up to 500 μm long. Perithecia scattered, globose, up to 125 μm in diam.; ascospores obovoidal, 4-septate, constricted, 37-41 x 15-18.5 μm .

Materials examined: On leaves of *Stephania japonica* (Thunb.) Miers (Menispermaceae), Benne forest, Nilgiris, Tamil Nadu, January 24, 1990, V.B. Hosagoudar HCIO 30369.

Distribution: India (Tamil Nadu), Java.

342. *Meliola swieteniiicola* Hosag., Kaveriappa, Raghu & Goos, *Mycotaxon* 51: 115, 1994.

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 3 mm in diameter, widely confluent. Hyphae straight to substraight, branching alternate to opposite at acute to wide angles, loosely reticulate, cells 15-22 x 6-8 μm . Hyphopodia alternate (rarely few opposite in young colonies), mostly antrorse, 15-22 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovoid to globose, entire, 9-14 x 9-12.5 μm . Phialides mixed with hyphopodia, mostly opposite, ampulliform, 15-18.5 x 8-9.5 μm . Mycelial setae scattered, straight, mostly dentate and rarely but slightly furcate up to 10 μm at the tip, up to 286 μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, 40-43.5 x 15-18.5 μm .

Materials examined: On leaves of *Swietenia mahagoni* (L.) Jacq. (Meliaceae), Kaiga, Uttara Kannada, Karnataka, November 21, 1992, K.M. Kaveriappa HCIO 40878 (type).

Distribution: India (Karnataka).

This species is close to *Meliola swieteniae* Cif. recorded on the same host from San Domingo (Cifferi, 1933), but differs from it in having phialides mixed with hyphopodia and mycelial setae slightly furcate at the tip.

343. *Meliola symingtoniae* Kapoor, Indian Phytopathol. 20: 158, 1967.

Meliola bucklandiae Kar & Maity, Nytt. Mag. Bot. 17: 84, 1970.

Colonies hypophyllous, dense, crustose, up to 5 mm in diameter, confluent. Hyphae substraight to crooked, branching opposite at wide angles, closely reticulate, cells 16-28 x 4-6 μm . Hyphopodia alternate, straight to curved, subantrorse to spreading, 16-20 μm long; stalk cells cylindrical to cuneate, 5-6 μm long; head cells ovate to cylindrical, entire, 14-16 x 7-10 μm . Phialides mixed with hyphopodia, conoid to ampulliform, 20-22 x 5-6 μm . Mycelial setae scattered to grouped around perithecia, simple, straight, tortuous to uncinata, up to 350 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores oblong, 4-septate, slightly constricted at the septa, 40-46 x 18-20 μm .

Materials examined: On leaves of *Symingtonia populnea* (R. Br.) Van Steenis [(*Bucklandia populnea*)] (Hamamelidaceae), Demthang, West Sikkim, April 1962, J.N. Kapoor HClO 28361 (type); Aligarh forest, Darjeeling, West Bengal, May 9, 1967, M.K. Maity PCC 1242 (type of *M. bucklandiae*); Sikkim, J.D. Hooker MH (Angi.) 66263.

Distribution: India (Sikkim, West Bengal).

344. *Meliola symplocicola* Yamam., Trans. Nat. Hist. Soc. Taiwan 31: 57, 1941; Hansford, Sydowia Beih. 2: 519, 1961; Hosag. & Goos, Mycotaxon 37: 249, 1990.

Colonies hypophyllous, subdense, velvety, up to 8 mm in diameter, confluent. Hyphae substraight to flexuous, branching mostly opposite at wide angles, loosely reticulate, cells 18-34 x 6-8 μm . Hyphopodia alternate to unilateral, straight to variously curved, antrorse, spreading, 22-26 μm long; stalk cells cylindrical to cuneate, 6-10 μm long; head cells globose, angulose, truncate, variously curved, entire, 12-18 x 8-12 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 20-30 x 8-10 μm . Mycelial setae grouped around perithecia, straight, simple, acute, very few 2-3 dentate, up to 360 μm long. Perithecia scattered, verrucose, up to 200 μm in diam.; ascospores 4-septate, obovoidal to cylindrical, constricted, 48-59 x 16-20 μm .

Materials examined: On leaves of *Symplocos cochinchinensis* (Lour.)

Moore ssp. *laurina* (Retz.) Nootboom (Symplocaceae), Meenmutty forest, Idukki, Kerala, February 20, 1983, V.B. Hosagoudar HCIO 40564, MH 75875; August 20, 1983, V.B. Hosagoudar MH 75876; October 5, 1983, V.B. Hosagoudar MH 72162.

Distribution: India (Kerala), Formosa.

The Indian collections varies from the type description in having dense hypophyllous colonies, substraight to flexuous mycelia, smaller hyphopodia, mycelial setae and ascospores. Based on the morphology of the hyphopodia and dentate mycelial setae, the present collections placed under *M. symplocicola* Yamam.

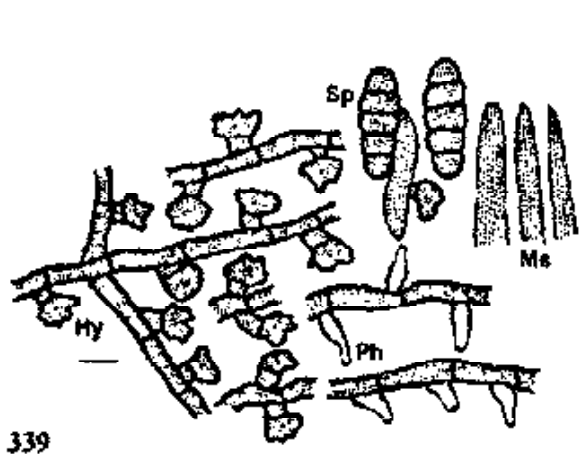
345. *Meliola symphorematicola* Hosag., Udaiyan & Goos, Mycotaxon 51: 119, 1994.

Colonies amphigenous, mostly hypophyllous, dense, up to 5 mm in diameter. Hyphae strongly appressed to the host, straight, flexuous to crooked, branching opposite at wide angles, loosely to closely reticulate, cells 15-22 x 3-6.5 μm . Hyphopodia alternate and about 5% opposite, antrorse to spreading, straight to curved, 12-15.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose to ovate, straight to curved, entire, 9-10 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 13-15.5 x 6-9.5 μm . Mycelial setae numerous, simple, predominantly straight, few uncinuate to geniculate, acute at the tip, up to 375 μm long. Perithecia scattered to loosely grouped, up to 130 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted, 34-40.5 x 12-18.5 μm .

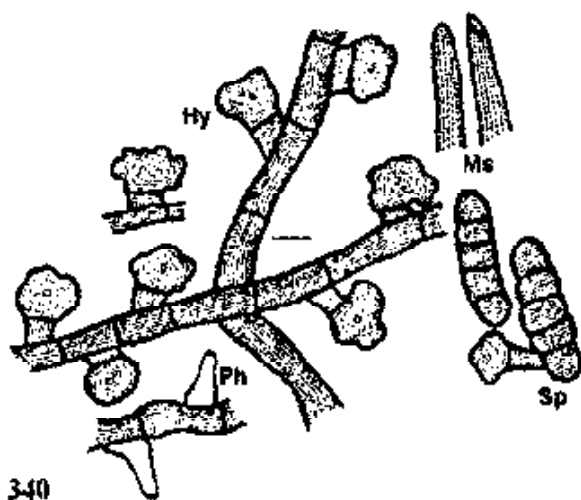
Materials examined: On leaves of *Symphorema involucreatum* Roxb. (Symphoremaceae), Dhoni forest, Palghat, Kerala, March 1, 1993, V.B. Hosagoudar HCIO 46881 (type).

Distribution: India (Kerala).

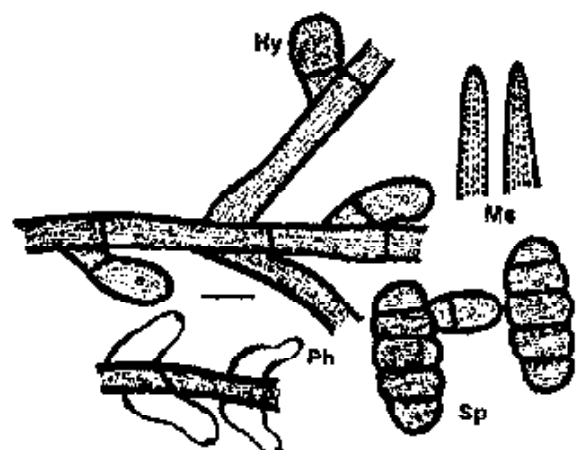
Stevens & Roldan (1935) described *Meliola symphorematae* for a fungus collected on *Symphorema luzonicum* in the Philippines. The name was not validly published because it lacked a Latin description (ICBN, Art. 36). Petrak (1958) was either unaware of *M. symphorematae* Stevens & Roldan or simply considered it different from *M. symphonematis* Petrak, collected on the same host and same island but from a different province. Since the fungus is named after the host, which Petrak also misspelled as *Symphonema*, the epithet *Symphonematis* is an



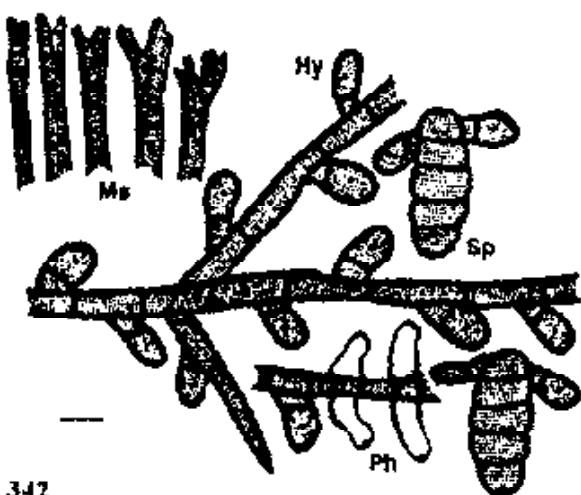
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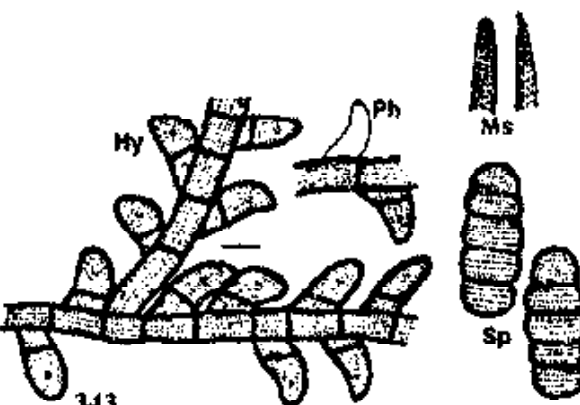
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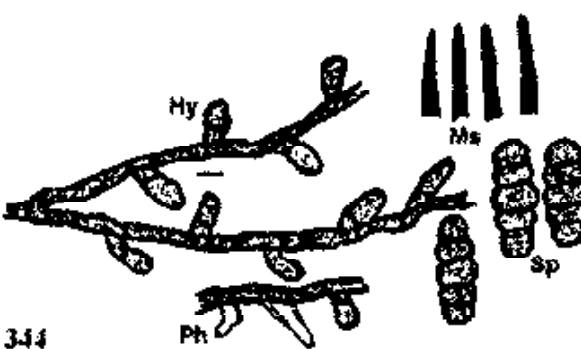
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339. *Meliola stenospora* Wint. 340. *M. stenospora* Wint. var. *major* Hansf. 341. *M. stephaniae* Hansf. 342. *M. swietenicola* Hosag. et al. 343. *M. symingtoniae* Kapoor 344. *M. symplocicola* Yamam.

orthographic variant to be corrected (ICBN, Arts. 73, 75). Thus *M. symphorematis* Petrak is the appropriate basionym for the fungus described on *Symphorema*. Hansford (1963) used the correct form when he cited the new variety *M. symphorematis* Petrak var. *major* Hansf. The present species differs from the type of *M. symphorematis* in having smaller and alternate to opposite hyphopodia and larger ascospores. It differs from *M. symphorematis* var. *major* in having uncinulate to geniculate mycelial setae.

346. *Meliola tabernaemontanicola* Hansf. & Thirum., Farlowia 3: 298, 1948; Hansf., Sydowia Beih. 2: 561, 1961; Kar & Maity, Norw. J. Bot. 19: 245, 1972.

Colonies epiphyllous, rarely amphigenous, thin to velvety subdense, up to 4 mm in diam., rarely confluent. Hyphae straight to slightly undulate, branching mostly opposite at wide angles, loosely to closely reticulate, cells 20-25 x 6-7 μm . Hyphopodia alternate, very few opposite, more or less antrorse, usually straight, 15-24 μm long; stalk cells cylindrical to cuneate, 3-9 μm long; head cells cylindrical with rounded apex, 12-17 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 13-19 x 6-8 μm . Mycelial setae numerous, scattered to grouped around perithecia, straight to curved, simple, acute, up to 450 μm long. Perithecia scattered, verrucose, up to 170 μm in diam.; ascospores cylindrical to subellipsoidal, 4-septate, slightly constricted, 30-36 x 13-15 μm .

Materials examined: On leaves of *Tabernaemontana* sp. (Apocynaceae), Balehonnur, August 28, 1984, M.J. Thirumalachar HClO 10976 (type); *Vallisneria spiralis* (L.) Kuntze [V. *heynei* Spreng.] (Apocynaceae), Mallickput, West Bengal, July 21, 1967, M.K. Maity IMI 139202.

Distribution: India (Karnataka, West Bengal).

347. *Meliola tamarindi* Sydow & Sydow, Ann. Mycol. 10: 79, 1912; Hansf., Sydowia Beih. 2: 250, 1961; Hosag. & Goos, Mycotaxon 37: 249, 1990; Hosag., Dayal & Goos, Mycotaxon 46: 208, 1988; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 116, 1994.

Colonies amphigenous, mostly epiphyllous, dense, velvety, up to 2 mm in diameter, confluent. Hyphae undulate to tortuous, branching opposite at wide angles, loosely reticulate, cells 18-28 x 6-10 μm . Hyphopodia alternate to 5% opposite, antrorse, spreading, straight to curved, 20-30 μm long; stalk cells cylindrical to cuneate, 4-12 μm long; head cells ovate, angulose, entire to

sublobate, straight to curved, 14-20 x 10-16 μm . Phialides mixed with hyphopodia, alternate to opposite, scattered, 16-28 x 6-10 μm . Mycelial setae scattered to grouped around perithecia, simple, obtuse at the tip, up to 450 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores obovoidal, 4-septate, constricted, 46-50 x 18-20 μm .

Materials examined: On leaves of *Tamarindus indica* L. (Caesalpiniaceae), Mysore, Karnataka, April 4, 1913, L.S. Subramanian HCIO 3363; Pachanadi, Mangalore, Karnataka, April 16, 1913, L.S. Mony HCIO 3383; Tanikandam, Idukki, Kerala, December 16, 1982, V.B. Hosagoudar HCIO 40565, MH 75785; Sampaje forest nursery, Sampaje, Kodagu, Karnataka, December 22, 1991, B.R. Dayal HCIO 30840; Gersoppa, Uttara Kannada, Karnataka, November 13, 1992, C.M. Pillai HCIO 40879.

Distribution: India (Karnataka, Kerala), Gold Coast, Philippines, Sierra Leone.

Sydow & Sydow (l.c.) described this species from Philippines. However, the Indian collections differ from it in many respect but matches well with the African material.

348. *Mellola tawaoensis* Hansf., *Sydowia* 10: 92, 1957; *Sydowia* Beih. 2: 590, 1961; Kar & Maity, *Norway J. Bot.* 19: 243, 1972; Hosag., Viswanathan & Lakshmanan, *Indian J. Bot.* 11: 187, 1988.

Colonies epiphyllous, dense, up to 4 mm in diameter, confluent. Hyphae straight to substraight, branching opposite at acute angles, closely reticulate, cells 16-20 x 6-10 μm . Hyphopodia opposite, antrorse to subantrorse, straight to curved 16-26.5 μm long; stalk cells cylindrical to cuneate, 5-7 μm long; head cells ovate to cylindrical, entire to angular, 13-18 x 10-13 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 19-26.5 x 6.5-8 μm . Mycelial setae scattered, to grouped around perithecia, simple, straight, acute, up to 756 μm long. Perithecia scattered, verrucose, up to 202 μm in diam.; ascospores cylindrical, 4-septate, constricted, 49-53 x 16-23 μm .

Materials examined: On leaves of *Ixora arborea* Roxb. ex Smith (Rubiaceae), Valasamalai, North Arcot, Tamil Nadu, March 25, 1987, M.B. Viswanathan AMH 7136.

Distribution: India (Tamil Nadu, West Bengal), British North Borneo.

349. *Meliola tecleae* Hansf. var. *toddaliae-asiaticae* Hansf., Proc. Linn. Soc. London 153: 11, 1941; Hansf. & Thirum., Farlowia 3: 298, 1948; Hansf., Sydowia Beih. 2: 392, 1961; Hosag. & Goos, Mycotaxon 37: 249, 1990.

Colonies amphigenous, mostly epiphyllous, dense, subvelvety, up to 3 mm in diameter, confluent. Hyphae straight to substraight, branching opposite at wide angles, loosely reticulate, cells 16-32 x 6-10 μm . Hyphopodia alternate, straight to curved, antrorse to subantrorse, 12-24 μm long; stalk cells cuneate, 6-10 μm long; head cells ovate, entire, 10-18 x 10-14 μm . Phialides mixed with hyphopodia, to alternate, ampulliform, 16-24 x 6-8 μm . Mycelial setae scattered, straight, simple, acute at the tip, up to 630 μm long. Perithecia scattered, verrucose, up to 190 μm in diam.; ascospores oblong, 4-septate, constricted, 40-44 x 14-18 μm .

Materials examined: On leaves of *Toddalia asiatica* (L.) Lam. (Rutaceae) in the forest along the road from Painavu to Kulamavu, December 12, 1982, V.B. Hosagoudar HClO 40567, MH 75714; February 19, 1983, V.B. Hosagoudar MH 75852; December 21, 1983, V.B. Hosagoudar MH 78923; Koomati, Anamalai, Coimbatore, Tamil Nadu, March 13, 1994, V.B. Hosagoudar HClO 41563.

Distribution: India (Karnataka, Kerala, Tamil Nadu), Uganda.

So far six taxa of the genus *Meliola* have been recorded on the host genus *Toddalia*. The present variety differs from the rest in having only alternate hyphopodia and straight, simple, acute mycelial setae. It is closer to *M. kisubiensis* Hansf. but differs from it in smaller perithecia and ascospores.

350. *Meliola telosmae* Rehm var. *indica* Hosag., Siddappa & Udaiyan, Nova Hedwigia 56: 201, 1993.

Colonies epiphyllous, thin, crustose, up to 1 mm in diameter, rarely confluent. Hyphae undulate, branching opposite at wide angles, loosely to closely reticulate, cells 21-31 x 6-9.5 μm . Hyphopodia alternate and about 5% opposite, mostly antrorse, 15-18.5 μm long; stalk cells cylindrical to cuneate, 5-7 μm long; head cells globose, ovate, entire, 9-12.5 x 9-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 9-12.5 μm . Mycelial setae few, straight, erect, acute to obtuse at the tip, up to 286 μm long. Perithecia scattered, up to 108 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 37-40.5 x 15-18.5 μm .

Materials examined: On leaves of *Tylophora tenuis* Bl. (Asclepiadaceae), Radhanagari, Kolhapur, Maharashtra, January 21, 1975, A.N. Thite HCIO 31946 (type).

Distribution: India (Maharashtra).

351. *Meliola telosmae* Rehm var. *radhanagariensis* var. nov.

Differt a var. *telosmae* phialides illis hyphopodiis commixtis et differt a *Meliola telosmae* Rehm. var. *indica* Hosag. et al. hyphopodiis alternatis.

Colonies epiphyllous, dense, velvety, up to 5 mm in diameter, confluent. Hyphae straight to flexuous, branching mostly opposite at acute angles, closely reticulate, cells 15-18.5 x 5-7 μm . Hyphopodia alternate, antrorse, 18-22 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, broadly rounded to attenuated at the apex, entire, 10-14 x 9-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 5-7 μm . Mycelial setae numerous, scattered, simple, straight, acute at the tip, up to 572 μm long. Perithecia loosely grouped to scattered, verrucose, up to 155 μm in diam.; ascospores cylindrical, 4-septate, constricted, 34-37 x 12-15.5 μm .

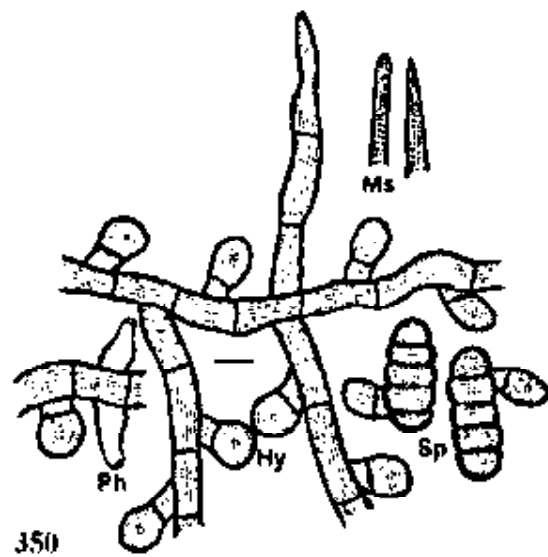
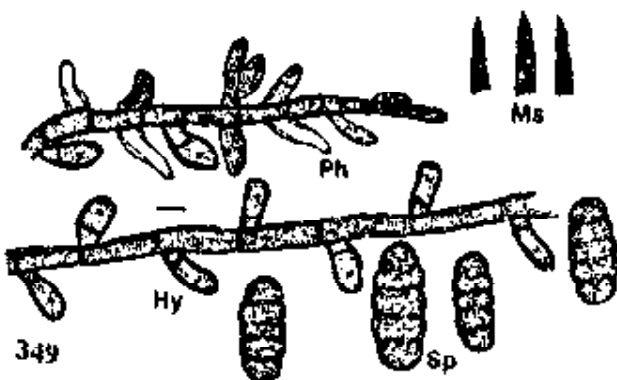
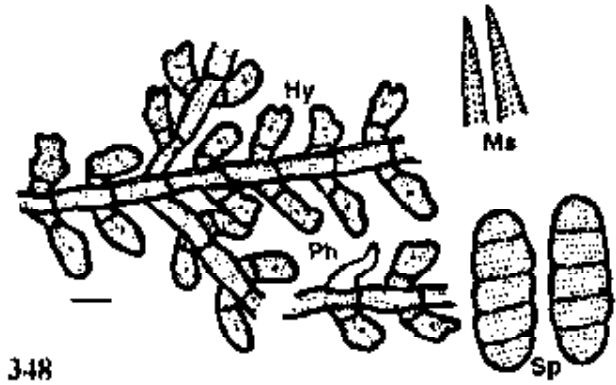
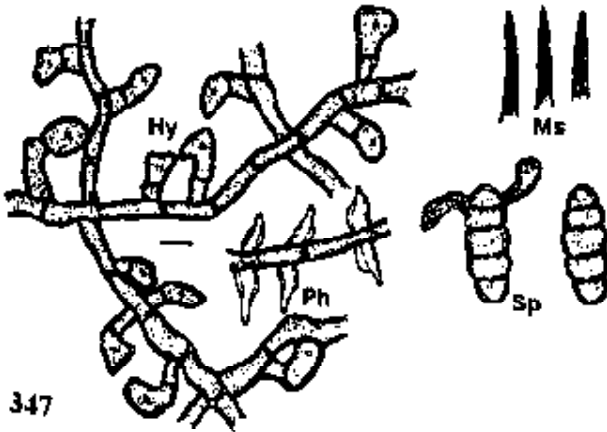
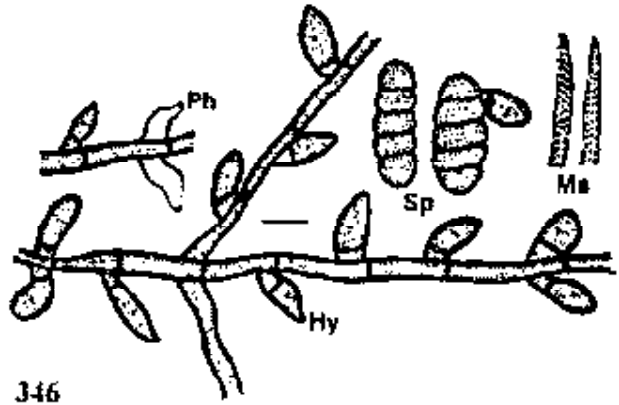
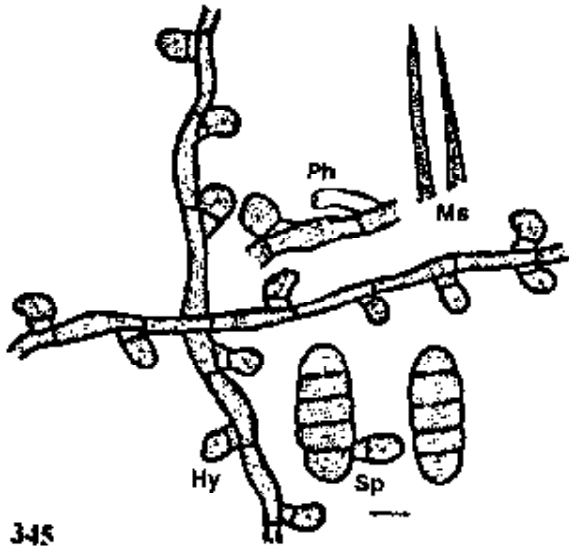
Materials examined: On leaves of the Asclepiadaceae member, Radhanagari, Kolhapur, Maharashtra, November 1980, A.N. Thite HCIO 330670 (type).

Distribution: India (Maharashtra).

The new variety differs from the var. *telosmae* in having phialides mixed with hyphopodia. It also differs from *M. telosmae* Rehm var. *indica* Hosag., Siddappa & Udaiyan in absence of 5% opposite hyphopodia.

352. *Meliola tenella* Pat., Rev. Mycol. 10: 140, 1888; Hansf., Sydowia Beib. 2: 381, 1961.

Colonies amphigenous, thin to subdense, velvety, up to 5 mm in diameter, confluent. Hyphae straight to undulate, branching opposite at wide angles, closely reticulate, cells 17-30 x 7-10 μm . Hyphopodia alternate, subantrorse to spreading, straight to curved, 20-25 μm long; stalk cells mostly cylindrical, 6-10 μm long; head cells cylindrical to clavate, usually curved, entire, 12-10 x 8-11 μm . Phialides few, mixed with hyphopodia, opposite to alternate, 18-22 x 6-9 μm . Mycelial setae scattered, straight, dichotomously branched, up to 240 μm long.



345. *Meliola symphorematicola* Hosag. et al. 346. *M. tabernaemontanicola* Hansf. & Thirum. 347. *M. tamarindi* Sydow 348. *M. tawaoensis* Hansf. 349. *M. teclae* Hansf. var. *toddaliae-asiaticae* Hansf. 350. *M. telosmae* Rehm var. *indica* Hosag. et al.

branches reflexed. Perithecia scattered, verrucose, up to 180 μm in diam.; ascospores oblong to subellipsoidal, 4-septate, constricted, 48-54 x 16-20 μm .

Materials examined: On leaves of *Murraya paniculata* (L.) Jack (*M. exotica* L.) (Rutaceae), Nandi Hills, Mysore, Karnataka, February 12, 1944, M.J. Thirumalachar HCIO 10393; Nivale, Sangli, Maharashtra, January 23, 1992, C.R. Patil HCIO 40731.

Distribution: India (Karnataka, Maharashtra), Java, Tonkin.

353. *Meliola tenella* Pat. var. *atalantiae* (Pat.) Hansf., Proc. Linn. Soc. London 158: 35, 1946; Sydowia Beih. 2: 381, 1941; Hosag., Indian Bot. Repr. 7: 59, 1980.

Meliola bambusae Pat. var. *atalantiae* Pat., J. de Bot. 11: 348, 1897.

Colonies epiphyllous, scattered, dense, velvety, up to 2 mm in diameter. Hyphae straight to substraight, branching opposite at wide angles, closely reticulate and almost solid at the centre, cells 18.5-22 x 3-4 μm . Hyphopodia alternate, antrorse to recurved, straight to curved, 24-31 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells mostly cylindrical, entire, 15.5-18.5 x 9-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15.5-25 x 9-12.5 μm . Mycelial setae straight, 2-3 times dichotomously branched, branches reflexed, up to 100 μm long till branching, first ray up to 50 μm and second ray up to 20 μm long, acute to obtuse at the tip. Perithecia scattered, up to 180 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 40-50 x 15.5-18.5 μm .

Materials examined: On leaves of *Atalantia monophylla* (L.) Correa (Rutaceae), Athikadu forest, Nilgiris, Tamil Nadu, August 2, 1975, E. Vajravelu MH 46418.

Distribution: India (Tamil Nadu), Ceylon, Formosa, Tonkin.

354. *Meliola tenella* Pat. var. *atalantiicola* Hosag., J. Econ. Tax. Bot. 11: 159, 1987.

Colonies amphigenous, mostly hypophyllous, dense, velvety on the upper surface while moderately dense on the lower surface, up to 2 mm in diameter, confluent. Hyphae substraight to undulate, branching opposite at wide angles, loosely reticulate in the hypophyllous colonies while closely reticulate in the epiphyllous colonies, cells 12.5-15.5 x 6-9.5 μm . Hyphopodia alternate, straight

to curved, antrorse to spreading, 15-25 μm long; stalk cells cylindrical to cuneate, 6-6.5 μm long; head cells versiform, cylindrical, straight to bent, entire, 10-16.5 x 9-12.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15.5-21.5 x 9-10 μm . Mycelial setae numerous, scattered, straight, dichotomously branched, 217 μm long up to first branching, first ray up to 50 μm long, second ray up to 46.5 μm long and the third ray up to 10 μm long, acute to obtuse at the tip, branches reflexed. Perithecia scattered, verrucose, up to 220 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 40-46.5 x 15.5-18.5 μm .

Materials examined: On leaves of *Atalantia monophylla* (L.) Correa (Rutaceae), Tummalbailu, Nallamalai, Andhra Pradesh, April 19, 1986, V.B. Hosagoudar HClO 38295 (type); Sri Tirumala Hills, Andhra Pradesh, Feb., 1994, Ramesh & Bagyanarayana HAL.

Distribution: India (Andhra Pradesh).

355. *Meliola teramni* Sydow var. *millettieae* Hosag. in Hosag. & Goos, Mycotaxon 42: 137, 1991.

Colonies amphigenous, dense to subdense, crustose to velvety, up to 4 mm in diameter, confluent. Hyphae substraight to slightly crooked, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 21-28 x 6-8 μm . Hyphopodia alternate, antrorse, subantrorse to spreading, straight to curved, 18-22 μm long; stalk cells cuneate to cylindrical, 6-9.5 μm ; head cells ovate, globose, rarely truncate at apex, entire, 12-15 x 10-15 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15-18.5 x 9-12.5 μm . Mycelial setae very few, straight, simple, acute to bifid to rarely cristate at the apex, up to 790 μm long. Perithecia scattered, up to 140 μm in diam.; ascospores ellipsoidal to cylindrical, 4-septate, constricted at the septa, 37-40.5 x 12-15.5 μm .

Materials examined: On leaves of *Millettia rubiginosa* Wight & Arn. (Fabaceae), Shankarankudi, Valparai, Coimbatore, Tamil Nadu, December 27, 1990, V.B. Hosagoudar HClO 30559 (type); Manjolai, Tirunelveli, Tamil Nadu, February 24, 1994, V.B. Hosagoudar HClO 41558.

Distribution: India (Tamil Nadu).

356. *Meliola themedae* Stev. & Rold. ex Hansf. var. *indica* Hosag. in Hosag. & Goos, Mycotaxon 37: 249, 1990.

Colonies amphigenous, subdense, velvety, up to 2 mm in diameter, confluent. Hyphae straight to tortuous, straight hyphae run along the veins and tortuous hyphae across the straight hyphae, branching mostly opposite at acute to wide angles, closely reticulate and form almost solid mycelial mat. Hyphopodia alternate, spreading, antrorse to reflexed, straight to curved, 20-30 μm long; stalk cells cylindrical to cuneate, 8-14 μm long; head cells ovate, angular, entire to imperfectly and irregularly sublobate, 10-16 x 10-14 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 14-20 x 6-10 μm . Mycelial setae scattered to grouped around perithecia, straight, simple, acute to obtuse at the tip, up to 558 μm long. Perithecia scattered, verrucose, up to 130 μm in diam.; ascospores obovoidal, 4-septate, constricted, 40-48 x 14-18 μm .

Materials examined: On leaves of *Themeda cymbaria* Hack. (Poaceae), Clavary Mount, Idukki, Kerala, January 8, 1982, V.B. Hosagoudar HCIO 40568 (type), MH 72611 (isotype); Meenmutty, Idukki, Kerala, December 12, 1982, V.B. Hosagoudar MH 75708; Idukki, Kerala, December 21, 1983, V.B. Hosagoudar MH 78958.

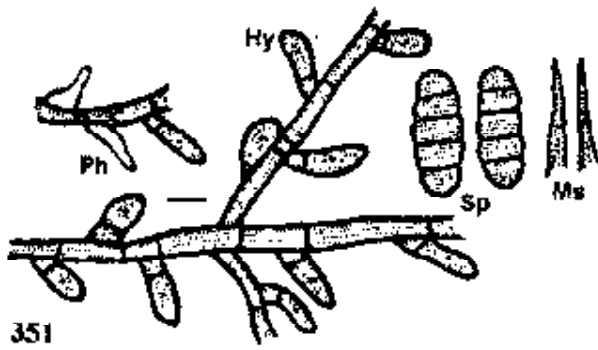
Distribution: India (Kerala).

Stevens & Roldan (1935) described *Meliola themedae* on *Themeda gigantea* (Cav.) Hack. from Philippines but the present variety differs from a var. *themedae* in having larger hyphopodia; longer, simple, acute to obtuse mycelial setae.

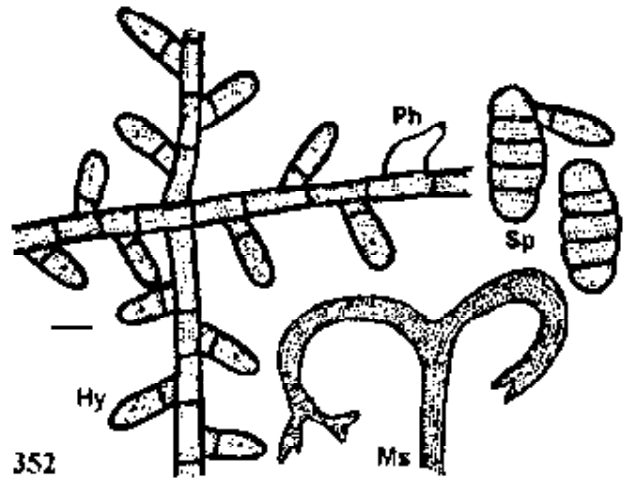
357. *Meliola thetei* nom. nov.

Meliola piperis Thite & Patil, Geophytology 13: 124, 1983. (*piperaceae*)

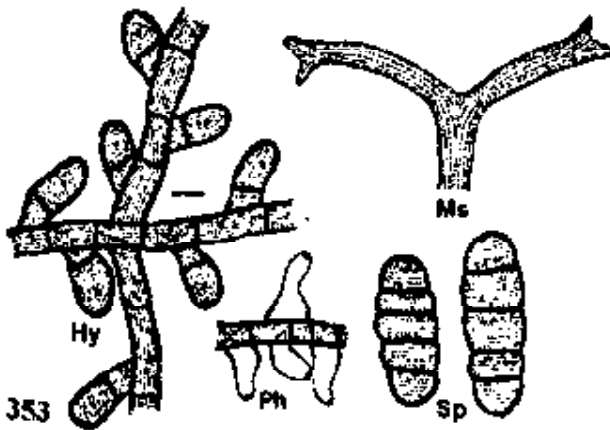
Colonies amphigenous, mostly epiphyllous, dense, confluent and cover the entire leaf surface. Hyphae straight to flexuous, branching mostly opposite at acute to wide angles, loosely reticulate, cells 18-28 x 6-8 μm . Hyphopodia alternate, antrorse, straight, 18-25 μm long; stalk cells cylindrical to cuneate, 3-9.5 μm long; head cells ovate, clavate, versiform, entire, 12-15.5 x 9-12.5 μm . Phialides numerous, mixed with hyphopodia, alternate to opposite, conoid to ampulliform, 12-18.5 x 9-11 μm . Mycelial setae thinly scattered, simple, straight, rarely curved, up to 315 μm long. Perithecia scattered, up to 150 μm in diam.; ascospores oblong to cylindrical, straight to slightly curved, 4-septate, slightly constricted, 30-34.5 x 12-15.5 μm .



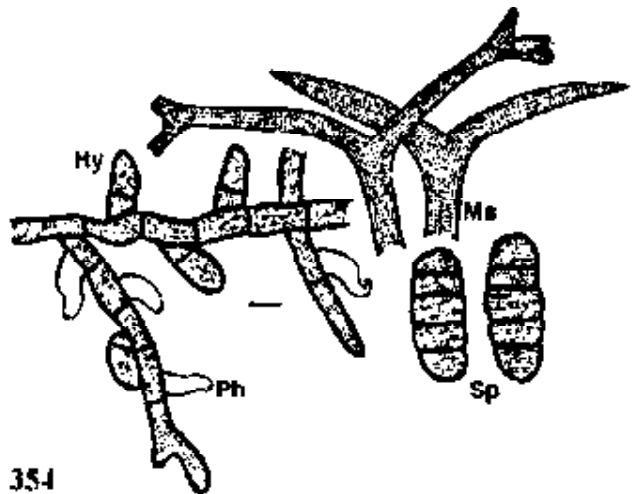
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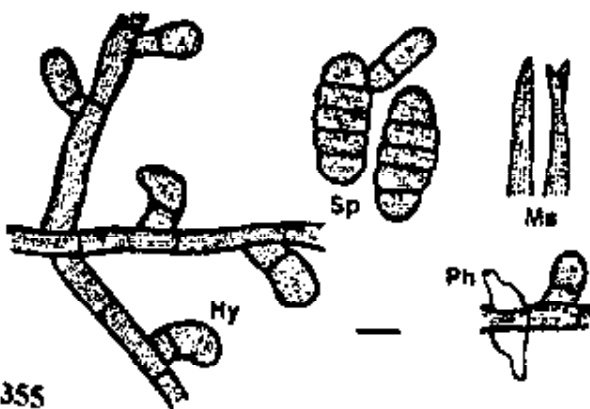
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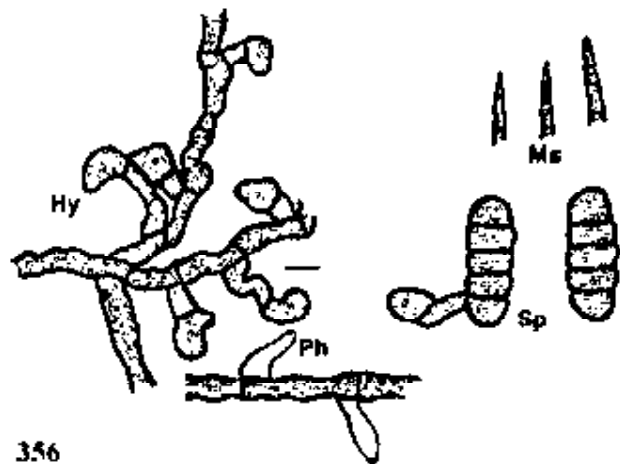
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351. *Meliola telosmae* Rehm var. *radhanagariensis* Hosag. 352. *M. tenella* Pat.
 353. *M. tenella* Pat. var. *atalantiae* (Pat.) Hansf. 354. *M. tenella* Pat. var. *atalanticola* Hosag. 355. *M. teramni* Sydow var. *millettiae* Hosag. 356. *M. themedae* Stev. & Rold. ex Hansf. var. *indica* Hosag.

Materials examined: On leaves of *Piper nigrum* L. (Piperaceae), Amboli, Radhanagari, Maharashtra, December 1980, A.N. Thite HCIO 33672 (type).

Distribution: India (Maharashtra).

The ovate and entire head cells of hyphopodia distinguishes this species from others. The name, *M. piperis* Earle is preoccupied and hence, the new name has been proposed here. The identity of the host plant is to be confirmed.

358. *Meliola thirumalacharii* Hosag. & Rajendran, J. Econ. Tax. Bot. 13: 76, 1989.

Colonies foliicolous, amphigenous, dense, up to 2 mm in diameter, rarely confluent. Hyphae flexuous to crooked, branching alternate to irregular at acute angles, loosely reticulate, cells 24-90 x 7-9.5 μm . Hyphopodia alternate to unilateral, distantly placed, antrorse to spreading, 24-46.5 μm long; stalk cells cylindrical to cuneate, 6-28 μm long; head cells ovate, globosc, angular to irregularly sublobate, 18-22 x 18-28 μm . Phialides numerous, borne on a separate mycelial branch, opposite to alternate, ampulliform, 30-37 x 6-9.5 μm . Mycelial setae fairly numerous, scattered, simple, straight, obtuse at the tip, up to 615 μm long. Perithecia loosely grouped, verrucose, up to 200 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 52-56 x 22-28 μm .

Materials examined: On leaves of *Microcos paniculata* L. (*Grewia microcos* L.) (Tiliaceae), Mekkari, Tirunelveli, Tamil Nadu, December 15, 1987, A. Rajendran MH 82164 (type), HCIO 39397 (isotype).

Distribution: India (Tamil Nadu).

359. *Meliola thiteana* sp. nov.

Coloniae amphigenae, subdensae, ad 5 mm diam. Hyphae subrectae, opposite et laxe ramosae, laxe vel dense reticulatae, cellulae 18-31 x 6-7 μm . Hyphopodia alternata et ad 20% opposita, antrorsa vel subantrorsa, 12-18.5 μm longa; cellula basali clindracea vel cuneata, 3-6.5 μm longa; cellula apicali globosa, integra, 9-12.5 x 9-11 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 15-18.5 x 6-7 μm . Setae myceliales dispersae, simplices, rectae, obtusae vel 2-4 cristatae ad apicem, ad 345 μm longae. Perithecia dispersa, verrucosa, ad 110 μm diam.; ascosporae leniter fusiformae, 4-septatae, constrictae, 40-43.5 x 15-18.5 μm .

Colonies amphigenous, subdense, up to 5 mm in diameter. Hyphae substraight, branching opposite at wide angles, loosely to closely reticulate, cells 18-31 x 6-7 μm . Hyphopodia alternate, about 20% opposite, antrorse to subantrorse, 12-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose, entire, 9-12.5 x 9-11 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 6-7 μm . Mycelial setae scattered, simple, straight, obtuse to 2-4 cristate at the apex, up to 345 μm long. Perithecia scattered, verrucose, up to 110 μm in diam.; ascospores slightly fusiform, 4-septate, constricted at the septa, 40-43.5 x 15-18.5 μm .

Materials examined: On leaves of *Glochidion* sp. (Euphorbiaceae), Radhanagari, Maharashtra, December 1974, A.N. Thite HClO 31904 (type).

Distribution: India (Maharashtra).

This new species can be compared with *Meliola jamaicensis* Hansf. but differs from it in having smaller hyphopodia with globose head cells and shorter mycelial setae and smaller ascospores.

360. *Meliola toddaliae* Doidge, Trans. Royal Soc. South Africa 5: 732, 1916; Hansf., Sydowia Beih. 2: 387, 1961; Hosag. & Pandurangan, Acta Bot. Indica 22: 132, 1994.

Colonies amphigenous, dense, velvety, up to 4 mm in diameter, confluent, easily detachable from the host leaves. Hyphae straight, branching mostly opposite at acute to wide angles, very closely reticulate and form solid mycelial mat, cells 15-18.5 x 6-8 μm . Hyphopodia opposite, straight to slightly curved, antrorse to subantrorse, 15-22 μm long; stalk cells cylindrical to cuneate, 3-9.5 μm long; head cells ovate, globose, oblong to cylindrical, entire to angular, 12-15.5 x 6-9.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 15-18.5 x 6-9.5 μm . Mycelial setae numerous, simple, straight, acute to obtuse at the tip, up to 572 μm long. Perithecia closely scattered, verrucose, up to 310 μm in diam.; ascospores obovoidal, 4-septate, slightly constricted at the septa, central cell slightly larger, 46-50 x 18-22 μm .

Materials examined: On leaves of *Pamburus missionis* (Wight) Swingle (Rutaceae), Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala, November 20, 1992, A.G. Pandurangan HClO 40890.

Distribution: India (Kerala), South Africa.

361. *Meliola toddaliicola* Hansf. var. *indica* Hansf. & Thirum., Farlowia 3: 299, 1948; Hansf., Sydowia Beih. 2: 390, 1961.

Colonies epiphyllous, dense, up to 3 mm in diameter. Hyphae substraight, branching opposite at acute to wide angles, closely reticulate, cells 15-20 x 6-7 μm . Hyphopodia opposite to 30% alternate, antrorse to spreading, 13-20 μm long; stalk cells cylindrical to cuneate, 3-5 μm long; head cells wide ovate, entire, 10-15 x 8-10 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 12-20 x 6-8 μm . Mycelial setae mostly grouped around perithecia, straight, simple, acute, up to 280 μm long. Perithecia scattered, verrucose, up to 150 μm in diam.; ascospores oblong, 4-septate, constricted, 38-44 x 15-17 μm .

Materials examined: On leaves of *Toddalia asiatica* (L.) Lam. (*T. aculeata* Pers.) (Rutaceae), Balehonnur, Karnataka, April 29, 1945, M.J. Thirumalachar HCIO 10865 (type).

Distribution: India (Karnataka).

362. *Meliola toreniae* sp. nov.

Coloniae amphigenae, caulicolae, densae, velutinae, ad 2 mm diam., raro confluentes. Hyphae sinuosae, irregulariter acuteque ramosae, laxe vel dense reticulatae, cellulae 15-25 x 6-8 μm . Hyphopodia alternata, antrorsa, 18-18.5 μm longa; cellula basali cuneata, 3-6 μm longa; cellula apicali ovata, integra, truncata vel leniter lobata ad apicem, 9-12.5 x 10-12 μm . Phialides illis hyphopodiis commixta, alternata vel opposita, ampullacea, 15-18.5 x 6-8 μm . Setae myceliales moderatim numerosae, simplices, rectae, obtusae ad apicem, ad 345 μm longae. Perithecia dispersa, verrucosa, ad 110 μm diam.; ascosporae rectae vel leniter curvulae, cylindratae, 4-septatae, leniter constrictae, 27-31 x 12-15.5 μm .

Colonies amphigenous, caulicolous, dense, velvety, up to 2 mm in diameter, rarely confluent. Hyphae sinuous, branching irregular at acute angles, loosely to closely reticulate, cells 15-25 x 6-8 μm . Hyphopodia alternate, antrorse, 15-18.5 μm long; stalk cells cuneate, 3-6 μm long; head cells ovate, entire, truncate to slightly lobate at the apex, 9-12.5 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-18.5 x 6-8 μm . Mycelial setae moderately numerous, simple, straight, obtuse at the apex, up to 345 μm long. Perithecia scattered, verrucose, up to 110 μm in diam.; ascospores straight to slightly curved, cylindrical, 4-septate, slightly constricted, 27-31 x 12-15.5 μm .

Materials examined: On leaves of *Torenia travancorica* Gamble (Scrophulariaceae), Valve House, Kanyakumari, Tamil Nadu, February 28, 1994, S. Rajan HCIO 41566 (type).

Distribution: India (Tamil Nadu).

Amphigenous dense colonies, truncate head cells of hyphopodia and straight mycelial setae distinguishes the present species from its closely related *Meliola maurandiae* Hansf.

363. *Meliola toricelliae* Kar & Maity, Nytt. Mag. Bot. 17: 80, 1970.

Colonies amphigenous, thin to subdense, up to 4 mm in diameter. Hyphae flexuous, branching opposite to irregular at acute angles, loosely reticulate, cells 19-33 x 6-7 μm . Hyphopodia alternate, antrorse to spreading, straight to curved, 14-21.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells globose, ovate, entire to slightly angular, 9-13 μm . Phialides mixed with hyphopodia, ampulliform. Mycelial setae scattered to grouped around perithecia, simple, straight, acute to obtuse at the tip, up to 700 μm long. Perithecia scattered to grouped, up to 198 μm in diam.; ascospores cylindrical, 4-septate, constricted at the septa, 36-44 x 11-15 μm .

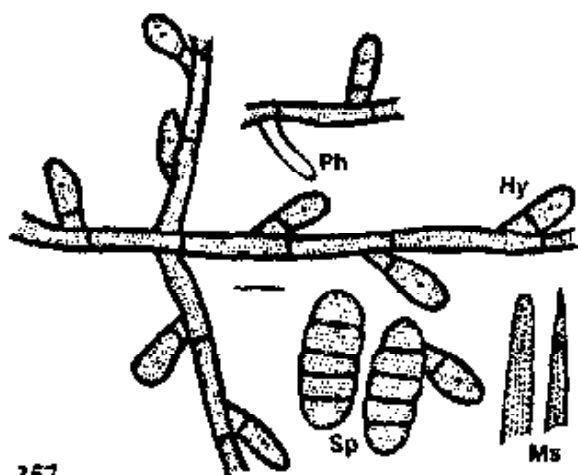
Type: On leaves of *Toricellia tiliaefolia* DC. (Toricelliaceae), Rajabhatkhawa, Jalpaiguri, West Bengal, November 1, 1967, M.K. Maity PCC 1473.

Materials examined: Material was not available.

Distribution: India (West Bengal).

364. *Meliola toxocarpi* Hosag. & Antony, J. Swamy Bot. Club 5: 75, 1988.

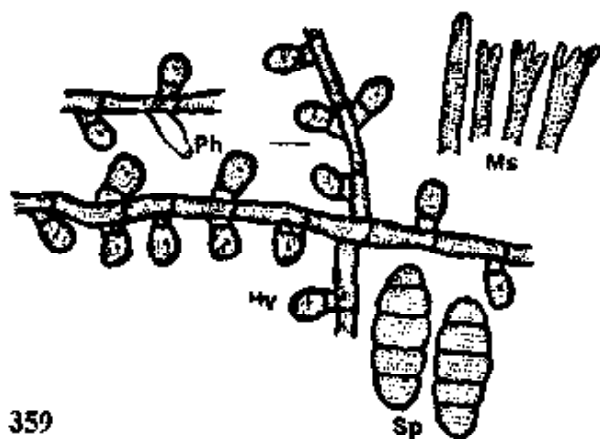
Colonies amphigenous, mostly epiphyllous, dense, up to 2 mm in diam., confluent. Hyphae straight to substraight, branching alternate, opposite to irregular at acute angles, loosely to closely reticulate, cells 21-28 x 6-8 μm . Hyphopodia alternate, mostly antrorse, 21-31 μm long; stalk cells cylindrical to cuneate, 6-9 μm long; head cells ovate, globose, entire to angular, rarely slightly sublobate, 18-25 x 12-15.5 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 18-25 x 6-9 μm . Mycelial setae scattered to grouped around perithecia, straight to curved, simple, acute, up to 544 μm long. Perithecia scattered, verrucose, up to 117 μm in diam.; ascospores obovoidal, 4-septate,



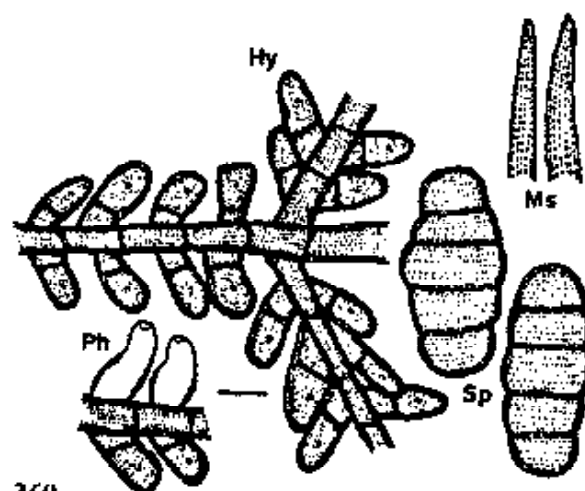
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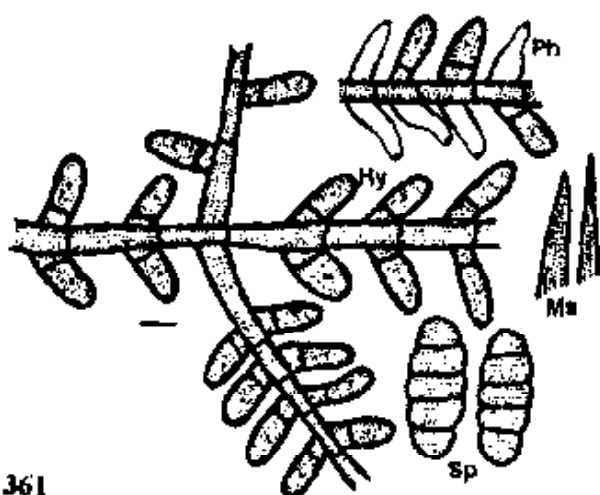
358



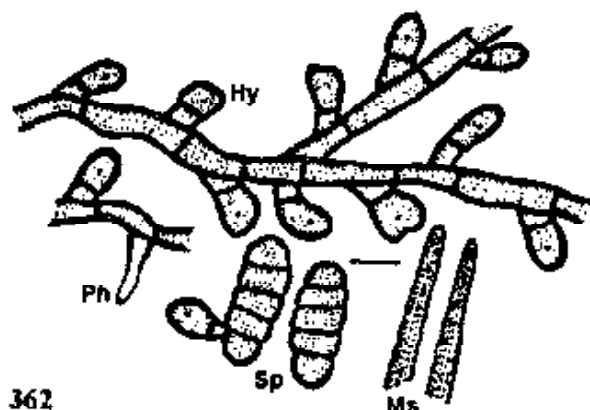
359



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357. *Meliola thitei* Hosag 358. *M. thirumalacharii* Hosag. & Rajendran 359. *M. thiteana* Hosag. 360. *M. toddaliae* Doidge 361. *M. toddaliicola* Hansf. var. *indica* Hansf. & Thirum. 362. *M. toreniae* Hosag.

constricted, 43-46.5 x 15-22 μm .

Materials examined: On leaves of *Toxicarpus beddomei* Gamble (Asclepiadaceae), Upper Godeyar, Kanniyakumari, Tamil Nadu, March 14, 1979, A.N. Henry HClO 40565 (type).

Distribution: India (Tamil Nadu).

365. *Meliola transvaalensis* Doidge, Bothalia 2: 238, 1928; Hansf., Sydowia Beih. 2: 512, 1961; Kapoor, Indian Phytopathol. 20: 159, 1967.

Colonies amphigenous, mostly epiphyllous, dense, up to 2 mm in diameter. Hyphae straight to substraight, branching opposite at acute angles, closely reticulate and form solid mycelial mat, cells 15-18.5 x 9-11 μm . Hyphopodia alternate and opposite from 5-60% and vary from colony to colony, antrorse, 18-28 μm long; stalk cells cylindrical to cuneate, 6-9.5 μm long; head cells ovate, clavate, entire to rarely angular, 12-18.5 x 12-14 μm . Phialides mixed with hyphopodia, scattered, ampulliform, 18-31 x 9-11 μm . Mycelial setae scattered, simple, straight, acute at the tip, up to 550 μm long. Perithecia scattered, up to 124 μm in diam.; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 49-53 x 18-22 μm .

Materials examined: On leaves of *Myrsine africana* L. (Myrsinaceae), Chaubattia, Sikkim, October 15, 1959, J.N. Kapoor HClO 26895.

Distribution: India (Sikkim), South Africa.

366. *Meliola travancoricae* Hosag. in Hosag. & Goos, Mycotaxon 42: 138, 1991.

Colonies epiphyllous, dense, crustose, up to 2 mm in diameter. Hyphae straight to substraight, branching mostly opposite at acute to wide angles, closely reticulate, cells 12-15.5 x 8-9.5 μm . Hyphopodia alternate, antrorse to spreading, straight to curved, 18-22 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate, entire, 14-16 x 10-12.5 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 15-22 x 12-15.5 μm . Mycelial setae fairly numerous, simple, straight, acute to obtuse at the tip, up to 500 μm long. Perithecia scattered, globose, up to 200 μm in diam.; ascospores ellipsoidal, 4-septate, constricted at the septa, 43-46.5 x 18-22 μm .

Materials examined: On leaves of *Semecarpus travancorica* Bedd. (Anacardiaceae), Koomati, Valparai, Coimbatore, Tamil Nadu, December 26,

1990, V.B. Hosagoudar HCIO 30560 (type).

Distribution: India (Tamil Nadu).

367. *Meliola trewiae* Hosag. in Hosag. & Goos, Mycotaxon 42: 138, 1991.

Colonies epiphyllous, very thin, up to 4 mm in diameter, confluent. Hyphae flexuous, branching opposite to alternate at acute angles, loosely reticulate, cells 30-34 x 8-9.5 μm . Hyphopodia alternate, antrorse to subantrorse, 12-18.5 μm long; stalk cells cylindrical to cuneate, 3-6.5 μm long; head cells ovate to globose, entire, 9-12.5 x 10-12 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 12-18.5 x 9-12.5 μm . Mycelial setae few, grouped around perithecia and also scattered, simple, straight, obtuse at the tip, up to 300 μm long. Perithecia scattered, verrucose, up to 124 μm in diam.; ascospores obovoidal, 4-septate, constricted at the septa, 31-34 x 12-15.5 μm .

Materials examined: On leaves of *Trewia polycarpa* Benth. ex Hook. (Euphorbiaceae), Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30561 (type); *T. nodiflora* L., Koomati, Valparai, Coimbatore, Tamil Nadu, December 26, 1990, V.B. Hosagoudar HCIO 30562.

Distribution: India (Tamil Nadu).

368. *Meliola trichostroma* (Kunze) Toro, J. Dept. Agric. Univ. Porto Rico 36: 62, 1952.

Sphaeria trichostroma Kunze in Wigelt's exsicc. 1827.

Meliola psidii Fr., Linnaea 5: 549, 1830.

Meliola horrida Ellis & Everh., Bull. Univ. Iowa 1893, p. 396.

Colonies hypophyllous, dense, velvety, up to 5 mm in diameter, confluent. Hyphae crooked, branching irregular at acute to wide angles, closely reticulate, cells 18-28 x 6-8 μm . Hyphopodia alternate, straight to irregularly curved, spreading, 16-30 μm long; stalk cells cylindrical to cuneate, 5-16 μm long; head cells vary in shape, mostly globose to oblong, entire, angular to lobate, straight to variously curved, truncate to lobate, straight to variously curved, truncate at apex, 10-18 x 6-13 μm . Phialides mixed with hyphopodia, alternate, ampulliform, 18-28 x 6-9.5 μm . Mycelial setae closely scattered, simple, straight, acute to obtuse at the tip, up to 420 μm long. Perithecia scattered, up to 180 μm in diam.; ascospores ellipsoidal to fusiform, 4-septate, slightly constricted at the septa, 40-46 x 14-16 μm .

Materials examined: On leaves of *Psidium guajava* L. (Myrtaceae), Brazil, January 28, 1908, C.F. Baker HCIO 3851.

Distribution: India (Maharashtra), Brazil, British Guiana, Colombia, Costa Rica, Ecuador, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Porto Rico, San Domingo, Surinam, Trinidad, Venezuela.

This species reported from Maharashtra on the fruits of *Psidium guajava* L. and the present description and drawings are from the Brazil collection.

369. *Meliola twaltesiana* Hansf., Sydowia 10: 94, 1957; Sydowia Beih. 2: 591, 1961; Thite & Kulkarni, J. Shivaji Univ. (Sci.) 18: 212, 1978.

Colonies amphigenous, dense, velvety, up to 3 mm in diameter, confluent. Hyphae substraight to undulate, branching mostly opposite at wide angles, closely reticulate, cells 15-20 x 6-8 μm . Hyphopodia mostly opposite, antrorse to spreading, straight to slightly curved, 15-20 μm long; stalk cells cylindrical, 2-6 μm long; head cells oblong to cylindrical, entire, 11-18 x 6-8 μm . Phialides mixed with hyphopodia, opposite to alternate, ampulliform, 17-25 x 7-9 μm . Mycelial setae thinly scattered, straight, simple, acute, up to 900 μm long. Perithecia scattered, verrucose, up to 210 μm in diam.; ascospores cylindrical to subellipsoidal, 4-septate, 41-48 x 18-20 μm .

Materials examined: On leaves of *Ixora coccinae* L. (Rubiaceae), Radhanagari, Maharashtra, A.N. Thite SUK. Material was not available for the study and the description based on Hansford (1961).

Distribution: India (Maharashtra), Ceylon.

370. *Meliola tylophorae* Hosag. in Hosag. & Goos, Mycotaxon 37: 250, 1990.

Colonies amphigenous, mostly hypophyllous, dense, velvety, up to 5 mm in diameter, confluent. Hyphae straight to slightly undulate, branching opposite at acute to wide angles, loosely to closely reticulate, cells 12-30 x 6-8 μm . Hyphopodia alternate and about 60% opposite, antrorse, spreading, straight to curved, 16-20 μm long; stalk cells cylindrical to cuneate, 4-8 μm long; head cells ovate, globose, entire, 10-14 x 8-10 μm . Phialides mixed with hypophodia, opposite to alternate, ampulliform, 12-24 x 6-10 μm . Mycelial setae scattered to grouped around perithecia, simple, acute to obtuse at the tip, up to 468 μm long. Perithecia mostly grouped, verrucose, up to 252 μm in diam.; ascospores obovoidal, 4-septate, constricted, 34-42 x 14-18 μm .

Materials examined: On leaves of *Tylophora caparidifolia* Wight & Arn. (Asclepiadaceae), Calvary Mount, Idukki, Kerala, February 21, 1983, V.B. Hosagoudar HClO 40567 (type), MH 75885 (isotype).

Distribution: India (Kerala).

The present species is very close to *M. hoyae* Sacc. but differs from it in larger perithecia, smaller ascospores and longer mycelial setae.

371. *Meliola vepridis* Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51: 116, 1994.

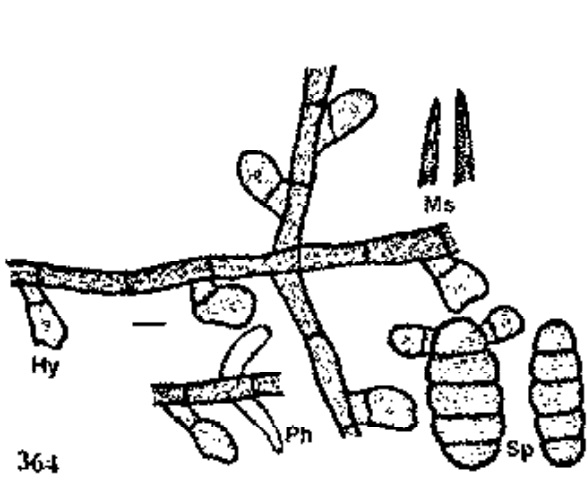
Colonies amphigenous, dense, crustose to velvety, up to 4 mm in diameter, rarely confluent. Hyphae straight to substraight, branching mostly opposite at wide angles, closely reticulate and form solid mycelial mat, cells 21-31 x 8-9.5 μm . Hyphopodia alternate, straight to curved, antrorse to recurved, 24-31 μm long; stalk cells cylindrical to cuneate, 6-12.5 μm long; head cells ovoid to globose, cylindrical, entire, angular to sublobate, often truncate at the apex, 15-18.5 x 14-17 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 18-22 x 11-12.5 μm . Mycelial setae fairly numerous, simple, straight, very few uncinata, acute at the apex, up to 930 μm long. Perithecia scattered, up to 186 μm in diam.; ascospores obovoidal to cylindrical, 4-septate, constricted, 46-56 x 20-22 μm .

Materials examined: On leaves of *Vepris bilocularis* (Wight & Arn.) Engl. (Rutaceae), Gersoppa, Uttara Kannada, Karnataka, October 21, 1992, P.A. Raghu HClO 40880 (type).

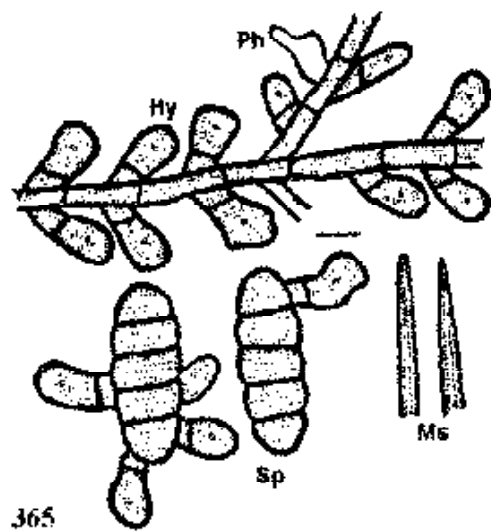
Distribution: India (Karnataka).

372. *Meliola weherae* Kapoor, Indian Phytopathol. 20: 159, 1967; Hosag. & Goos, Mycotaxon 37: 250, 1990.

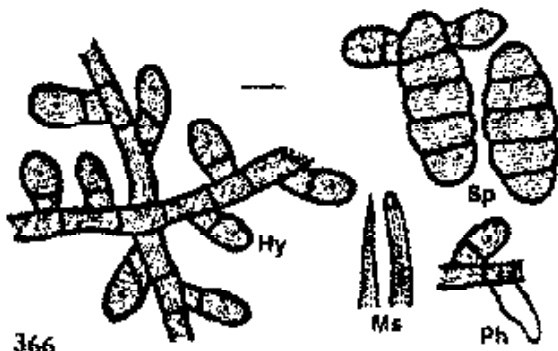
Colonies amphigenous, subdense to dense, up to 3 mm in diameter, confluent. Hyphae substraight to undulate, branching opposite to alternate at acute angles, loosely reticulate, cells 22-30 x 6-8 μm . Hyphopodia alternate to unilateral, antrorse, spreading, 22-34 μm long; stalk cells cylindrical to cuneate, 8-14 μm long; head cells clavate, versiform, slightly angular, often curved, entire, 14-18 x 12-18 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 16-24 x 6-8 μm . Mycelial setae scattered to grouped around perithecia, simple, acute at the tip, up to 450 μm long. Perithecia scattered



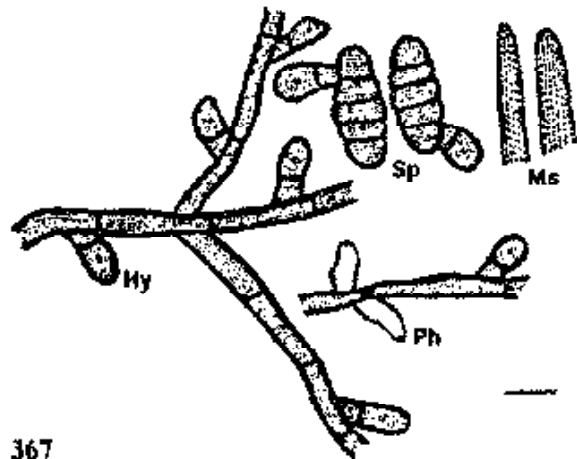
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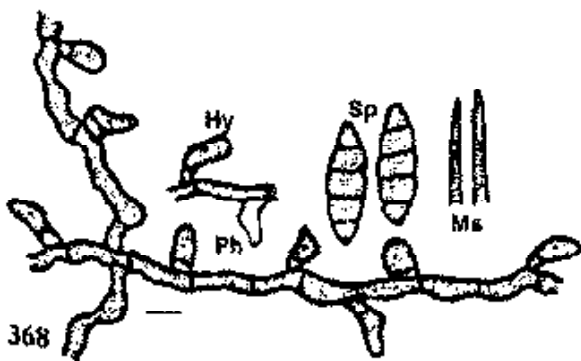
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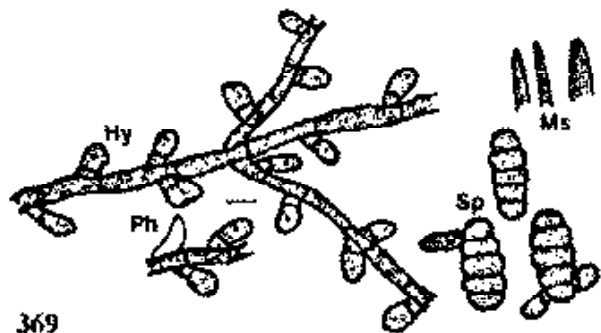
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364. *Meliola toxocarpi* Hosag. & Antony 365. *M. transvaalensis* Doidge 366. *M. travancoricarum* Hosag. 367. *M. trewiae* Hosag. 368. *M. trichostroma* (Kunze) Toro
369. *M. tylophorae* Hosag.

to grouped, verrucose, up to 176 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 46-48 x 18-20 μm .

Materials examined: On leaves of *Tarennia asiatica* (L.) Sant. & Merck. (*Chomelia asiatica* O. Kze., *Webera corymbosa* (Willd.) (Rubiaceae), Bilikere, Karnataka, September 19, 1903, E.J. Butler HClO 1035 (type); Pamba, Pathanamthitta, Kerala, October 10, 1983, V.B. Hosagoudar MH 78921; Kudrevetti, Tirunelveli, Tamil Nadu, February 23, 1994, V.B. Hosagoudar HClO 41579.

Distribution: India (Karnataka, Kerala, Tamil Nadu).

373. *Meliola wendlandiae* Hosag. in Hosag. & Goos, Mycotaxon 37: 251, 1990.

Colonies amphigenous, mostly hypophyllous, subdense, subvelvety, up to 4 mm in diameter, confluent. Hyphae sinuous to crooked, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 18-32 x 6-10 μm . Hyphopodia alternate, spreading, antrorse, 20-30 μm long; stalk cells cuneate to cylindrical, 6-12 μm long; head cells ovate, narrow towards apex, slightly angular, entire, 15-18 x 12-14 μm . Phialides borne on a separate mycelial branch, alternate to opposite, ampulliform, 14-20 x 8-10 μm . Mycelial setae few, grouped around perithecia, simple, straight, acute to subacute at apex, up to 344 μm long. Perithecia scattered, verrucose, up to 168 μm in diam.; ascospores obovoidal, 4-septate, constricted, 36-46 x 12-18 μm .

Materials examined: On leaves of *Wendlandia notoniana* Wall. (Rubiaceae), near Painavu, Idukki, Kerala, April 18, 1982, V.B. Hosagoudar HClO 40571 (type), MH 72692 (isotype); October 3, 1983, V.B. Hosagoudar MH 78131; *W. tomentosa*, Kemmanagundi, Karnataka, February 26, 1984, C.R. Patil HClO 40019; Valve House, Kanniyakumari, Tamil Nadu, February 28, 1994, V.B. Hosagoudar HClO 41577.

Distribution: India (Karnataka, Kerala, Tamil Nadu).

374. *Meliola woodfordiae* Srinivasulu, Nova Hedwigia Beih. 47: 433, 1974.

Colonies amphigenous, dense, velvety, up to 5 mm in diameter, confluent. Hyphae straight to undulate, branching opposite at acute angles, closely reticulate, cells 14-21 x 6-7 μm . Hyphopodia alternate, antrorse, 13-16 μm long; stalk cells cylindrical to cuneate, 3-4 μm long; head cells ovate, clavate, cylindrical, entire to rarely lobate, 10-12 x 8-15 μm . Phialides borne on separate mycelial branch,

opposite to alternate, ampulliform, 17-19 x 4-7 μm . Mycelial setae numerous, scattered, simple, straight, obtuse, up to 350 μm long. Perithecia mostly in groups, verrucose, up to 200 μm in diam.; ascospores oblong, 4-septate, constricted at the septa, 30-36 x 10-12 μm .

Type: On leaves of *Woodfordia fruticosa* Kurz (Lythraceae), Castle rock, Maharashtra, November 1966, B.V. Srinivasulu MUH 145.

Materials examined: Material was not available.

Distribution: India (Maharashtra).

375. *Meliola zanthoxyli* Hansf., Proc. Linn. Soc. London 158: 37, 1946; Sydowia Beih. 2: 386, 1961; Kapoor, Indian Phytopathol. 20: 160, 1961; Hosag. & Goos, Mycotaxon 42: 139, 1991.

Colonies epiphyllous, dense, velvety, up to 3 mm in diameter. Hyphae substraight to undulate, branching opposite at wide angles, densely reticulate, cells 12-18 x 8-10 μm . Hyphopodia alternate, antrorse, straight, 20-28 μm long; stalk cells cylindrical to cuneate, 8-12 μm long; head cells irregularly lobate, 12-24 x 14-22 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 12-20 x 8-10 μm . Mycelial setae scattered, simple, obtuse to hamate, up to 375 μm . Perithecia scattered, verrucose, up to 250 μm in diam.; ascospores oblong to ellipsoidal, 4-septate, slightly constricted, 52-56 x 20-24 μm .

Materials examined: On leaves of *Zanthoxylum ovalifolium* Wight (Rutaceae), Talaguppa, Karnataka, October 29, 1911, G.S. Kulkarni HCIO 3189; *Z. tetraspermum* Wight & Arn., Kollimalai, Tamil Nadu, November 1, 1914, J.S. Gamble HCIO 30563.

Distribution: India (Karnataka, Tamil Nadu), Ceylon.

376. *Meliola zanthoxyli-ovalifolii* sp. nov.

Coloniae amphigenae, tenues vel subdensae, ad 2 mm diam., raro confluentes. Hyphae subrectae vel flexuosae, plerumque opposite laxae ramosae, laxae reticulatae, cellulae 21-34 x 9-11 μm . Hyphopodia alternata, antrorsa vel subantrorsa, recta, mostly curvula, 30-33 μm longa; cellula basali cylindracea vel cuneata, 9-12.5 μm longa; cellula apicali ovata vel elongato-ovata, integra, 18-22 x 9-12.5 μm . Phialides illis capitatis commixta, plerumque opposita vel opposita ad hyphopodia, ampullacea, 24-31 x 9-11 μm . Setae myceliales aggregatus circa

peritheciae, simplices, rectae, acutae vel obtusae ad apicem, ad 460 μm longae. Perithecia dispersa, verrucosa, ad 140 μm diam.; ascosporae oblongae vel cylindratae, 4-septatae, constrictae, 46-56 x 18-22 μm .

Colonies amphigenous, thin to subdense, up to 2 mm in diameter, rarely confluent. Hyphae substraight to flexuous, branching mostly opposite at wide angles, loosely reticulate, cells 21-34 x 9-11 μm . Hyphopodia alternate, antrorse to subantrorse, straight, mostly curved, 30-33 μm long; stalk cells cylindrical to cuneate, 9-12.5 μm long; head cells ovate to elongate-ovate, entire, 18-22 x 9-12.5 μm . Phialides mixed with hyphopodia, mostly opposite or opposite to hyphopodia, ampulliform, 24-31 x 9-11 μm . Mycelial setae grouped around perithecia, simple, straight, acute to obtuse at the tip, up to 460 μm long. Perithecia scattered, verrucose, up to 140 μm in diam.; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 46-56 x 18-22 μm .

Materials examined: On leaves of *Zanthoxylum ovalifolium* Wight (Rutaceae), Varagaliar, Anamalai, Coimbatore, Tamil Nadu, February 13, 1994, V.B. Hosagoudar HCIO 41565 (type).

Distribution: India (Tamil Nadu).

This new species is very close to *Meliola macropoda* Sydow in having elongate ovate head cells of the hyphopodia. However, the present species differs from it in having smaller but characteristically bent head cells of the hyphopodia.

377. *Meliola zlyzphi* Hansf. & Thirum., Farlowia 3: 299, 1948; Hansf., Sydowia Beih. 2: 368, 1961; Thite & Kulkarni, J. Shivaji Univ. 6: 163, 1972; Hosag. & Goos, Mycotaxon 37: 251, 1990; Hosag., Crypt. Bot. 2/3: 187, 1991.

Colonies amphigenous, mostly epiphyllous, thin, up to 5 mm in diameter, confluent. Hyphae straight to substraight, branching alternate to opposite at acute angles, loosely reticulate, cells 20-38 x 6-8 μm . Hyphopodia alternate to opposite, straight, spreading, antrorse, 10-14 μm long; stalk cells cylindrical to cuneate, 2-6 μm long; head cells globose, entire, 8-10 μm . Phialides mixed with hyphopodia, alternate to opposite, ampulliform, 16-18 x 6-8 μm . Mycelial setae scattered and grouped around perithecia, straight, simple, acute to variously dentate at the tip, up to 342 μm long. Perithecia scattered, verrucose, up to 116 μm in diam.; ascospores ellipsoidal, 4-septate, constricted, 30-32 x 10-12 μm .

Materials examined: On leaves of *Zizyphus rugosa* Lamk. (Rhamnaceae), Balehonnur, Karnataka, April 4, 1945, M.J. Thirumalachar HCIO 10879 (type); Maredumilli, East Godavari, Andhra Pradesh, February 15, 1994, M. Mohanan HCIO 41582; *Z. xylopyrus* (Retz.) Willd., December 28, 1983, V.B. Hosagoudar HCIO 40572, MH 80328; Thorepalli, Nilgiris, Tamil Nadu, January 19, 1990, V.B. Hosagoudar HCIO 32891; *Z. glabrata* Heyne ex Roth (*Z. trinervia* Roxb.), Patgaon, Kolhapur, Maharashtra, February 7, 1984, C.R. Patil HCIO 40016; Idukki, Kerala, October 22, 1984, A. Diraviadoss MH 82602.

Distribution: India (Karnataka, Kerala, Maharashtra).

The type material has got only acute setae but the subsequent collections are with acute to dentate setae. This is considered as variation.

GENUS PRATAPRAJELLA

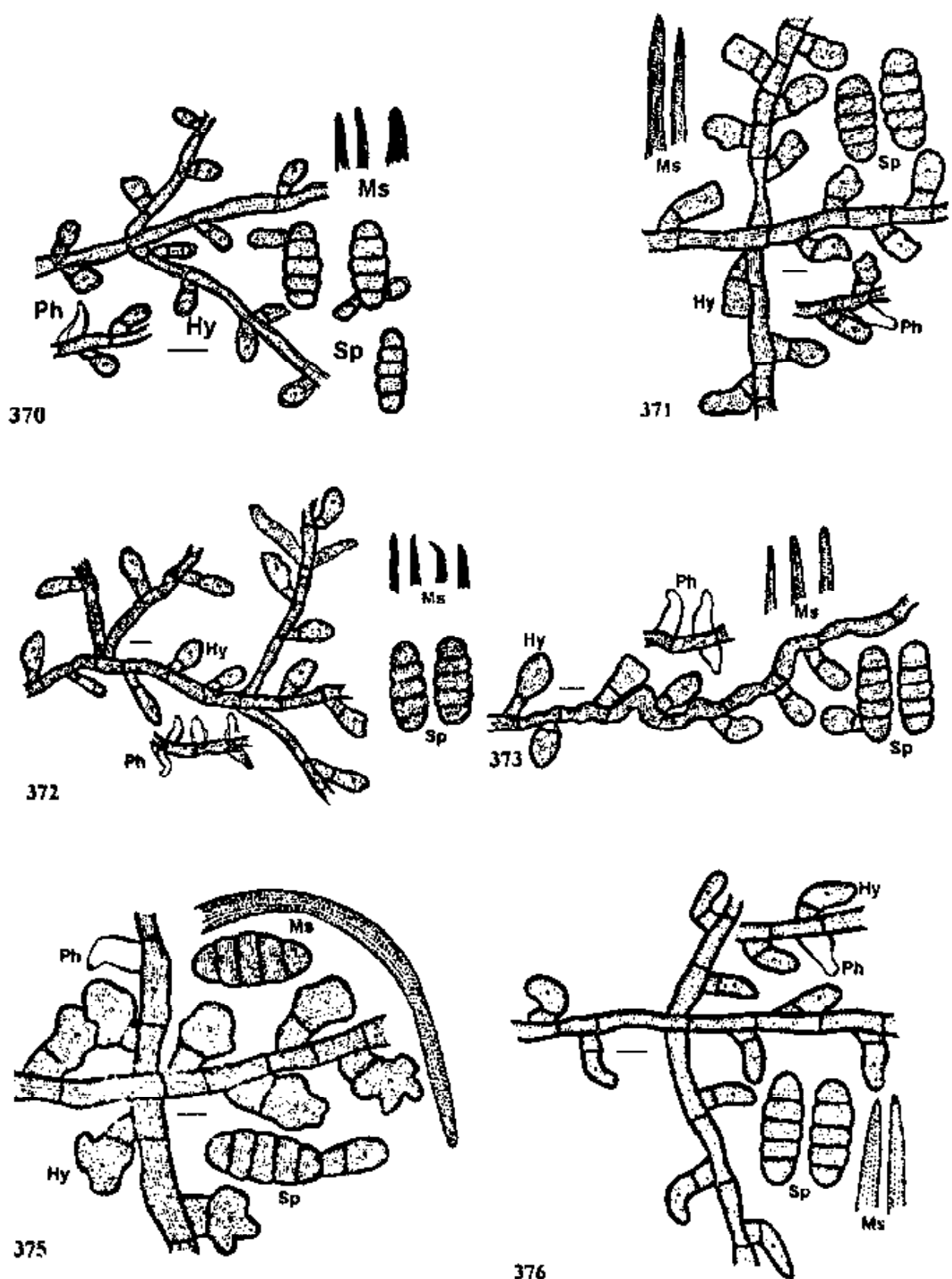
Prataprajella Hosag., *Nova Hedwigia* 55: 224, 1992.

Colonies foliicolous; hyphae foliicolous, superficial, hyphopodiate and setose; hyphopodia two celled, lower cylindrical to cuneate cells called stalk cell, apical or head cell globose, entire to lobate which produces haustorium from its lower surface into the host epidermis. Phialides single-celled, conical to ampulliform. Perithecial setae absent, but bear larviform appendages. Mycelial setae arise from the subiculum or from mycelium, wavy, golden yellow, simple, prostrate, spreading on the host surface, devoid of hyphae. Perithecia globose, with or without ostiole. Ascospores brown, straight to curved, 3-4 septate, constricted at the septa.

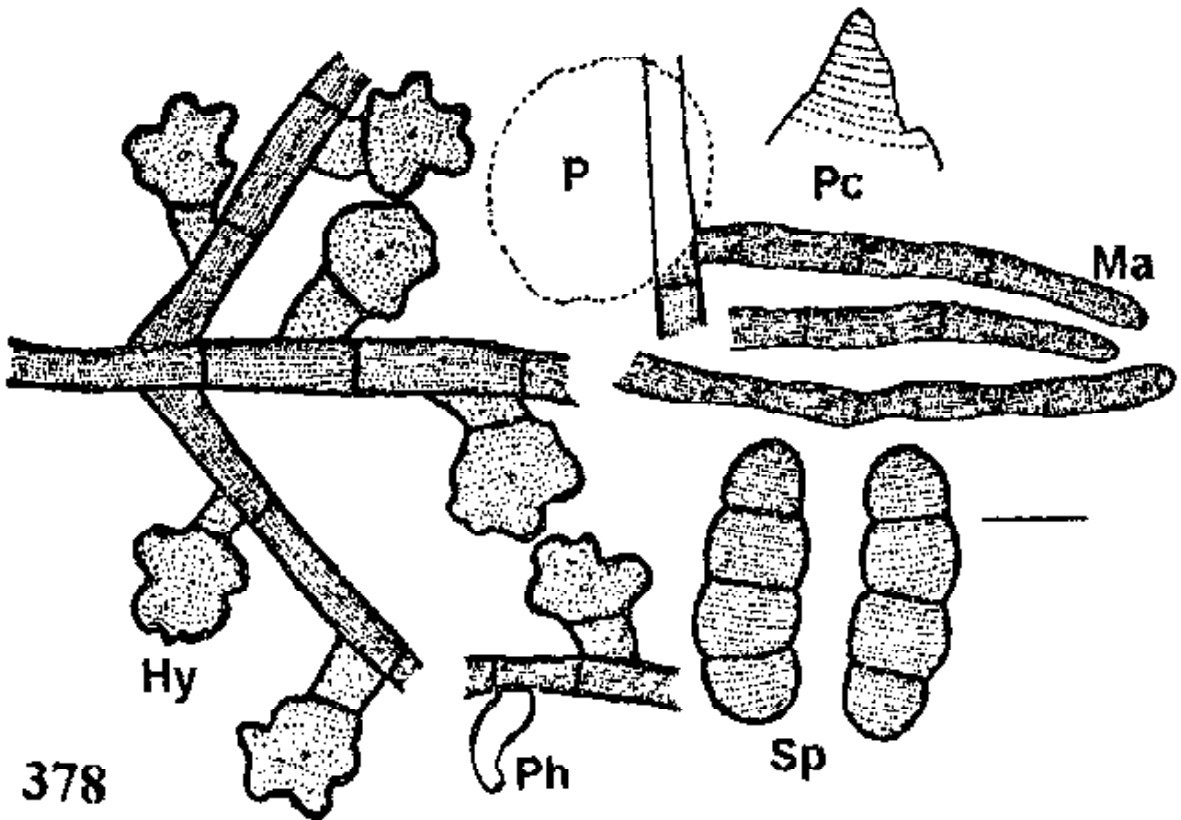
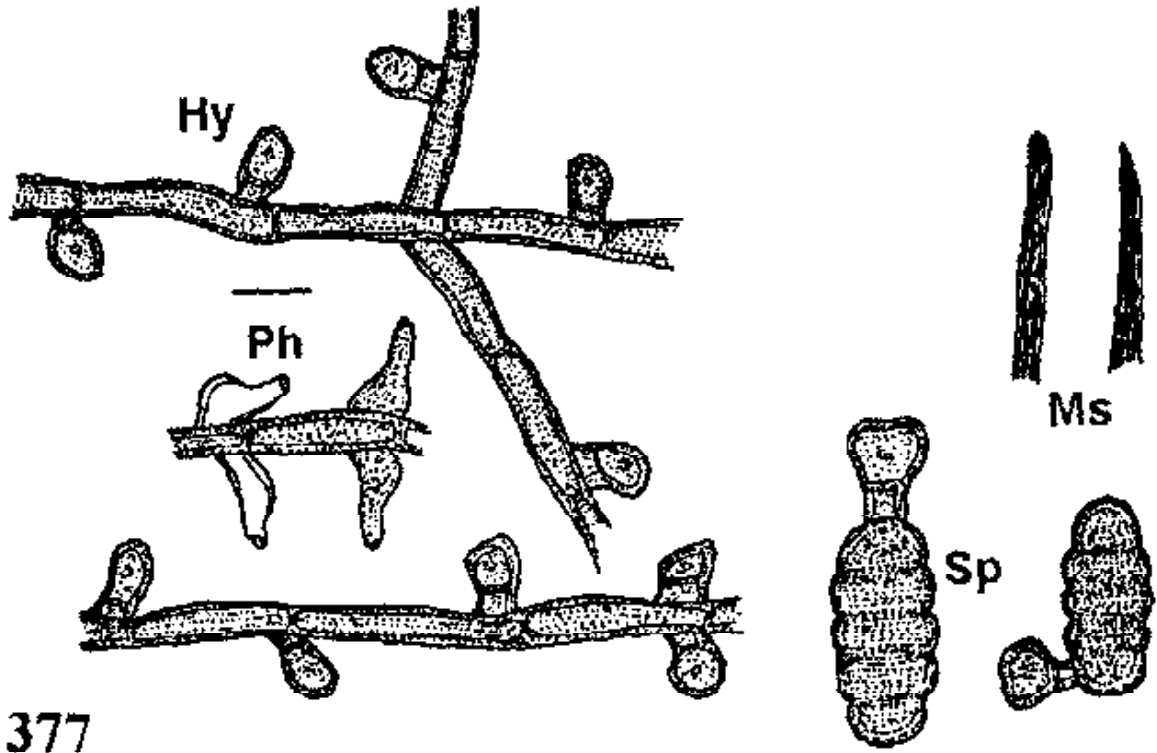
Type: *P. turpiniicola* (Hosag.) Hosag.

378. **Prataprajella turpiniicola** (Hosag.) Hosag., *Nova Hedwigia* 55: 225, 1992.
Asteridiella turpiniicola Hosag. in Hosag. & Goos, *Mycotaxon* 36: 341, 1989.

Colonies amphigenous, mostly hypophyllous, dense, up to 3 mm in diameter. Hyphae straight to substraight, branching alternate to opposite at wide angles, loosely to closely reticulate and form an almost solid mycelial mat, cells 16-32 x 8-12 μm . Hyphopodia alternate, spreading, antrorse, 26-30 μm long; stalk cells cylindrical to cuneate, 6-10 μm long; head cells globose, stellately sublobate to lobate, 18-20 x 16-24 μm . Phialides few, mixed with hyphopodia, alternate to



370. *Meliola tylophorae* Hosag. 371. *M. vepridis* Hosag. et al. 372. *M. weberae* Kapoor 373. *M. wendlandiae* Hosag. 375. *M. zanthoxyli* Hansf. 376. *M. zanthoxyli-ovalifolii* Hosag.



377. *Meliola zizyphi* Hansf. & Thirum. 378. *Prataprajella turpiniicola* (Hosag.) Hosag.

opposite, ampulliform, 20-24 x 8-10 μm . Mycelial setae larviform, wavy, golden brown, simple, spreading, up to 196 μm long and 7-8 μm wide, tip obtuse, simple, twisted, few appendages even longer than 1000 μm long; perithecia scattered to grouped, globose, up to 360 μm in diameter. Perithecial appendages larviform, straight to curved, twisted, acute to obtuse at the tip, up to 45 μm long; ascospores fusiform, predominantly 3-septate, constricted at the septa, 46-56 x 16-20 μm .

Materials examined: On leaves of *Turpinia malabarica* (Staphyleaceae), Idukki, Kerala, India, April 4, 1982, V.B. Hosagoudar HCIO 40483.

Distribution: India (Kerala, Tamil Nadu).

Subsequent collections revealed larviform perithecial appendages. The host range of this genus restricted only the genus *Turpinia*.

Species excludendae

1. *Amazonia daphniphylli* Patil in Hosag., Patil & Balakr., J. Econ. Tax. Bot. 13: 76, 1989.
The type (HCIO 39883) is *Asterostomella daphniphylli* Hosag. & Ravikumar.
2. *Meliola balakrishnanii* Nair & Kaul, Sydowia 36: 206, 1983.
The type (HCIO 3384) did not reveal the characters of Meliolaceae.
3. *Meliola buchneaviae* Bat. var. *terminaliae* Nair & Kaul, Sydowia 36: 206, 1983.
The type (HCIO 33806) did not reveal the characters of Meliolaceae.

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var. <i>cuspidifera</i>	60	<i>Ilex malabarica</i>	210
<i>Ficus</i> sp.	101,179,285	<i>Ilex</i> sp.	226
<i>Filicium decipiens</i>	180,181	<i>Ipomoea</i> sp.	142
<i>Flacourtia</i> sp.	7	<i>Ischaemum zeylanicum</i>	287
<i>Garcinia spicata</i>	186	<i>Isonandra lanceolata</i> f.	
<i>Gardneria ovata</i>	188	<i>anfractuosa</i>	221
<i>Gardneria</i> sp.	187	<i>Ixora arborea</i>	348
<i>Glochidion ellipticum</i>	192	<i>Ixora coccinae</i>	313
<i>Glochidion hohenackeri</i>	192	<i>Ixora coccinea</i>	216,304,370
<i>Glochidion velutinum</i>	193	<i>Ixora elongata</i>	215
<i>Glochidion</i> sp.	224,359	<i>Ixora lanceolaris</i>	370
<i>Glycosmis mauritiana</i>	117	<i>Ixora negricans</i>	370
<i>Glycosmis pentaphylla</i>	227	<i>Ixora parviflora</i>	136
<i>Gmelina arborea</i>	144	<i>Ixora polyantha</i>	214
<i>Gnetum ula</i>	194	<i>Jasminum auriculatum</i>	218
<i>Gnidia glauca</i>	69	<i>Jasminum malabaricum</i>	189
<i>Gomphandra coriacea</i>	8	<i>Jasminum rottlerianum</i>	218
<i>Gordonia obtusa</i>	196	<i>Jasminum sambac</i>	217
<i>Gouania leptostachya</i>	72	<i>Jasminum</i> sp.	155
<i>Gouania microcarpa</i>	9	<i>Jatropha glandulifera</i>	219
<i>Grewia subinaequalis</i>	38	<i>Kingiodendron pinnatum</i>	227
<i>Grewia teliaefolia</i>	197	<i>Kydia calycina</i>	68,229
<i>Grewia</i> sp.	62	<i>Lannea coromandelica</i>	190
<i>Hedera helix</i>	291	<i>Leea asiatica</i>	253
<i>Hedyotis albo-nervia</i>	222	<i>Leea indica</i>	14,66,67
<i>Hedyotis gamblei</i>	222	<i>Leea macrophylla</i>	14
<i>Helicteres isora</i>	64	<i>Lepionurus sylvestris</i>	279
<i>Hemidesmus indicus</i>	199,200	<i>Lepisanthes senegalensis</i>	283
<i>Herietaria littoralis</i>	39	<i>Leycesteria glaucophylla</i>	231
<i>Heterophragma roxburghii</i>	151	<i>Ligustrum perrottetti</i>	232,254
<i>Heynea trijuga</i>	203	<i>Linociera malabarica</i>	24,234,255
<i>Hippocratea obtusifolia</i>	277	<i>Litsea coriacea</i>	239
<i>Holarrhena antidysenterica</i>	205,334	<i>Litsea floribunda</i>	235,238
<i>Holigarna ferruginea</i>	206	<i>Litsea insignis</i>	163,236
<i>Holigarna grahamii</i>	206	<i>Litsea</i> sp.	307,331
<i>Holigarna ornottiana</i>	206	<i>Litsea stocksii</i> var.	
<i>Homonoia riparia</i>	312	<i>glabrescense</i>	237
<i>Hovenia dulcis</i>	22	<i>Lobelia nicotianifolia</i>	240
<i>Hunteria zeylanica</i>	207	<i>Loecneriella obtusifolia</i>	277
<i>Ixora brachiata</i>	313	<i>Lophopetalum wightianum</i>	41
<i>Ichnocarpus frutescens</i>	209	<i>Lophotherum gracile</i>	287

<i>Luvunga sermentosa</i>	242	<i>Nothopegia beddomei</i>	273
<i>Luvunga elutherandra</i>	242	<i>Nothopegia colebrookiana</i>	273
<i>Macaranga peltata</i>	35, 42	<i>Nothopegia heyneana</i>	273
<i>Madhuca longifolia</i>	54	<i>Notopodytes nimmoniana</i>	137
<i>Maesa indica</i>	17,198	<i>Ochrocarpus longifolius</i>	274
<i>Mallotus alba</i>	43	<i>Odina wodier</i>	190
<i>Mallotus philippensis</i>	43,44,250	<i>Olax wightiana</i>	276
<i>Mallotus resinusus</i>	53	<i>Olea dioica</i>	59,247
<i>Mallotus tetracoccus</i>	43	<i>Opilia amentacea</i>	278
<i>Mammia suriga</i>	274	<i>Ostodis paniculata</i>	280
<i>Mangifera andamanica</i>	251	<i>Osyris arborea</i>	281
<i>Mangifera indica</i>	251	<i>Osyris quadriseptata</i>	282
<i>Mastixia arborea</i>	45	<i>Otonephelium stipulaceum</i>	284
<i>Maytenus emerginata</i>	16	<i>Pagenelia longifolia</i>	151
<i>Maytenus rothiana</i>	15	<i>Pamburus missionis</i>	360
<i>Meliosma simplicifolia</i>	46	<i>Pandanus sp.</i>	223
<i>Memecylon depressum</i>	259,260	<i>Paramignya armata</i>	289
<i>Memecylon edule</i>	82,202	<i>Pavetta indica</i>	303
<i>Memecylon talbotium</i>	202	<i>Pentapterygium serpens</i>	48
<i>Merremia umbellata</i>	259	<i>Persea macrantha</i>	
<i>Microcos paniculata</i>	358		182,183,243,311
<i>Millettia racemosa</i>	262	<i>Phaseolus khandalensis</i>	295
<i>Millettia rubiginosa</i>	106,355	<i>Phoenix sylvestris</i>	286
<i>Millettia splendens</i>	261	<i>Phoenix sp.</i>	286
<i>Mitragyna parviflora</i>	263	<i>Phragmatis karka</i>	98
<i>Mitrephora heyneana</i>	264	<i>Piper nigrum</i>	340,357
<i>Momosa intsia</i>	80	<i>Piper sp.</i>	339
<i>Moullava spicata</i>	81	<i>Pittosporum dasycaulon</i>	301
<i>Mucuna hirsuta</i>	266	<i>Plectronia parviflora</i>	122
<i>Mucuna imbricata</i>	265	<i>Plectronia umbellata</i>	297
<i>Mucuna pruriens</i>	267	<i>Pleurostyliia sp.</i>	133
<i>Murraya exotica</i>	252	<i>Plumeria alba</i>	336
<i>Murraya paniculata</i>	352	<i>Pogostemon pubescens</i>	298
<i>Mussaenda belilla</i>	91	<i>Polygonum chinense</i>	299,300
<i>Mussaenda laxa</i>	91	<i>Porana paniculata</i>	248
<i>Myristica fatua</i>	268	<i>Pothos scandens</i>	50
<i>Myrsine africana</i>	365	<i>Premna glaberrima</i>	302
<i>Neolitsea scrobiculata</i>	271	<i>Psidium guajava</i>	368
<i>Neolitsea zeylanica</i>	271	<i>Psychotria nudiflora</i>	304
<i>Nephelium longan</i>	126,146	<i>Psychotria sp.</i>	18
<i>Nilgirianthus heyneanus</i>	271	<i>Pterocarpus marsupium</i>	305

<i>Pterospermum diversifolium</i>	74	<i>Styrox serrulatum</i>	228
<i>Pterospermum reticulatum</i>	306	<i>Swietenia mahagoni</i>	342
<i>Pueraria tuberosa</i>	103	<i>Symingtonia populnea</i>	343
<i>Puereria sp.</i>	102	<i>Symphorema involucreatum</i>	345
<i>Pyracantha crenulata</i>	220	<i>Symplocos cochinchinensis</i>	344
<i>Quercus leucotrichophora</i>	112	<i>Symplocos sp.</i>	13
<i>Quercus sp.</i>	52,257	<i>Syzygium claviflora</i>	47
<i>Rapanea wightiana</i>	315	<i>Syzygium cumini</i>	19
<i>Reevesia pubescens</i>	316	<i>Syzygium jambos</i>	174
<i>Reinwardtiadendron</i>		<i>Syzygium laetum</i>	308
<i>anamallayum</i>	317	<i>Syzygium lanceolatum</i>	245
<i>Rourea praineana</i>	85	<i>Syzygium munroni</i>	156,173
<i>Rubus calycinus</i>	21	<i>Syzygium zeylanicum</i>	230
<i>Rubus ellipticus</i>	21,321	<i>Syzygium sp.</i>	19,191
<i>Rubus niveus</i>	322	<i>Tabernaemontana heyneana</i>	168
<i>Rubus vulgaris</i>	21	<i>Tamarindus indica</i>	347
<i>Rubus sp.</i>	51,321	<i>Tarenna asiatica</i>	372
<i>Rungia sisparensis</i>	77	<i>Taxus sp.</i>	49
<i>Saccharum spontaneum</i>	323	<i>Terminalia chebula</i>	28
<i>Salacia sp.</i>	324	<i>Terminalia paniculata</i>	28
<i>Sapindus emerginataus</i>	125	<i>Themeda cymbaria</i>	355
<i>Sapindus laurifolia</i>	332	<i>Thespesia lampas</i>	73
<i>Saprosma corymbosum</i>	18	<i>Toddalia asiatica</i>	349,361
<i>Sarcostigma kleinii</i>	326	<i>Torenia travancorica</i>	362
<i>Schefflera venulosa</i>	158	<i>Toricellia tiliaefolia</i>	363
<i>Schleichera oleosa</i>	127	<i>Toxicarpus beddomei</i>	364
<i>Scleropyrum pentandrum</i>	327	<i>Trewia nodiflora</i>	367
<i>Scolopia crenata</i>	56,228	<i>Trewia polycarpa</i>	367
<i>Semecarpus anacardium</i>	329	<i>Trichilia connaroides</i>	203
<i>Semecarpus travancorica</i>	330,366	<i>Trichosanthes tricuspidata</i>	29
<i>Sida cordata</i>	71	<i>Triumfetta bartramia</i>	75
<i>Smilax zeylanica</i>	185,325	<i>Triumfetta pilosa</i>	75
<i>Solanum giganteum</i>	246	<i>Triumfetta rhomboidea</i>	75
<i>Stemonurus tetrandrus</i>	338	<i>Terpinia malabarica</i>	378
<i>Stephania japonica</i>	341	<i>Turpinia sp.</i>	337
<i>Sterculia urens</i>	25	<i>Tylophora caparidifolia</i>	369
<i>Stereospermum colais</i>	55	<i>Tylophora tenuis</i>	350
<i>Strobilanthus heyneanus</i>	272	<i>Vaccinium leschenaultii</i>	11
<i>Strobilanthus reticulatus</i>	272	<i>Vaccinium neilgherrense</i>	57
<i>Strobilanthus rugosus</i>	272	<i>Vallisneria spiralis</i>	346
<i>Strychnos nux-vomica</i>	293,335	<i>Vepris bilocularis</i>	244,371

<i>Vernonia arborea</i>	31	<i>Woodfordia fruticosa</i>	374
<i>Vernonia monosis</i>	31	<i>Xanthophyllum flavescens</i>	76
<i>Viburnum punctatum</i>	78,195	<i>Zanthoxylum ovalifolium</i>	375,376
<i>Vigna khandalensis</i>	295	<i>Zanthoxylum ovata</i>	218
<i>Vitex altissima</i>	89	<i>Zanthoxylum tetraspermum</i>	375
<i>Vitex leucoxylon</i>	148	<i>Ziziphus rugosa</i>	377
<i>Vitis</i> sp.	184	<i>Ziziphus glabrata</i>	377
<i>Webera corymbosa</i>	372	<i>Ziziphus trinervia</i>	377
<i>Wendlandia notoniana</i>	373	<i>Ziziphus xylopyrus</i>	377