KEY WORKS TO THE TAXONOMY OF

FLOWERING PLANTS OF INDIA

M. P. NAYAR

VOLUME 2

BOTANICAL SURVEY OF INDIA

Key Works to the Taxonomy of Flowering Plants of India by Dr. M. P. Nayar, M. Sc., Ph. D. (London), FLS, with up-to-date references, annotations, systematic position of the families is under publication in series of volumes. The author has prepared these series from his collections of bibliography and nomenclature reference systems of over 30,000 entries. The First Volume (Acanthaceae to Crypteroniaceae) is published in early 1984.

The Second volume deals with families in alphabetical sequence from Cucurbitaceae to Juncaginaceae. Data on the circumscription of families, modern classificatory systems and data on the families and genera are presented and they are arranged in alphabetical sequence. Under each family there is main data source dealing with monographic work on the family or particular subfamily or tribe with additional information on cytotaxonomy. palynology and chemotaxonomy. This source book of reference will be useful in the study of taxonomy, plant genetic resources and conservation of flora. Wherever useful plants are cited, the taxonomy of such taxa are more or less comprehensively covered as this may serve as a data source for genetic resources, plant variations and genotypic variations.

FLORA OF INDIA (Series IV)

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CUCURBITACEAE TO JUNCAGINACEAE

M. P. Nayar

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CONTENTS

INTRODUCTION

All the families of Angiosperms occurring in India are arranged in alphabetical order from A to Z (Acanthaceae to Zygophyllaceae). Gymnosperms and Pteridophytes are treated separately and the families are arranged in alphabetical sequence. The families are delimited as per modern concept and for families segregated from the main family there are cross references and annotations. A brief synoptical account of the families is given with references. Under each family, the genera occurring in India are enumerated in alphabetical sequence. A separate list of genera which are cultivated in India is also included. Under each family there is main data source dealing with monographic work on the family, or particular subfamily or tribe with additional informations as are available on cytotaxonomy, palynology and chemotaxonomy. Monographs which are basic to the family are cited in order to get a holistic view of the family. Pre-1900 references are quoted only for critical and monographic citations. Since this book deals with key references for taxonomic literature, distributional records of local or narrow geographical range are excluded in the citations. Wherever cytological, palynological and other data which may help in the synthesis of taxonomic concepts of a taxon are available, such references are included. But purely morphological, embryological or anatomical data which are not readily relevant to taxonomy are not considered in this book.

As mentioned earlier under each family and under each genus citations are arranged authorwise alphabetically. Where more than one reference is cited for the same author, they are indexed chronologically. Where references to joint authors are cited they are arranged first alphabetically and followed by their datewise sequence. In the references where the actual date of publication is different from the accredited date of publication, the date of effective publication is the date of the actual publication as per Art 30 & 32 of the International Code of Botanical Nomenclature (1978). The accredited date is given in parenthesis before the actual date of publication. The abbreviation *ibid.* for denoting the same journal repeated in separate citations, is avoided in order to help computer scanning of journals. In the same way each author name is repeated without giving the usual *ditto* sign. Each citation is complete on its own with standard abbreviations with a code number. Brief annotations

wherever relevant are given. In the annotations abbreviations are used : *descr.* for description, *distr.* for distribution, *spp.* for species, *enum.* for enumeration. For references to the publication of the classifications of Airy Shaw, Bentham & Hooker, Cronquist, Dahlgren, Engler, Hutchinson, Takhtajan and Thorne, the reference is not repeated. A common reference to their classification system is given below. All the citations are coded as per family code devised by Weber (Taxon 31 : 74-88. 1982). In a subject where such vast information system is assembled there may be some omissions and the author considers it useful if additional information or data are brought to his attention.

Acknowledgements

I am grateful to Dr. T. N. Khoshoo, Secretary to the Government of India, Department of Environment for giving the idea of the preparation of a familywise and genuswise taxonomic data index. I wish to thank the Director, Botanical Survey of India for facilities.

M. P. NAYAR

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CUCURBITACEAE

The Cucurbitaceae with about 110 genera and 640 species, occurring in the tropical regions, is a family of great economic importance.

The Cucurbitaceae is included in the order Cucurbitales by Engler, Hutchinson and Takhtajan, in the order Violales by Cronquist and Dahlgren, in the order Passiflorales by Bentham & Hooker and in the order Cistales by Thorne.

The family Cucurbitaceae is distinguished by its prostrate or climbing habit with palmately veined leaves, the unisexual flowers with inferior ovary, androecium basically of 5 stamens and with gradual union of adjacent stamens giving rise to the three staminate androecium (i.e.) two stamens with four pollen sacs each and one stamen with two pollen sacs.

One of the characteristic features of the family is the nature of five stamens which may be completely free or in the majority of cases two pairs are usually fused to a varying extent so that anthers appear as contorted. In some cases all five stamens are fused to a single column. It is noted that the stages of union can be traced in the genera *Fevillea, Alsomitra, Hemsleya, Zanonia, Actinostemma, Neoluffa.* In the genera *Cucumis, Luffa* and *Lagenaria* the union is completed. Whereas in the genus *Cyclanthera* the stamens are all united to form a single column (Chakravarty, 1958).

Pax (1889) classified Cucurbitaceae into 5 subfamilies : Fevilleae, Melothrieae, Cucurbiteae, Sicyoideae and Cyclanthereae. Jeffrey (1962) classified the family into two subfamilies Cucurbitoideae (tendrils proximally 2-7 fid or simple, seeds unwinged) and Zanonioideae (tendrils distantly bifid, seeds mostly winged). The subfamily Cucurbitoideae is subdivided into the following tribes based on the nature of receptacle-tube, peta's and ovules : Joliffleae, Benincaseae, Schizopeponeae, Cyclanthereae, Sicyoeae, Cucurbiteae, Melothrieae, Trichosantheae. The subfamily Zanonioideae consists of one tribe Zanonieae. The affinities of the family Cucurbitaceae are still disputed as it is considered related to Passifloraceae, Caricaceae, Begoniaceae, Loasaceae, Achariaceae. Hence Engler, Hutchinson and Takhtajan considered it under a separate order Cucurbitales.

Cucurbitacins tetracyclic triterpenes found mainly in the Cucurbitaceae, are also seen in the Cruciferae, Rosaceae, Primulaceae and Scrophulariaceae.

Some of the common vegetables cultivated in India are Cucumber (*Cucumis sativa*), Melons (*Citrullus lanatus*), Vegetable Marrow or Pumpkin (*Cucurbita pepo*), Bitter Gourd (*Momordica charantia*), Ribbed Gourd (*Luffa acutangula*), Bottle Gourd (*Lagenaria siceraria*), White Gourd (*Benincasa hispida*), Chow-Chow (*Sechium edule*), Pointed Gourd (*Trichosanthes dioica*). Bryony (*Bryonia dioica*), Colocynthis (*Citrullus colocynthis*) are used as standard pharmacopical drugs.

The cucurbitaceous flora in India includes the following genera : *Actinostemma, Benincasa, Biswarea, Blastania, Bryonia, Bryonopsis, Cerasiocarpum, Citrullus, Coccinia, Corallocarpus, Cucumella, Cucumis, Cucurbita, Cyclanthera, Dactyliandra, Dicaelospermum, Diplocyclos, Edgaria, Gomphogyne, Gymnopetalum, Gymnostemma, Hemsleya, Herpetospermum, Hodgsonia, Indofevillea, Kedrostis, Lagenaria, Luffa, Melothria, Momordica, Neoalsomitra, Neoluffa, Schizopepon, Sechium, Siraitia, Thladiantha, Trichosanthes, Zanonia.*

Telfairia pedata (Sm. ex Sims.) Hook. is introduced from S. Rhodesia and cultivated in Kerala.

For recent taxonomic revisions refer Chakravarty (1959, 1982), Jeffrey (1962, 1966, 1980, 1982) ; for palynology refer Alyoshina (1964, 1967, 1971), Awasthi (1962) ; for cytology and chromosome studies refer Ayyangar (1977), Singh & Roy (1974), Roy & Dutta (1972), Varghese (1971, 1972), Whitaker (1933).

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CUC 96 Whitaker, T. W. 1961

Biosystematics of the cultivated *Cucurbita*. *Recent Adv. Botany Section* 9 : 858-862.

CUC 97 Whitaker, T. W. 1962

An interspecific cross in *Cucurbita* : *C. lundelliana* Bailey × *C. maxima* Ducheme. *Euphytica* 11 : 273-281.

CUC 98 Whitaker, T. W. & Bemis, W. P. 1975

Origin and evolution of the cultivated *Cucurbita*. *Bull. Torrey Bot. Club* 102(6) : 362-368.

CUC 99 Whitaker, T. W. & Bohn, G. W. 1950

The taxonomy, genetics, production and uses of the cultivated species of *Cucurbita*. *Econ. Bot.* 4 : 52-81.

CUC 100 Whitaker, T. W. & Carter, G. F. 1946

Critical notes on the origin and domestication of the cultivated species of *Cucurbita*. *Amer. Journ. Bot.* 23 : 10-15.

CUC 101 Zhitineva, N. E. 1930

[The World's assortment of pumpkins]. *Trudy Prikl. Bot. Genet. Selek.* 22 : 157-207. In Russian.

CUC 102 Zhitineva, N. E. 1930

[Survey of the principal literature on the systematics of pumpkins and squashes]. *Bull. Appl. Bot. & Pl. Breed.* 23(3) : 343-356. fig. 1-6. In Russian ; bibliography.

Dactyliandra (Hook. f.) Hook. f.

CUC 103 Bhandari, M. M. 1965

A note on the identification of some unrecorded desert plants from Kutch. *Journ. Bombay Nat. Hist. Soc.* 62 : 332-335. Notes on *Dactyliandra welwitschii* Hook. f.

CUC 104 Bhandari, M. M. & Singh, D. 1964

Dactyliandra (Hook. f.) Hook. f. : a cucurbitaceous genus new to the Indian flora. *Kew Bull.* 19 : 133-138, 2 fig., 1 map. *D. welwitschii* Hook. f. from Kutch & Rajasthan, descr.

CUC 105 Singh, A. K. 1977

Cytogenetics of semiarid plants : 4. Cytology of *Dactyliandra welwitschii* Hook. f. of Cucurbitaceae. *Sci. Cult.* 43(3) : 141.

Hodgsonia Hook. f. & Thoms.

CUC 106 Kundu, B. C. 1938

A note on *Hodgsonia capniocarpa* Ridley. *Journ. Bot.* 76 : 364-366.

CUC 107 Kundu, B. C. 1942

A revision of the Indian species of *Hodgsonia* and

Trichosanthes. Journ. Bombay Nat. Hist. Soc. 43 : 362-388, pl. 1-4.

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CUC 108 Cogniaux, C. A. & Harms, H. 1924

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CUC 109 Heiser, Jr. C. B. 1973

Variation in the bottle gourd. *In* : Meggers, B. J., Ayensu, E. S. & Duckworth, W. D. *eds. Tropical Forest ecosystems in Africa and South America* : 121-128, 5 fig. *Lagenaria siceraria* is reported to be wild in Africa where all other *Lagenaria* spp. are wild and there is great variation.

CUC 110 Kobiakiva, J. A. 1943

[The bottle gourd, *Lagenaria vulgaris* Ser., a relic crop]. *Trudy Prikl. Bot. Genet. Selek.* 23 : 475-520. In Russian.

CUC 111 Richardson, J. B. 1972

The pre-columbian distribution of the bottle gourd (*Lagenaria siceraria*) : a re-evaluation. *Econ. Bot.* 26 : 265-273.

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CUC 112 Exell, A. W. 1933

Correct botanical name of the Luffa sponge. *Journ. Bot. Brit. & For.* 71 : 352. Considers *Luffa aegyptiaea* Mill. to be the correct name.

CUC 113 Howes, F. N. 1931

The loofah industry. *Kew Bull. Misc. Inf.* 1931 : 266-270.

CUC 114 Kobiakiva, J. A. 1930

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CUC 115 Nair, P. K. K. & Deshpande, S. U. 1968

Pollen studies in successive flowers of *Luffa cylindrica* (Linn.) M. J. Royen. *Journ. Palynol. Lucknow* 4(2) : 98-106.

CUC 116 Premnath & Mathur, D. L. (1970) 1972

Some comparative studies on pollen morphology and physiology in two *Luffa* spp. *Journ. Palynol.* 6 : 54-59.

CUC 117 Porterfield, W. M. 1943

Luffas as they are used by the Chinese. *Journ. New York Bot. Gard.* 44 : 134-138, 1 fig. Economic notes on *Luffa acutangula* and *L. cylindrica.*

CUC 118 Porterfield, W. M. 1955

Loofa—the sponge gourd. *Econ. Bot.* 9 : 211-223, fig. 1-3. Cultivation, uses of *Luffa cylindrica.*

CUC 119 Roy, R. P. & Dutta, B. 1972

Cytomorphological studies in induced polyploids of *Luffa acutangula* Roxb. *Nucleus* 15(3) : 171-180. Chrom. nos.

CUC 120 Sornay, P. de 1923

Les Cucurbitacees tropicales (*Luffa acutangula* Ser.) Pipengaye. *Agron. Colon.* 8 : 8-13.

Melothria Linn.

CUC 121 Chakravarty, H. L. 1952

New finds of Indian Cucurbitaceae. *Journ. Bombay Nat. Hist. Soc.* 50 : 894-901, pl. 5, fig. 1. *Melothria ritchiei & M. angulata* spp. nov.

CUC 122 Singh, A. K. 1974

Cytological studies in *Melothria* Linn. *Ann. Arid Zone* 13(3) : 266-268. Chrom. nos.

Momordica Linn.

CUC 123 Nakamura, Tomeji 1913

[On the nomenclature of *Momordica charantia*]. *Bot. Mag. Tokyo* 27 : 118-119. In Japanese ; the genus is erroneously spelled as Monardica.

CUC 124 Trivedi, R. N. & Roy, R. P. 1972

Cytological studies in some species of *Momordica. Genetica* 43(2) : 282-291. Chrom. nos. of *M. charantia, M. balsamina, M. dioicca.*

Sechium P. Br.

CUC 125 Varghese, B. M. 1973

Cytology of *Sechium edule* SW. *Curr. Sci.* 42(1) : 30. Chrom. nos.

Thladiantha Bunge emend. Chakravarty

CUC 126 Gagnepain, F. 1918

Revision des Thladiantha asiatiques du Museum. *Bull. Mus. Hist. Nat. (Paris)* 24 : 287-296. Key & enumeration of spp.

Trichosanthes Linn.

CUC 127 Hooker, J. D. 1886

Trichosanthes palmata. Curtis's Bot. Mag. 112 : pl. 6873. Native of India.

CUC 128 Kundu, B. C. 1939

New species and varieties of *Trichosanthes* from India. *Journ. Bot.* 76 : 9-14.

CUC 129 Kundu, B. C. 1942

A revision of Indian species of *Hodgsonia* and *Trichosanthes. Journ. Bombay Nat. Hist. Soc.* 43 : 362-388.

CUC 130 Singh, A. K. & Roy, R. P. 1973

Cytological studies in *Trichosanthes palmata* Roxb. : a

natural hexaploid. *Sci. Cult.* 39(1) : 505-506. Chrom. nos. nos.

CUC 131 Varghese, B. M. 1971

Cytology of *Trichosanthes palmata* Roxb. *Cytologia* 36(2) : 205-209. Chrom. nos.

CUC 132 Varghese, B. M. 1972

Cytology and origin of a tetraploid *Trichosanthes palmata* Roxb. *Genetica* 43(2) : 292-301. Chrom. nos.

CUC 133 Yueh, C.-H. & Cheng, C.-Y. 1974

A preliminary study of the Chinese medicinal species of the genus *Trichosanthes* L. *Acta Phytotax. Sin.* 12(4) : 446-457. Key to 34 spp. ; in Chinese.

ADDITION : GENERAL

CUC 134 Clarke, C. B. 1879

Cucurbitaceae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 2 : 604-635.

CUPULIFERAE-refer FAGACEAE

CUSCUTACEAE

(Refer also Convolvulaceae)

The family Cuscutaceae is assigned to the order Polemoniales by Cronquist, Hutchinson and Takhtajan. The Cuscutaceae is considered as part of the family Convolvulaceae by Bentham & Hooker, Engler and Thorne. Dahlgren treated the family Cuscutaceae in the order Solanales.

The Cuscutaceae differs from the Convolvulaceae in the nature of its parasitic habit ; they are leafless and rootless total parasites with thread-like herbaceous stem. The presence of 5 scale-like staminodes alternate with stamens at the base of corolla is quite characteristic. In the family Convolvulaceae internal phloem is present, whereas in the Cuscutaceae internal phloem is absent.

The family is represented in India by the genus *Cuscuta*.

For recent taxonomic studies refer Bhattacharyya (1971), Bhattacharyya & Mukherjee (1972, 1978), Manitz (1976), Yuncker (1932) ; for chromosome studies refer Bhan & Kaul (1973), Kaul & Bhan (1974) ; for pollen morphology refer Das & Banerji (1966).

CUS 1 Choisy, J. D. 1841

De Convolvulaceis dissertatio tertia complectens Cuscutarum hucusque cognitarum methodicam enumerationem et descriptionem. *Mem. Soc. Phys .Hist. Nat. Geneve* 9 : 261-288, tab. 1-5.

CUS 2 Hadac, E. & Chrtek, J. 1973

Some further notes on the taxonomy and nomenclature of Cuscutaceae. *Folia Geobot. Phytotax.* 8(2) : 219-221.

CUS 3 Manitz, H. 1976

Zur Lectotypisierung der Namen einiger Convolvulaceen —und Cuscutaceen—Gattungen. *Feddes Repert* 87(5) : 311-317.

Cuscuta Linn.

CUS 4 Banerji, M. L. & Das, Sitesh 1965

A new Cuscuta from Nepal. *Journ. Arn. Arb.* 46 : 86-89. *Cuscuta santapaui* Banerji et Das from Nepal, based on *Banerji* 1199(CAL.).

CUS 5 Bhan, A. K. & Kaul, M. L. H. 1973

Host diversity and chromosomal polymorphism in *Cuscuta reflexa*. *Sci. Cult.* 39(9) : 403-404. Chrom nos.

CUS 6 Bhattacharyya, P. K. 1971

The botanical vicissitudes of a taxon : *Cuscuta reflexa* Roxb. *Sci. Cult.* 37 : 251-255.

CUS 7 Bhattacharyya, P. K. & Mukherjee, S. K. 1972

Evolution and phylogeny of the taxon *Cuscuta* (Tourn.) L. *Bull. Bot. Soc. Beng.* 26 : 121-123.

CUS 8 Bhattacharyya, P. K. & Mukherjee, S. K. 1978

Indian Cuscutaceae. *Indian Journ. Forestry* 1(2) : 156-162.

CUS 9 Chavan, A. R. & Sabnis, S. D. 1960

On *Cuscuta chinensis* Lamk.—Preliminary observations on parasitism. *Sci. Cult.* 25 : 544. Discussion.

CUS 10 Das, S. & Banerji, M. L. 1966

Pollen morphology of a new species of *Cuscuta*. *Curr. Sci.* 35(4) : 105-106.

CUS 11 Dean, H. L. 1937

An addition to bibliographies of the genus *Cuscuta*. *Univ. Iowa Stud. Nat. Hist.* 17 : 191-197. A supplement to T. G. Yuncker's bibliographies.

CUS 12 Engelmann, G. 1859

Systematic arrangement of the species of the genus *Cuscuta* with critical remarks on old species and descriptions of new ones. *Trans. Acad. Sci. St. Louis* 1 : 453-523. A monograph.

CUS 13 Feinbrun, N. & Taub, S. 1964

The *Cuscuta* species of Palestine. *Israel Journ. Bot.* 13 : 1-23.

CUS 14 Gaertner, E. E. 1950

Studies of seed germination, seed identification and host relationship in Dodders, *Cuscuta* spp. *Mem. Cornell Univ. Agr. Exp. Stat.* 294 : 1-56.

CUS 15 Hooker, J. D. 1881

Cuscuta reflexa. *Curtis's Bot. Mag.* 107 : pl. 6566.

CUS 16 Kaul, M. L. H. & Bhan, A. K. 1974

Cytology of *Cuscuta reflexa* Roxb. *Cytologia* 39(3) : 493-498. Chrom. nos.

CUS 17 Mukherjee, S. K. & Bhattacharyya, P. K. 1970

A new *Cuscuta* from Bengal. *Bull. Bot. Soc. Bengal* 24 :

147-149. *Cuscuta sharmanum* Mukerjee et Bhattacharyya from W. Bengal.

CUS 18 Narayan, H. S. 1956

Diffused type of parasitism in *Cuscuta hyalina*. *Sci. Cult.* 21 : 447-450.

CUS 19 Santapau, H. & Korlahalli, B. C. 1966

Cuscuta campestris Yuncker—A new record for India. *Journ. Bombay Nat. Hist. Soc.* 62 : 598-599.

CUS 20 Santapau, H. & Patel, V. 1957

The genus *Cuscuta* in Bombay. *Journ. Bombay Nat. Hist. Soc.* 54 : 707-713.

CUS 21 Yuncker, T. G. 1932

The geneus *Cuscuta*. *Mem. Torrey Bot. Club* 18 : 113-331, fig. 1-158. 157 spp. recognised.

CUS 22 Yuncker, T. G. 1943

Nomenclatural changes in the genus *Cuscuta* and notes on some American species. *Bull. Torrey Bot. Club* 70 : 61-67.

CYMODOCEACEAE

(Refer also Zosteraceae)

Takhtajan recognised the family Cymodoceaceae and included in the order Najadales, while Cronquist considered it as part of the family Zosteraceae. Engler, Hutchinson and Thorne treated it as part of the family Zannichelliaceae. However, Bentham & Hooker included it in the family Najadaceae. Dahlgren assigned the family to the order Zosterales.

The Cymodoceaceae is a family of sea grasses, characterised by leaves with a sheathing base, monoecious or dioecious flowers : male flower consists of two dorsally united stamens having thread like pollen, the female flower consists of two free carpels, each carpel with one pendulous ovule. The family is allied to the Zannichelliaceae, but the pollen in the Cymodoceaceae is thread like as in the Zosteraceae.

The family is represented in India by the following genera : *Cymodocea, Halodule, Syringodium.*

CYM 1 Hartog, C. Den 1970

The sea grasses of the world. North-Holland publishing Co., Amsterdam. Monograph.

CYM 2 Hartog, C. Den 1970

Cymodoceaceae. *In : North America Flora* 17 : 31-32.

Halodule Endl.

CYM 3 Hartog, C. Den 1964

An approach to the taxonomy of the sea grass genus *Halodule* Endl. (Potamogetonaceae). *Blumea* 12 : 289-312, fig. 10. Synonymy of genus, descr., key to spp. *Halodule tridentata* (*Steinheil*) F.v.M.=*Diplanthera uninervis* non Aschers.

CYM 4 Tsuda, Roy T., Fosberg, F. R. & Sachet, M. -H. 1977

Distribution of sea grassee in Micronesia. *Micronesica* 13(2) : 191-198. *Thalassodendron ciliatum* (Forsk.) den Hartog based on *Zostera ciliata* Forsk., *Halodule uninervis* (Forsk.) Aschers. based on *Zostera uninervis* Forsk.

Syringodium Kutz.

CYM 5 Tomlinson, P. B. 1978

Aspects of floral morphology and development in the sea grass *Syringodium filiforme* (Cymodoceaceae). *Bot. Gaz.* 139 : 333-345.

CYPERACEAE

The family Cyperaceae is included in the order Cyperales by Cronquist, Dahlgren, Engler, Hutchinson and Takhtajan. Thorne assigned it to the order Commelinales, while Bentham & Hooker included it in the order Glumaceae.

The Cyperaceae, commonly known as Sedges, is a cosmopolitan family, with about 90 genera and 4000 species. Paper reed (*Cyperus*

papyrus) was used by Egyptians for writing as early as 2400 B.C. Nut-grass (*Cyperus esculentus*) found wild in tropical Africa produces edible tubers on short stems. Sedges are colonisers of shallow water and they help in building land formations and serve as sanctuary for waterbirds by providing shelter and food.

The inflorescence in the family Cyperaceae is described on the basis of arrangement of the spikelets or clusters of spikelets. In the genera *Bulbostylis, Cyperus, Fimbristylis* and *Lipocarpha* the inflorescence may be capitate. While if there are one or two or more rays or peduncles are present, the inflorescence is considered as umbellate while in the genera *Carex, Rhynchospora, Scirpus* and *Scleria*, the spikelets are differently disposed forming spicate or racemose inflorescence. Prophylls present in the inflorescence are of taxonomic value and they help in the interpretation of inflorescence. (Eiten, 1976 ; Koyama, 1961). The spikelets consist of rhachilla bearing glumes and flowers. The bracteoles represent the glumes and they are of taxonomic importance as they show wide range of variations in their arrangements, shape, colour and nervation. The perianth may be absent or if present they are represented by bristles or scales or bristles with hair like segments. The fruit is an indehiscent trigonous or lenticular achene (except in *Scirpodendron*) and the testa is not adhering to the pericarp. The characters of achene are of taxonomic importance.

According to Dahlgren & Clifford (1982), the Juncales and Cyperales "are connected by numerous similarities, such as the mostly tristichous phyllotaxis, the constant occurrence of pollen tetrads, the anatropous ovules, the broad capitate (not lateral) embryo, the occurrence of so-called diffuse centromeres, post-reductional meiosis and susceptability to some genera of parasitic fungi" (Dahlgren, 1983).

The Cyperaceae is distinguished from the Gramineae by the usually 3-angled stems with solid pith, leaves in basal tufts and if cauline 3-ranked, the absence of ligule and by the trigonous or biconvex achene. Other distinguishing features are that each individual flower is usually subtended by a glume, the presence of 6 bristles or scales representing perianth segments which sometimes become rudimentary or absent, usually 1-3 stamens and style divided into 2 or 3 branches.

Engler (1964) classified the family into three subfamilies, Scirpoideae, Rhynchosporoideae, Caricoideae based on the nature of inflorescence.

The cyperaceous flora in India consists of the following genera : *Ascopholis, Bulbostylis, Cladium, Courtoisia, Cyperus, Diplacrum, Eleocharis, Eriophorum, Fimbristylis, Fuirena, Hypolytrum, Kobresia, Kyllinga, Lepironia, Lipocarpha, Mapania, Microschoenus, Queenslandiella, Remirea, Rhynchospora, Schoenus, Scleria, Scirpus, Scirpodendron.*

For recent taxonomic studies refer Kern (1958, 1960, 1961, 1962, 1974), Koyama (1955-1958, 1961, 1971, 1973) ; for classification and phylogeny refer Eiten (1976), Holttum (1948), Koyama (1961), Meeuse (1975) ; for chromosome studies refer Mehra & Sachdeva (1975), Sanyal (1972), Sanyal & Sharma (1972), Sarkar & Das (1980), Sharma & Bal (1956) ; for flavonoid chemistry refer Harborne (1971), Kukkonen (1971).

CYP 1 Boeckeler, O. 1868-1877

Die Cyperaceen des Koniglichen Herbariums Zu Berlin. *Linnaea* 35 : 397-612 (1868) ; *ibid.* 36 : 271-512, 691-768. 1870 ; *ibid.* 37 : 1-144. 1871 ; *ibid.* 37 : 520-647. 1873 ; *ibid.* 38 : 223-544. 1874 ; *ibid.* 39 : 1-152. 1875 ; *ibid.* 40 : 327-452. 1876 ; *ibid.* 41 : 145-356. 1877.

CYP 2 Boeckeler, O. 1888-1890

Beitrage Zur Kenntnis der Cyperaceen 1 : 1-53. 1888 ; 2 : 1-43. 1890.

CYP 3 Clarke, C. B. 1898

On the sub-areas of British India, illustrated by the detailed distribution of the Cyperaceae in that Empire. *Journ. Linn. Soc. Bot.* 34 : 1-146.

CYP 4 Clarke, C. B. 1907

Reduction of the Wallich Herbarium. *Kew Bull.* 1907 : 264-281.

CYP 5 Clarke, C. B. 1908

New genera and species of Cyperaceae. *Kew Bull. Add. Series* 8 : 1-196.

CYP 6 Eiten, L. T. 1976

Inflorescence units in the Cyperaceae. *Ann. Missouri Bot. Gard.* 63(1) : 81-112. The ultimate branching pattern of the inflorescence is used as a character for dividing the Cyperaceae into sub-families, tribes and subtribes.

CYP 7 Harborne, J. B. 1971

Distribution and taxonomic significance of flavonoids of the Cyperaceae. *Phytochemistry* 10(7) : 1569-1574.

CYP 8 Heilborn, O. 1939

Chromosome studies in Cyperaceae—III-IV. *Hereditas* 25 : 224-240.

CYP 9 Holttum, R. E. 1948

The spikelet in Cyperaceae. *Bot. Rev.* 14 : 525-541. Discussion of morphology.

CYP 10 Kern, J. H. 1958

Florae Malesianae Precursores XVII. Notes on Malaysian and some S. E. Asian Cyperaceae—V. *Blumea* 9 : 215-236, 4 fig.

CYP 11 Kern, J. H. 1958

Florae Malesianae Precursores XIX. Notes on Malaysian and some S. E. Asian Cyperaceae. *Blumea* Suppl. 4 : 163-169, fig. 1.

CYP 12 Kern, J. H. 1958

Florae Malesianae Precursores XXI. Notes on Malaysian and some S. E. Asian Cyperaceae VII. *Acta Bot. Neerl.* 7 : 786-800, fig. 1-5.

CYP 13 Kern, J. H. 1960

Florae Malesianae Precursores XXV. Notes on Malaysian some S. E. Asian Cyperaceae VIII. *Blumea* 10 : 635-651, 3 fig.

CYP 14 Kern, J. H. 1961

Cyperaceae of Siam (excl. *Carex*). *Reinwardtia* 6 : 25-83. 174 spp. enumerated.

CYP 15 Kern, J. H. 1962

A new look at some Cyperaceae mainly from the tropical stand point. *Advancement of Science* 19 : 141-148.

CYP 16 Kern, J. H. 1974

Cyperaceae. *In* : van Steenis, *Fl. Males.* I, 7 : part 3 : 435-753, fig. 1-117.

CYP 17 Kern, J. H. & Nooteboom, H. P. 1974

Cyperaceae II. *In* : van Steenis, *Fl. Males.* I. 9 : part 1, 107-187, fig. 118-137.

CYP 18 Korlahalli, B. C. (1967) 1968

Notes on Indian Cyperaceae. *Bull. Bot. Surv. India* 9 : 235-239. New subsp.*Cyperus sanguinolentus* Vahl is described ; critical notes.

CYP 19 Koyama, T. 1955-1958

Taxonomic study of Cyperaceae in eastern Asia (3) *Acta Phytotax. Geobot.* 16 : 5-12, pl. 3. 1955 ; (4) 16 : 33-41, pl. 4-5. 1955 ; (5) *Bot. Mag. Tokyo* 69 : 59-67. 1956 ; (6) *Journ Jap. Bot.* 32 : 147-153, fig. 8. 1957 ; (7) *Bot. Mag. Tokyo* 70 : 347-357. 1957 ; (8) *Acta Phytotax Geobot.* 17 : 97-102, fig. 13-15. 1958. Critical study.

CYP 20 Koyama, T. 1961

Classification of the family Cyperaceae I. *Journ. Fac. Sci. Univ. Tokyo Sect. III, Bot.* 8 : 37-148.

CYP 21 Koyama, T. 1961

Classification of the family Cyperaceae III. *Quart. Journ. Taiwan Mus.* 14 : 177.

CYP 22 Koyama, T. 1961

Taxonomic studies of Cyperaceae-12. *Natur. Canad.* 88 : 237-252. New *Carex* from Bhutan.

CYP 23 Koyama, T. 1962

Classification of the family Cyperaceae II. *Journ. Fac. Sci. Tokyo Sect. III, Bot.* 8 : 149-278.

CYP 24 Koyama, T. 1967

Cyperaceae—Mapanioideae. *Mem. New York Bot. Gard.* 17 : 23-79.

CYP 25 Koyama, T. 1969

Delimitation and classification of the Cyperaceae-Mapanioideae. *In :* Gunckel, J. E. *ed. Current Topics in Plant Sciences. Academic Press, New York,* pp. 201-228.

CYP 26 Koyama, T. 1971

Systematic interrelationships among Sclerieae, Lagenocarpeae and Mapanieae (Cyperaceae). *Mitt. Bot. Staatssamml. Munchen* 10 : 604-617.

CYP 27 Koyama, T. 1973

New Cyperaceae from Nepal and adjoining Tibet. *Bot. Mag. Tokyo* 86(10004) : 275-283.

CYP 28 Koyama, T. & Maguire, B. 1965

Cyperaceae, tribe Lagenocarpeae. *Mem. New York Bot. Gard.* 12 : 8-53.

CYP 29 Kukenthal, G. 1909

Cyperaceae—Caricoideae. *In* : Engler, *Pflanzenr.* 38 (IV. 20) : 1-824, fig. 1-128. Monographic.

CYP 30 Kukenthal, G. 1935-36.

Cyperaceae, Scirpoideae-Cypereae. *In* : Engler, *Pflanzenr.* 101 (IV. 20) : 1-671, fig. 1-65. *Cyperus* in pp. 1-480.

CYP 31 Kukenthal, G. 1938-1944

Vorarbeiten Zu einer Monographie der Rhynchosporoideae in *Fedde Rep.* 44 : 1-32, 65-101, 161-195. 1938 ; *ibid.* 46 : 13-33, 65-76. 1939 ; *ibid.* 47 : 101-119, 209-216. 1939 ; *ibid.* 48 : 49-72, 195-250. 1940 ; *ibid.* 50 : 19-50, 112-128. 1941 ; *ibid.* 51 : 1-17, 139-193. 1942 ; *ibid.* 52 : 52-111. 1943 ; *ibid.* 53 : 85-100, 187-219. 1944.

CYP 32 Kukenthal, G. 1949-1952

Vorarbeiten Zu einer Monographie der Rhynchosporo-

ideae. Bot. Jahrb. 74 : 375-509. 1949 ; *ibid.* 75 : 90-195. 1950 ; *ibid.* 75 : 273-314. 1950 ; *ibid.* 75 : 451-497. 1952.

CYP 33 Kukkonen, I. 1971

Flavonoid chemistry of the Cyperaceae : a preliminary survey. *Mitt. Bot. Staatssamml. Munchen* 10 : 622-638.

CYP 34 Meeuse, A. D. J. 1975

Interpretative floral morphology of the Cyperaceae on the basis of the anthoid concept. *Acta Bot. Neerl.* 24 (3-4) : 291-304.

CYP 35 Mehra, P. N. & Sachdeva, S. K. 1975

Cytology of some W. Himalayan Cyperaceae. *Cytologia* 40(3-4) : 497-515. Chrom. nos. of *Bulbostylis, Cyperus, Eleocharis, Fimbristylis, Kyllinga, Mariscus, Pycreus, Scirpus.*

CYP 36 Napper, D. M. 1971

Fimbristylis, Scleria and *Diplacrum* (Cyperaceae) in tropical West Africa. *Kew Bull.* 25 : 435-446.

CYP 37 Nees von Esenbeck, C. G. 1834

Cyperaceae Indicae praecipue juxta herbaria Wightii, Wallichies Hoylei et Lindleyi. *In* : Wight, H., Contributions to the Botany of India 69-129.

CYP 38 Nees von Esenbeck, C. G. 1834

Ueber sicht der Cyperaceen gattungen. *Linnaea* 9 : 273-306.

CYP 39 Nees von Esenbeck, C. G. 1843

Cyperaceae. *In* : Meyen, *Obs. Bot.* 53-124.

CYP 40 Nelmes, E. 1950

Notes on Cyperaceae XXIV. *Kew Bull.* 1950 : 189-208.

CYP 41 Nelmes, E. 1951

Three new sections of *Carex. Kew Bull.* 1951 : 121. Includes Sect. *Hypolytroides* and *Scleriiculmes.*

CYP 42 Nelmes, E. 1952

Facts and speculations on phylogeny in the tribe Cariceae of the Cyperaceae. *Kew Bull.* 1951 : 427-436. Phylogeny.

CYP 43 Otteng-Yeboah, A. A. 1974

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CYP 152 Fernald, M. L. 1923

Nomenclatorial transfers in *Mariscus*. *Rhodora* 25 : 49-54. *Cladium* established as a synonym of *Mariscus*.

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CYP 154 Pfeiffer, H. 1936

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CYP 155 Kukenthal, G. 1949-1951

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CYP 159 Kukenthal, G. 1938-1940

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CYP 165 Maheshwari, J. K. 1965

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CYP 166 Raymond, M. 1957

Some new or critical *Scirpus* from Indo-China. *Nat. Canad.* 84 : 111-136, pl. 1, 137-349, pl. 2-3. Critical notes and distr.

CYP 167 Raymond, M. 1959

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CYP 168 Govindarajalu, E. 1970

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CYP 169 Govindarajalu, E. 1972

Studies in Cyperaceae-4. Notes on *Scleria rugosa* R. Br. and its complex. *Journ. Bombay Nat. Hist. Soc.* 69 : 246-249, 1 pl.

CYP 170 Jain, S. K. 1969

Scleria africana Benth. in India. *Indian Forester* 95 : 130. "It appears that *S. africana* is native to India".

CYP 171 Kern, J. H. 1961

Florae Malesianae Precursores-30. The genus *Scleria* in Malaysia. *Blumea* 11 : 140-218, 9 fig. Comparison with *Diplacrum* (merged with *Scleria*), descr. of genus ; key to spp., synonymy.

ADDITIONS : GENERAL

CYP 172 Clarke, C. B. 1884

On the Indian species of *Cyperus,* with remarks on some others that specially illustrate the subdivisions of the genus. *Journ. Linn. Soc. Bot.* 21 : 1-202.

CYP 173 Clarke, C. B. 1893 & 1894

Cyperaceae, *In* : Hooker, J. D. *ed., Fl. Brit. India* 6 : 585-672. 1893 ; 673-748. 1894.

CYP 174 Clarke, C. B. 1909

Illustrations of Cyperaceae, t. 1-114.

CYP 175 Dahlgren, R. 1983

General aspects of angiosperm evolution and macrosystematics. *Nord. Journ. Bot.* 3 : 119-149.

CYP 176 Dahlgren, R. & Clifford, H. T. 1982

The Monocotyledons : a comparative study. Academic, London.

DAPHNIPHYLLACEAE

(Refer also Euphorbiaceae)

A monogeneric family (*Daphniphyllum*), the Daphniphyllaceae is characterised by alternate or pseudoverticillate exstipulate leaves, flowers without petals, 6-12 stamens and absence of disk and a 1-seeded drupe with persistent stigma. There is close similarities in the nature of pollen between Daphniphyllaceae and Hamamelidaceae. The family is represented in India by the genus *Daphniphyllum.*

The family Daphniphyllaceae is grouped under the order Euphorbiales by Cronquist (1968) and Takhtajan (1966). Engler considered the family under the order Geraniales. Dahlgren and Hutchinson treated it under the order Hamamelidales and Thorne assigned it under the order Pittosporales. Bentham & Hooker did not recognise its family status and considered it as part of the family Euphorbiaceae.

Generally, the drupaceous fruit, the absence of an obturator and caruncle and the presence of tiny embryo in the family Daphni-

phyllaceae do not fit in with the euphorbiaceous character. According to Cronquist (1983) the relatively primitive wood (scalariform vessels with 20-30 cross bars), unisexual flowers, latrose stamens, tiny embryo and copious endosperm in the genus *Daphniphyllum* suggest hamamelidian affinity. Chemically Daphniphyllaceae differs from the Hamamelidaceae in having iridoid compounds especially daphniphylline, a unique type of alkaloid. Takhtajan (1980) departing from the earlier classification includes the Daphniphyllaceae in the order Hamamelidales and Cronquist (1983) admitting its close relationship with the order Hamamelidales proposed a new order Daphniphyllales.

Cronquist (1983) states that it is useful to accept an order Daphniphyllales with only the family Daphniphyllaceae. According to Cronquist "the high proportion of such monotypes in Hamamelidaceae presumably reflects the evolutionary decline of the group, after an explosive expansion in the early part of the Upper Cretaceous".

For recent taxonomic revisions refer Cheng & Ming (1980), Croizat & Metcalf (1941), Jing-Xiang (1981), Huang (1965, 1966) ; for palynology refer Bhatnagar & Garg (1977).

GENERAL

DPH 1 Cheng, Mien & Ming, Tien-lu 1980

Daphniphyllaceae. *In* : *Fl. Reipubl. Pop. Sinicae* 45(1) : 1-10. 3 pl. Key to 10 spp.

DPH 2 Cronquist, A. 1983

Some realignments in the dicotyledons. *Nord. Journ. Bot.* 3 : 75-83.

DPH 3 Jing-Xiang, Wang 1981

A revision of Daphniphyllaceae in China. *Acta Phytotax. Sin.* 19(1) : 75-84. In Chinese ; 12 spp. recognised ; citations in Latin.

DPH 4 Muller, J. 1869

Daphniphyllaceae. *In* : DC., *Prodr.* 16(1) : 1-6.

DPH 5 Rosenthal, K. 1919

Daphniphyllaceae. *In* : Engler, *Pflanzenr.* 68(IV. 147a) : 1-16, 1 fig.

Daphniphyllum Bl.

DPH 6 Bhatnagar, A. K. & Garg, M. 1977

Affinities of *Daphniphyllum,* palynological approach. *Phytomorphology* 27(1) : 92-97.

DPH 7 Chen-Sung-shu, 1933

Chinese species of *Daphniphyllum. Contr. Biol. Lab. Sci. Soc. China Bot. ser.* 8 : 233-243. A revision.

DPH 8 Croizat, L. 1941

On the systematic position of *Daphniphyllum* and its allies. *Lingnan. Sci. Journ.* 20 : 79-103, fig. 1-11. Discussion, phylogeny of Daphniphyllaceae and Eucommiaceae.

DPH 9 Croizat, L. & Metcalf, F. P. 1941

The Chinese and Japanese species of *Daphniphyllum. Lingnam Sci. Journ.* 20 : 105-127, pl. 1-3. A systematic treatment of about 18 spp.

DPH 10 Hallier, H. 1904

Ueber die Gattung *Daphniphyllum*, ein Uebergangsglied von den Magnoliaceen und Hamamelidaceen Zu den Kitzchenblutlern. *Bot. Mag. Tokyo* 18 : 55-69.

DPH 11 Huang, T. C. 1965

Monograph of *Daphniphyllum* (1). *Taiwania* 11 : 57-98.

DPH 12 Huang, T. C. 1966

Monograph of *Daphniphyllum* (2). *Taiwania* 12 : 137-234.

DATISCACEAE

(Refer also Tetramelaceae)

The family Datiscaceae is classified under the Violales by Cron-

quist and Engler, under the order Cucurbitales by Hutchinson, under the order Passiflorales by Bentham & Hooker, under the Cistales by Thorne and under the order Begoniales by Takhtajan. Dahlgren provisionally included the family under the order Violales and indicated that its systematic position is uncertain.

Dahlgren (1983) revised the deposition of the family Datiscaceae and included it in the order Cucurbitales (Cucurbitaceae, Datiscaceae and Begoniaceae) based on the serological findings of Kolbe & John (1979). According to Kolbe & John (1979) that some families of the Violiflorae with mainly hypogynous flowers (Flacourtiaceae, Passifloraceae, Violaceae, Turneraceae) are serologically separated from families with epigynous flowers (Cucurbitaceae, Datiscaceae and Begoniaceae).

A unigeneric family based on the genus *Datisca*, the family is characterised by exstipulate leaves, inflorescence of crowded fascicles, flowers mostly unisexual with male and female flowers on different plants, rarely bisexual, flowers without petals, ovary 3-5 carpelled, unilocular with parietal placentation with 3-5 deeply bifid free styles.

The genera *Tetrameles* and *Octomeles* are considered under the family Tetramelaceae as proposed by Airy Shaw. The family Tetramelaceae shows connections with Sonneratiaceae, rather than with Datiscaceae.

The family is represented in India by the genus *Datisca*.

DAT 1 Clarke, C. B. 1879

Datiscaceae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 2 : 656-657.

DAT 2 Davidson, C. 1973

An anatomical and morphological study of Datiscaceae. *Aliso* 8 : 49-110, 139 fig. Relationship with Begoniaceae and Haloragaceae discussed.

DAT 3 Gilg, E. 1925

Datiscaceae. *In* : Engler & Prantl, *Pflanzenf. ed.* 2, 21 : 543-547, fig. 249-250.

DAT 4 Steenis, C. G. G. J. van 1953

Datiscaceae. *In* : van Steenis, *Fl. Males.* 1, 4 : 382-387, fig. 1-6.

DIAPENSIACEAE

The family Diapensiaceae is included under the order Ericales by Bentham & Hooker, Dahlgren and Hutchinson. Thorne considered the family under the order Rosales. Cronquist, Engler and Takhtajan treated the family under a separate order Diapensiales.

The Diapensiaceae is characterised by 5-merous floral parts, stamens adnate to the corolla, anthers dehiscing by slits and a loculicidal capsule. The genus *Diplarche* is allied to Ericaceae, but in the family Ericaceae the stamens are free and anthers dehisce through pores. Cronquist mentions that the family Diapensiaceae is without endosperm haustoria, whereas the order Ericales has generally endosperm haustoria.

The family is represented in India by the following genera : *Diapensia, Diplarche, Shortia.*

For recent taxonomic studies refer Airy Shaw (1964), Evans (1927), Li (1943) ; for classification and phylogeny refer Palser (1963) ; for chromosome studies refer Baldwin (1939).

GENERAL

DIA 1 Baldwin, J. T. Jr. 1939

Chromosomes of the Diapensiaceae. *Journ. Hered.* 30 : 169-171.

DIA 2 Diels, L. 1914

Diapensiaceen-studien. *Bot. Jahrb.* 50(Suppl.) : 304-330, pl. 7, fig. 9. A small family of 5 genera.

DIA 3 Drude, O. 1889

Diapensiaceae. *In* : Engler & Prantl, *Pflanzenf.* IV(1) : 80-84.

DIA 4 Gray, A. 1873

Reconstruction of the order Diapensiaceae. *Proc. Amer. Acad.* 8 : 243-247.

DIA 5 Palser, B. 1963

Studies of floral morphology in the Ericales VI. The Diapensiaceae. *Bot. Gaz.* 124 : 200-219.

DIA 6 Wood, Jr. C. E. & Channell, R. B. 1959

The Empetraceae and Diapensiaceae of the South-Eastern United States. *Journ. Arn. Arb.* 40 : 161-171.

Diapensia Linn.

DIA 7 Diels, L. 1914

Diapensiaceen-studien. *Bot. Jahrb.* 50 : Supplements, 304-330.

DIA 8 Evans, W. E. 1927

A revision of the genus *Diapensia* with special reference to the sino-himalayan species. *Notes Roy. Bot. Gard. Edinb.* 15 : 209-236. Enumeration of the spp. with a key.

DIA 9 Ludlow, F. 1976

Reliquiae botanicae Himalaicae. *Bull. Brit. Mus.* (*Nat. Hist.*) *Bot.* 5(5) : 269-290. *Diapensia wardii,* map.

Diplarche Hook. f. & Thoms.

DIA 10 Airy Shaw, H. K. 1964

Studies in the Ericales, XIV. The systematic position of the genus *Diplarche* Hook. f. & Thoms. *Kew Bull.* 17 : 507-509.

DIA 11 Hooker, J. D. & Thompson, T. 1854

On *Maddenia* and *Diplarche,* new genera of Himalayan plants. *Hook. Kew Journ. Bot.* 6 : 380-384, t. 11-12.

Shortia Torr. & Gray

DIA 12 Li, Hui-lin 1943

On the Sino-Himalayan species of *Shortia* and *Berneuxia*. *Rhodora* 45 : 333-337. A critical study.

ADDITION : GENERAL

DIA 13 Clarke, C. B. 1882

Diapensiaceae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 3 : 476.

DICHAPETALACEAE

(*nom. altern.* : Chailletiaceae)

The family Dichapetalaceae is included in the order Geraniales by Bentham & Hooker, in the order Rosales by Hutchinson, in the order Thymelaeales by Engler and Dahlgren, in the order Celastrales by Cronquist and in the order Euphorbiales by Takhtajan and Thorne.

The Dichapetalaceae is characterised by stipulate leaves, usually 5-merous floral parts, forked or bilobed petals, presence of intrastaminal disk often represented by nectariferous glands alternating with the stamens, superior ovary with 2-3 united carpels and 1-3 lobed, drupe 1-3 loculed, each locule one seeded.

The systematic position of the family is not fully known. It is considered that this family is allied to the family Euphorbiaceae, Polygalaceae and Trigoniaceae.

The family is represented in India by the genus : *Dichapetalum*.

For recent taxonomic revisions refer Leenhouts (1957, 1972).

DCH 1 Engler, A. 1931

Dichapetalaceae. *In* : Engler & Prantl, *Pflanzenf. ed.* 2, 19C : 1-11, fig. 1-3.

DCH 2 Leenhouts, P. W. 1957

Dichapetalaceae. *In* : van Steenis, *Fl. Males.* I, 5 : 305-316, 3 fig.

DCH 3 Leenhouts, P. W. 1972

Dichapetalaceae. *In* : van Steenis, *Fl. Males.* I, 6 : 941-943. Add. & Corr.

Dichapetalum Thouars

DCH 4 Leenhouts, P. W. 1956

Florae Malesianae Praecursores 12 (Dichapetalaceae). Some notes on the genus *Dichapetalum* (Dichapetalaceae) in Asia, Australia and Melanesia. *Reinwardtia* 4 : 75-87. Critical notes and new taxa.

DILLENIACEAE

The family Dilleniaceae is included in the order Ranales by Bentham & Hooker, in the order Guttiferales by Engler, in the order Thealcs by Thorne and in the order Dilleniales by Cronquist, Dahlgren, Hutchinson and Takhtajan.

The Dilleniaceae is distinguished by the numerous free pistils, numerous stamens, 5-merous sepals and petals, seeds with endosperm and with funicular aril. It is allied to the families Paeoniaceae and Crossomataceae. In the Paeoniaceae and Crossomataceae the flowers are perigynous with an intrastaminal disk ; whereas in the Dilleniaceae the flowers are hypogynous with neither an intrastaminal disk nor a hypanthium.

According to Stebbins (1972) the family Dilleniaceae is one of the primitive families which exhibits a wide range of ecological preferences. It provides "an admirable example of ancient adaptive radiation from intermediate habitats both toward more xeric and more mesic adaptations."

The family is represented in India by the following genera : *Acrotrema, Dillenia, Tetracera.*

For recent taxonomic revisions refer Hoogland (1951, 1959, 1972), Mazumdar (1979) ; for phylogeny and morphology refer Dickison (1967, 1970), Sastry (1958) ; for chemotaxonomy refer Kubitzi (1968).

DLL 1 Abedin, S. 1973

Dilleniaceae. *Fl. W. Pakistan* No. 42 : 1-4.

DLL 2 Candolle, A. P. de 1824

Dilleniaceae. *In* : DC., *Prodr.* 1 : 67-76.

DLL 3 Croizat, L. 1940

Notes on the Dilleniaceae and their allies : Austrobaileyeae sub. fam. nov. *Journ. Arn. Arb.* 21 : 397-404.

DLL 4 Dickison, William C. 1967

Comparative morphological studies in Dilleniaceae I. Wood anatomy. *Journ. Arn. Arb.* 48(1) : 1-23, pl. i-vi.

DLL 5 Dickison, William C. 1967

Comparative morphological studies in Dilleniaceae II. The pollen. *Journ. Arn. Arb.* 48(3) : 231-240.

DLL 6 Dickison, William C. 1970

Comparative morphological studies in Dilleniaceae VI. Stamens and young stem. *Journ. Arn. Arb.* 51(3) : 403-415, pl. i-vi.

DLL 7 Dickison, William C. 1970

Comparative morphological studies in Dilleniaceae V. Leaf anatomy. *Journ. Arn. Arb.* 51 : 89-101.

DLL 8 Diels, L. 1920-1922

Dilleniaceae. *Engler, Bot. Jahrb.* 57 : 436-459.

DLL 9 Gilg, E. & Werdermann, E. 1925

Dilleniaceae. *In* : Engler & Prantl, *Pflanzenf. ed.* 2, 21 : 7-36, fig. 1-25.

DLL 10 Hoogland, R. D. 1951

Dilleniaceae. *In :* van Steenis, *Fl. Males.* I, 4 : 141-174, fig. 1-13.

DLL 11 Hoogland, R. D. 1959

Additional notes on Dilleniaceae 1-9. *Blumea* 9 : 577-589, 8 fig.

DLL 12 Hoogland, R. D. 1972

Dilleniaceae. *Fl. Thailand* 2(2) : 93-108, 2 fig.

DLL 13 Kubitzi, K. 1968

Flavonide und systematik der Dilleniaceen. *Ber. Deutsch. Bot. Ges.* 81 : 238-251.

DLL 14 Mazumdar, N. C. 1979

Dilleniaceae. *Fasc. Fl. Ind.* 2 : 1-15, 2 fig. 1 photo.

DLL 15 Rehder, A. 1915

Dilleniaceae. *In* : Sarg. *Pl. Wils.* 2 : 378-389.

DLL 16 Sastry, R. L. N. 1958

Floral morphology and embryology of some Dilleniaceae. *Bot. Notiser* 111 : 495-511.

DLL 17 Willis, J. C. 1907

The geographical distribution of the Dilleniaceae, as illustrating the treatment of this subject on the theory of mutation. *Ann. Roy. Bot. Gard. Peradeniya* 4 : 69-77.

Acrotrema Jack

DLL 18 Dickison, William, C. 1971

Comparative morphological studies in Dilleniaceae VII. Additional notes on *Acrotrema*. *Journ. Arn. Arb.* 52(2) : 319-331, pl. i & ii.

DLL 19 Mathew, P. M. 1972

Cytology of *Acrotrema*. *Curr. Sci.* 41(20) : 751.

Dillenia Linn.

DLL 20 Brandis, D. 1900

The Indian species of *Dillenia*. *Indian Forester* 26 : 429-431.

DLL 21 Corner, E. J. H. 1978

The inflorescence of *Dillenia*. *Notes Roy. Bot. Gard. Edinb.* 36(2) : 341-353. It is considered large flowers

are primitive and the branched inflorescence with many relatively small flowers has evolved from the single terminal flower.

DLL 22 Hoogland, R. D. 1952

A revision of the genus *Dillenia*. *Blumea* 7 : 1-145, 11 fig. Synonymy & descr. of genus. key, distr.

DLL 23 Kadambi, K. 1955

Silviculture of the species of the genus Dillenia, family Dilleniaceae—Dillenia indica Linn., *Dillenia pentagyna* Roxb. and *Dillenia aurea* Smith.—Manager of Publications, Delhi, 1-14 pp., 6 fig. Local names, descr., habit, distr., phenology, forest types.

Tetracera Linn.

DLL 24 Hoogland, R. D. 1953

The genus *Tetracera* (Dilleniaceae) in the eastern Old World. *Reinwardtia* 2 : 185-224, pl. 1, fig. 1-10. A systematic revision.

DLL 25 Kubitzki, K. 1970

Die gattung *Tetracera* (Dilleniaceae). *Mitt. Bot. Munchen* 8 : 1-98.

DLL 26 Kubitzki, K. & Baretta-Kuipero, T. 1969

Pollendimorphie und Androdiozie bei *Tetracera* (Dilleniaceae). *Naturwissenschaften, Berlin* 56(4) : 219-220.

ADDITIONS : GENERAL

DLL 27 Dickison, W. C., Nowicke, J. W. & Skvarla, J. J. 1982

Pollen morphology of the Dilleniaceae and Actinidiaceae. *Amer. Journ. Bot.* 69 : 1055-1073.

DLL 28 Hooker, J. D. & Thomson, T. 1872

Dilleniaceae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 1 : 30-38.

DLL 29 Stebbins, G. L. 1972

Ecological distribution of centres of major adaptive radiation in Angiosperms. *In* : Valentine, D. H. *ed.*, *Taxonomy and Phytogeography and Evolution.* Academic Press, London. 7-34.

DIOSCOREACEAE

(Refer also Trichopodaceae)

The family Dioscoreaceae is included in the order Epigynae by Bentham & Hooker. While Dahlgren and Hutchinson considered it in the order Dioscoreales. Engler treated the family in the order Liliiflorae. Cronquist, Takhtajan and Thorne placed it in the order Liliales.

Hutchinson separated the genus *Trichopus* from the Dioscoreaceae to form a separate family Trichopodaceae. Anatomical evidence further supports the separation.

The Dioscoreaceae is characterised by its climbing herbs or shrubs with alternate net-veined leaves, usually unisexual flowers, flowers consisting of 6 perianth lobes in two whorls, usually fused at the base, two whorls of three stamens, one row sometimes reduced to staminodes, inferior 3-loculed ovary.

The family Dioscoreaceae is represented in India by the genus *Dioscorea.*

For recent taxonomic revisions refer Burkill (1960), Coursey (1967), Schubert (1972) ; for chromosome studies refer Martin & Ortiz (1963), Sharma & De (1956), Sundara Raghavan (1958, 1959) ; for anatomical studies in relation to taxonomy refer Ayensu (1969) ; for palynology refer Miege (1965).

DSC 1 Alexander, J. & Coursey, D. G. 1969

The origins of Yam cultivation. *In* : Ucko, P. J. & Dimbleby G. W. *eds.*, The domestication and exploitation of plants and animals. Duckworth, London p. 405-425.

DSC 2 Ayensu, E. S. 1969

Aspects of the complex nodal anatomy of the Dioscoreaceae. *Journ. Arn. Arb.* 50 : 124-137.

DSC 3 Burkill, I. H. 1951

Dioscoreaceae. *Fl. Males.* I, 4 : 293-335, fig. 1-14.

DSC 4 Burkill, I. H. 1960

The organography and the evolution of Dioscoreaceae, the family of Yams. *Journ. Linn. Soc.* 66 : 319-412, 59 fig.

DSC 5 Knuth, R. 1924

Dioscoreaceae. *In* : Engler, *Pflanzenr.* 87(IV. 43) : 1-387, fig. 1-69.

DSC 6 Knuth, R. 1930

Dioscoreaceae. *In* : Engler & Prantl, *Pflanzenf.* ed. 2. 15a : 438-462. fig. 192-206.

DSC 7 Uline, E. B. 1898

Eine Monographie der Dioscoreaceen. *Bot. Jahrb.* 25 : 126-165.

Dioscorea Linn.

DSC 8 Biswas, K. & Sampat Kumaran, M. A. 1950

Indian Dioscoreas and their role in dietary. *Journ. Roy. Asiat. Soc. Beng. Sci.* 16 : 99-114.

DSC 9 Burkill, I. H. 1924

A list of oriental vernacular names of the genus *Dioscorea. Gard. Bull. Singapore* 3 : 121-244, maps 1-11. Dist., names of economic species.

DSC 10 Burkill, I. H. & Prain, D. 1904

On *Dioscorea deltoidea* Wall., *Dioscorea quinqueloba* Thunb., and their allies. *Journ. Asiat. Soc. Beng.* n. s. II, Suppl. 73 : 1-11.

DSC 11 Burkill, I. H. & Prain, D. 1908

Dioscorearum novarum descriptiones quaedam. *Journ. Proc. Asiat. Soc. Beng.* 4 : 447-457.

DSC 12 Burkill, I. H. & Prain, D. 1926

Ad Dioscorearum orientalium historiam commentarii. *Kew Bull.* 1926 : 118-120.

DSC 13 Coursey, D. G. 1967

Yams, Longmans Green, London, p. 1-222.

DSC 14 Coursey, D. G. 1967

Yams, History and geography. Longmans Green, London, p. 5-27.

DSC 15 Coursey, D. G. 1967

Yams, Botany and taxonomy. Longmans Green, London, p. 28-67.

DSC 16 Coursey, D. G. 1967

Yams, Production and utilisation. Longmans Green, London, p. 130-152.

DSC 17 Martin, F. W. 1972

Yam conservation problems. *Plant Genet. Resour. Newsl.* 28 : 35-36.

DSC 18 Martin, F. W. 1975

Yams of South-East Asia and their future. *In* : Williams J. T. & Lamoureux, C. H. *eds., Plant genetic resources of South-East Asia*. Indonesia, p. 83-90.

DSC 19 Martin, F. W. & Ortiz, S. 1963

Chromosome numbers and behaviour in some species of *Dioscorea*. *Cytologia* 28 : 96-101.

DSC 20 Miege, J. 1965

L' appui de la palynologie dans la distinction des especes africaines de "*Dioscorea*". *Webbia* 19(2) : 841-845.

DSC 21 Onwueme, I. C. 1978

The tropical tuber crops, Yams, Cassava, Sweet Potato and Cocoyams. J. Wiley, Chichester, i-xiv, 1-234, Dioscorea p. 1-106, Chrom. nos.

DSC 22 Pei, C., Ting, C. -T., Chin, H. -C., Pui, S., Tang, S. -Y & Chang, H. -C. 1979

A preliminary systematic study of *Dioscorea* L. Sect. *Stenophora* Uline. *Acta Phytotax. Sin.* 17(3) : 61-72. In Chinese.

DSC 23 Prain, D. & Burkill, I. H. 1914

A synopsis of the Dioscoreas of the Old World, Africa excluded with descriptions of new species and varieties. *Journ. Proc. Asiat. Soc. Bengal* 10 : 5-41.

DSC 24 Prain, D. & Burkill, I. H. 1936

An account of the genus *Dioscorea,* part 1. Species which turn to the left. *Ann. Roy. Bot. Gard. Calcutta* 14 : 1-210.

DSC 25 Prain, D. & Burkill, I. H. 1939

An account of the genus *Dioscorea,* part 2. Species which turn to the right. *Ann. Roy. Bot. Gard. Calcutta* 14 : 211-528.

DSC 26 Sadik, S. & Rockwood, W. G. 1975

Introducing the hybrid yam. *Span* 18 : 67-68.

DSC 27 Santapau, H. 1951

The genus *Dioscorea* in Bombay State. *Journ. Bombay Nat. Hist. Soc.* 49 : 624-636.

DSC 28 Schubert, Bernice G. 1972

Aspects of taxonomy in the genus *Dioscorea. Publ. espec. Inst. Nac. Invest. Forest Mexico* 8 : 31-42.

DSC 29 Sharma, A. K. & De, D. N. 1956

Polyploidy in *Dioscorea. Genetica* 28 : 112-120.

DSC 30 Smith, B. W. 1937

Notes on the cytology and distribution of the Dioscoreaceae. *Bull. Torrey Bot. Club* 64 : 189-197,

DSC 31 Sundara Raghavan, R. 1958

A chromosome survey of Indian Dioscoreas. *Proc. Indian Acad. Sci.* B. 47 : 352-358.

DSC 32 Sundara Raghavan, R. 1959

A note on the South Indian species of the genus *Dioscorea. Curr. Sci.* 28 : 337.

DSC 33 Sundara Raghavan, R. 1960

Studies on the genus *Dioscorea* L. *Bull. Bot. Surv. India* 2 : 379-386, t. 2., pl. 3. Taxonomy of 13 spp.

DSC 34 Waitt, A. W. 1963

Yams, *Dioscorea* species. *Field Crop Abstracts.* 16 : 145-157.

DSC 35 Wildemann, E. de 1938

Dioscorea alimentaires et toxiques. Mem. Inst. Roy. Colon. belge, G. Van Campenhout, Bruxelles.

ADDITION : GENERAL

DSC 36 Hooker, J. D. 1892

Dioscoreaceae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 6 : 288-297.

DIPENTODONTACEAE

The family Dipentodontaceae is included in the order Olacales by Hutchinson. Thorne assigned the family in the order Cistales. Cronquist, Engler, Takhtajan considered it in the order Santalales. Dahlgren however considered it under the order Violales.

A monogeneric family based on the genus *Dipentodon*, the Dipentodontaceae is characterised by its alternate leaves with deciduous stipules, flowers in globose umbels, floral parts 5-7 merous, stamens alternate with the petals, alternating with nectary glands and capsular tomentose fruits.

The family is related to Nyssaceae and to the genus *Homalium* of the Flacourtiaceae. The family is represented in India by

the genus *Dipentodon,* a monotypic genus (*D. sinicus* Dunn. occurring from E. Himalaya, N. Burma to S. W. China). The leaf stipules and perianth of the family suggest alliance with Flacourtiaceae. While pollen grains indicate its relationship with Hamamelidaceae.

DPN 1 Dunn, S. T. 1911

Dipentodon, a new genus of uncertain systematic position. *Kew Bull. Misc. Inf.* 1911 : 310-313. Attributed to Celastraceae, monotypic ; E. Himalayas, Burma, S. W. China.

DPN 2 Merrill, E. D. 1941

Dipentodonaceae fam. nov. *Brittonia* 4 : 69-73, fig. 2. Dipentodontaceae is the correct name for the family.

DIPSACACEAE

The family Dipsacaceae is included in the order Asterales by Bentham & Hooker, in the order Valerianales by Hutchinson, in the order Dipsacales by Cronquist, Dahlgren, Engler, Takhtajan and Thorne.

The Dipsacaceae is characterised by the opposite or whorled leaves which are exstipulate, flowers in dense cymose heads subtended by involucral bracts, 4 or 5-merous floral parts, 1-loculed ovary with one pendulous ovule in each locule.

The family is divided into two tribes : Morineae and Dipsaceae. The tribe Morineae is elevated to the status of family Morinaceae by Airy Shaw.

The fruit of Dipsacaceae is an achene, a feature allied to the family Compositae. Embryogeny in Compositae, Calyceraceae and Dipsacaceae shows common similarities.

The family is represented in India by the following genera : *Dipsacus, Pterocephalus, Scabiosa.*

For recent taxonomic revisions refer van Steenis (1951), Ferguson & Brizicky (1965) ; for chromosome studies refer Kachidze (1929) ; for palynology refer Vinokurova (1959).

DPS 1 Alvarado, S. 1927

Die morphologische Aufbau des Hullkelches der Dipsacacen. *Bot. Jahrb.* 61 : Beibl. 138, 10-21, t. 9. Morphology of epicalyx.

DPS 2 Candolle, A. P. de 1830

Dipsaceae. *In* : DC., *Prodr.* 4 : 643-664.

DPS 3 Doll, W. 1927

Beitrage Zur Kenntnis der Dipsaceen und Dipsaceen ahnlicher *Pflanzen. Bot. Archiv. Mez.* 17 : 107-146, fig. 1-127. Morphological notes.

DPS 4 Ehrendorfer, F. 1964

Cytologie taxonomie und evolution bei Samenpflanzen. *In* : Turrill, W. B. *ed., Vistas in Botany* 4 : 99-186. New York. [Darstellung einiger spezieller. Probleme am Beispiel der Dipsacaceae, 121-124. Relationship and evolution of the genera of Dipsacaceae].

DPS 5 Ferguson, I. K. 1965

The genera of Valerianaceae and Dipsacaceae in the South-Eastern United States. *Journ. Arn. Arb.* 46 : 218-231. [Dipsacaceae 226-231 pp]

DPS 6 Herr, C. 1934

Contribution a'l'etude du pollen des Dipsacees. *These. Doct. Univ.* (*Pharmacie*) *Strasbourg.*

DPS 7 Hock, F. 1891

Dipsacaceae. *In* : Engler & Prantl, *Pflanzenf. IV,* 4 : 182-189.

DPS 8 Hock, F. 1902

Verwandtschaftsbeiziehungen der Valerianaceen und Dipsacaceen. *Bot. Jahrb.* 31 : 405-411.

DPS 9 Kachidze, N. 1929

Karyologische Studien uber die Familie der Dipsacaceae. *Planta* 7 : 482-502.

DPS 10 Steenis, C. G. G. J. van 1951

Dipsacaceae. *In* : van Steenis, *Fl. Males.* I, 4 : 290-292. 1 fig.

DPS 11 Szabo, Z. 1923

The development of the flower of the Dipsacaceae. *Ann. Bot.* 37 : 325-334.

DPS 12 Tieghem, P. van 1909

Remarques sur les Dipsacacees. *Ann. Sci. Nat. Bot.* IX. 10 : 148-200.

DPS 13 Vinokurova, L. V. 1959

[Palynological data to the systematic of Dipsacaceae and Morinaceae]. (In Russian). *Problemes Botaniques, Acad. Sci.* Moscow 4 : 51-67.

Dipsacus Linn.

DPS 14 Christy, M. 1923

The common teasel as a carnivorous plant. *Journ. Bot.* 61 : 33-45. Considers whether the water held in the connate leaf bases of *D. fullonum* operates as an insectivorous mechanism.

DPS 15 Ferguson, I. K. & Brizicky, George K. 1965

Nomenclatural notes on *Dipsacus fullonum* and *Dipsacus sativus*. *Journ. Arn. Arb.* 46(3) : 362-365.

DPS 16 Maquire, B. 1959

Aquatic biotas of teasel (*Dipsacus sylvestris*) waters. *Ecology* 40 : 506.

DPS 17 Mullins, D. 1951

Teasel growing, an ancient practice. *World Crops* 3 : 146-147. [*D. sativus* = *D. fullonum*]

DPS 18 Spoel-Walvius, M. R. van der & Vries, R. J. de 1964

Description of *Dipsacus fullonum* L. pollen. *Acta Bot. Neerl.* 13 : 422-431.

ADDITION : GENERAL

DPS 19 Clarke, C. B. 1881

Dipsacaceae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 3 : 215-219.

DIPTEROCARPACEAE

The family Dipterocarpaceae is included in the order Guttiferales by Bentham & Hooker and Engler. While Hutchinson treated this under the order Ochnales. However Cronquist, Takhtajan and Thorne assigned this family to the order Theales. Dahlgren treated the family in the order Malvales.

The Dipterocarpaceae is characterised by its alternate stipulate leaves, 5-merous floral parts, stamens five to many having connective produced beyond and ending in a terminal process, three loculate superior ovary with two pendulous ovules in each locule. Fruit is a l-seeded nut as one ovule only developes and the nut is enclosed by persistent or winged calyx.

The family is divided into two subfamilies (Gilg, 1925) : Monotoideae (androecium with gynophore ; anther dorsified) and Dipterocarpoideae (androecium without gynophore ; anther basifixed). The Dipterocarpaceae is allied to the families Ochnaceae, Guttiferae, Tiliaceae and Theaceae.

On the basis of chromosome studies it is seen that the taxonomic treatment of the subfamily Dipterocarpoideae agrees with cytological observations. The members of the Dipterocarpoideae are mainly diploid. The family is characterised by low chromosome numbers X=11 and X=7 and the occurrence of palaeopolyploidy is dicounted. (Jong, 1976)

The family is represented in India by the following genera : *Anisoptera, Dipterocarpus, Hopea, Shorea, Vateria, Vatica.*

For recent taxonomic studies refer Ashton (1972, 1978, 1979, 1980), Jacobs (1981) ; for chromosome studies refer Jong (1976), Roy et Jha (1965), Somego (1978) ; for chemotaxonomy refer Bate-Smith & Whitmore (1959).

DPC 1 Ashton, P. S. 1972

Precursor to a taxonomic revision of Ceylon Dipterocarpaceae. *Blumea* 20 : 357-366. The genus *Doona* reduced to *Shorea; Stemonoporus* reduced to *Cotylelobium; Balanocarpus* reduced to *Hopea.*

DPC 2 Ashton, P. S. 1978

Flora Malesiana Precursores : Dipterocarpaceae. *Gard. Bull. Singapore* 31(1) : 5-48. Key, descr. of new spp.

DPC 3 Ashton, P. S. 1979

Phylogenetic speculations on Dipterocarpaceae. *Mem. Mus. Natn. Hist. Nat. Paris ser.* B., Bot. 26 : 145-149, t. 1.

DPC 4 Ashton, P. S. 1979

The generic concept adopted for recent revisions with Dipterocarpoideae. *Mem. Mus. Natn. Hist. Nat. Paris ser.* B., Bot. 26 : 128-138, fig. 1, t. 4.

DPC 5 Ashton, P. S. 1980

Dipterocarpaceae. *Revised Handb. Fl. Ceylon ed.* New Delhi 1 : 364-423.

DPC 6 Ashton, P. S. 1980

The biological and ecological basis for the utilization of dipterocarps. *Bio. Indonesia* No. 7 : 43-53.

DPC 7 Aubreville, A. 1976

Essai d' interpre' tation nouvelle de la distribution des Dipterocarpacees. *Adansonia* 16(2) : 205-210.

DPC 8 Bate-Smith, E. C. & Whitmore, T. C. 1959

Chemistry and taxonomy in the Dipterocarpaceae. *Nature* 184 : 795-796. Suggests regrouping of genera on the basis of chemical similarity.

DPC 9 Brandis, D. 1895

An enumeration of the Dipterocarpaceae, based chiefly upon the specimens preserved at the Royal Herbarium

and Museum, Kew and the British Museum with remarks on the genera and species. *Journ. Linn. Soc. Bot.* 31 : 1-148, t. 1-3.

DPC 10 Burck, W. 1887

Sur les Dipterocarpacees des Indes neerlandaises. *Ann. Jard. Bot. Btzg.* 6 : 145-249. Key to genera.

DPC 11 Candolle, A. de 1868

Dipterocarpaceae. *In* : DC., *Prodr.* 16(2) : 604-637.

DPC 12 Fedorov, A. A. 1980

[The family Dipterocarpaceae Blume and the evolution of plants.] *In* : Zilin, S. G. *ed.*, Sistematika i evoljucija ryssich rastenij. 92-100. Leningrad. In Russian.

DPC 13 Foxworthy, F. W. 1946

Distribution of the Dipterocarpaceae. *Journ. Arn. Arb.* 27 : 347-354.

DPC 14 Gilg, E. 1925

Dipterocarpaceae. *In* : Engler & Prantl, *Pflanzenf.* ed. 2, 21 : 237-269, fig. 108-118.

DPC 15 Heim, F. 1892

Recherches sur les Dipterocarpacees. *Introduction a la monographie generale de la famille* V : 1-186, t. 1-11.

DPC 16 Janardhanan, K. P. & Tewary, Prakash K. 1982

A note on endemism in Dipterocarpaceae with special reference to the Indian flora. *Journ. Econ. Tax. Bot.* 3 : 487-490. 20 endemic spp., enumerated.

DPC 17 Janzen, D. H. 1974

Tropical backwaters, rivers, animals and mast fruiting by the Dipterocarpaceae. *Biotropica* 6(2) : 69-103.

DPC 18 Jacobs, M. 1981

Dipterocarpaceae : the taxonomic and distributional framework. *Malayas. For.* 44 : 168-189, 3 tab. General synoptic view.

DPC 19 Jong, K. 1976

Cytology of the Dipterocarpaceae. *In* : Burley, J. & Styles, B. T. *eds., Tropical trees, Variation, Breeding and Conservation* 79-84. *Linn. Soc. Symp. ser.* No. 2., Academic Press, London.

DPC 20 Jong, K. & Lethbridge, A. 1967

Cytological studies in the Dipterocarpaceae-1. *Notes Roy. Bot. Gard. Edinb.* 27 : 175-183.

DPC 21 Meher-Homji. V. M. 1979

Distribution of the Dipterocarpaceae : Some phyto-geographic considerations on India. *Phytocoenologia* 6 : 85-93, maps 3. Borneo is considered to be the centre of origin of the family. In India the drier climate due to the uplift of the Ghats & Himalaya caused much extinctions in the Late Tertiary.

DPC 22 Meijer, W. 1974

Plant geographic studies on Dipterocarpaceae in Malesia. *Ann. Missouri Bot. Gard.* 61(3) : 806-818, 8 fig.

DPC 23 Merrill, E. D. 1923

Distribution of the Dipterocarpaceae. *Philip. Journ. Sci.* 23 : 1-33, 2 maps.

DPC 24 Roy, R. P. & Jha, R. P. 1965

Cytological studies in the Dipterocarpaceae. *Journ. Indian Bot. Soc.* 44 : 387-397.

DPC 25 Somego, M. 1978

Cytogenetical study of Dipterocarpaceae. *Malaysian Forester* 41(4) : 358-366. Chrom. nos.

Dipterocarpus Gaertn. f.

DPC 26 Cowan, J. M. & Cowan, A. M. 1922

The species of the genus *Dipterocarpus* found in the Chittagong district. *Indian Forester* 48 : 68-73.

DPC 27 Dyer, W. T. 1874

A revision of the genera *Dryobalanops* and *Dipterocarpus*. *Journ. Bot.* 12 : 97-108, t. 142-145.

DPC 28 Macalpine, R. I. 1932

The identification of the Gurjans (*Dipterocarpus* spp.) Cox's Bazar Division, Bengal. *Indian Forester* 58 : 359-361, t. 17-20.

DPC 29 Meijer, W. 1979

Taxonomic studies in the genus *Dipterocarpus*. *Mem. Mus. Natn. Hist. Nat. Paris ser.* B., Bot. 26 : 50-56, t. 3. Taxonomy & ecology.

Hopea Roxb.

DPC 30 Mabberley, D. J. 1979

The latin name of the "Ilapongu" tree (Dipterocarpaceae). *Taxon* 28 : 587. *Hopea ponga* (Dennst.) Mabberley comb. nov. (Syn. *H. wightiana*) based on *Artocarpus ponga*.

Shorea Roxb. ex Gaertn.

DPC 31 Kashyapa, G. 1961

Shorea talura Roxb., a synonym of *S. roxburghii* G. Don. *Journ. Bombay Nat. Hist. Soc.* 58 : 543-544. Brief discussion.

DPC 32 Mehra, P. N. & Sareen, T. S. 1973

Cytology of some Himalayan trees : Thalamiflorae. *Silvae Genet.* 22(3) : 66-70.

Vateria Linn.

DPC 33 Meijer, W. 172

Some taxonomic and nomenclatural notes on *Vateria copallifera* (Retz.) Alston. *Ceyl. Journ. Sci. Biol.* 10 : 76-79, 1 fig., 2 pl. Linnaeus based the genus *Vateria* on Rheede's illustration. *Hort. Mal.* 4 : 33. t. 15. 1673 ; *Vateria copaifera* might belong to *Vatica*.

DPC 34 Subramanian, K. N., Jayachandran, C. K. & Venkatasubramanian, N. 1982

Occurrence of *Vateria macrocarpa* B. L. Gupta in Kerala state. *Journ. Econ. Tax. Bot.* 3 : 620.

ADDITIONS : GENERAL

DPC 35 Bancroft, H. 1933

A contribution to the geographical history of the Dipterocarpaceae. *Geol. For. Stockh. Forh.* 55 : 59-100.

DPC 36 Meijer, W. 1973

Devastation and regeneration of lowland dipterocarp forests in South-East Asia. *Bioscience* 23 : 528-533.

DPC 37 Smitinand, T. *et. al.* 1980

The manual of Dipterocarpaceae of mainland South-East Asia. 1-133, 15 fig., 6 pl. Royal Forest Department, Bangkok.

DPC 38 Symington, C. F. 1943

Foresters' manual of Dipterocarps. i-xliii, 1-244, 114 fig., 114 pl. Refer also Whitemore, T. C., *Taxon* 25 : 629-630.

DPC 39 Thiselton Dyer, W. T. 1874

Dipterocarpaceae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 1 : 294-317.

Hopea Roxb.

DPC 40 Hole, R. S. 1919

Note on *Hopea canarensis* Hole. *Indian For. Rec.* 7 : 89-92.

DROSERACEAE

The family Droseraceae is assigned to the order Rosales by Bentham & Hooker and Thorne, to the order Sarraceniales by Cronquist, Engler and Hutchinson, to the order Nepenthales by Takhtajan and to the order Droserales by Dahlgren.

The Droseraceae is distinguished (by the) in having leaves with adaptations for insect traping, presence of sticky glands, bisexual primarily 5-merous flowers, pollen in tetrads, placentation usually parietal, rarely axile or free central and loculicidal capsule.

The family Droseraceae is allied to the Nepenthaceae and Sarraceniaceae, but differs in having several styles and leaves not forming pitchers. Whereas in the families Nepenthaceae and Sarraceniaceae the style is solitary or none and the leaves are modified to form pitchers. The insectivorous habit is due to the evolutionary response of their occurrence in water-logged soils deficient in nitrogen.

The family is represented in India by the following genera : *Aldrovanda, Drosera.*

For recent taxonomic studies refer van Steenis (1953) ; for palynology refer Chanda (1965), Jones (1964), Kuprianova (1974), Raj (1965, 1970), Raju & Patankar (1956) ; for chromosome studies refer Kondo (1976).

GENERAL

DRS 1 Candolle, A. P. de 1824

Droseraceae. *In* : DC., *Prodr.* 1 : 317-320.

DRS 2 Chanda, S. 1965

The pollen morphology of Droseraceae with special reference to taxonomy. *Pollen et Spores* 7(3) : 509-528.

DRS 3 Diels, L. 1906

Droseraceae. *In* : Engler, *Pflanzenr.* 26(IV. 112) : 1-136, fig. 1-40.

DRS 4 Diels, L. 1936

Droseraceae. *In* : Engler & Prantl, *Pflanzenf. ed.* 2. 17b : 766-784, fig. 473-486.

DRS 5 Planchon, J. E. 1848

Sur la famille des Droseracees. *Ann. Sci. Nat.* III. Bot. 9 : 79-99, t. 185-207, 285-309, pl. 5-6. All the species then known enumerated & described.

DRS 6 Steenis, C. G. G. J. van 1953

Droseraceae. *In* : van Steenis, *Fl. Males.* I, 4 : 377-381, fig. 1-7.

DRS 7 Wood, Carroll, E. Jr. 1960

The genera of Sarraceniaceae and Droseraceae in the South-Eastern United States. *Journ. Arn. Arb.* 41 : 152-163.

Aldrovanda Linn.

DRS 8 Sahashi, N. & Ikuse, M. 1973

Pollen morphology of *Aldrovanda vesiculosa* L. *Journ. Jap. Bot.* 48(12) : 374-379.

Drosera Linn.

DRS 9 Doty, J. 1974

Sundews. *Lasca Leaves* 24(2) : 32-35.

DRS 10 Hamet, M. R. 1907

Observations sur le genre *Drosera. Bull. Soc. Bot. Fr. IV.* 7 : 26-38, 52-76, pl. 2.

DRS 11 Hughes, R. 1979

Drosera. *Carniv. Pl. Soc. Journ.* 2 : 2-5. Chrom. nos.

DRS 12 Jones, K. 1964

Pollen structure and development in *Drosera. Journ. Linn. Soc. London Bot.* 59 : 81-87.

DRS 13 Kondo, K. 1971

A review of the *Drosera spathulata* complex (Droseraceae). *Journ. Jap. Bot.* 46 : 321-326, 3 fig. Chrom. nos. 2n = 20, 40, 50, 60, 72, 80 ; possible hybrid with *D. rotundifolia.*

DRS 14 Kondo, K. 1973

Chromosome numbers of some *Drosera* taxa. *Journ. Jap. Bot.* 48(7) : 193-198. Chrom. nos.

DRS 15 Kondo, K. 1976

A cytotaxonomic study in some species of *Drosera*. *Rhodora* 78(815) : 532-541. Chrom. nos.

DRS 16 Kuprianova, L. A. (1973) 1974

Pollen morphology within the genus *Drosera*. *Grana* 13(2) : 103-107.

DRS 17 Lloyd, F. E. 1942

The Carnivorous plants i-xv + 1-352. Chronica Botanica, Waltham, Mass. The genus *Drosera* mentioned in Chapter X.

DRS 18 Raj, B. 1965

Pollen structure in *Drosera*. *Sci. Cult.* 31(10) : 531.

DRS 19 Raj, B. 1970

Pollen grains of *Drosera*. *Journ. Palynol. Lucknow* 5 : 100-103.

DRS 20 Raju, M. V. S. & Patankar, T. B. V. 1956

Pollen morphology in three species of *Drosera* L. *Grana Palynologica* 1(2) : 153-155. (*D. burmanii, D. indica* and *D. pellata*).

DRS 21 Ruan, Yun-Zhen 1981

On the Chinese species of *Drosera* L. *Acta Phytotax. Sin.* 19 : 339-344, 2 fig.

ADDITION : GENERAL

DRS 22 Clarke, C. B. 1878

Droseraceae. *In* : Hooker. J. D. *ed., Fl. Brit India* 2 : 423-425.

EBENACEAE

The family Ebenaceae is assigned to the order Ebenales by Bentham & Hooker, Cronquist, Dahlgren, Engler, Hutchinson, Takhtajan and Thorne.

The Ebenaceae is characterised by leathery exstipulate leaves usually unisexual flowers with male and female flowers on separate plants, rarely bisexual, persistent calyx, tubular corolla with epipetalous stamens in two whorls and ovary with two pendent ovules attached at the apex in each locule.

The Ebenaceae is distinguished from the Sapotaceae in the absence of a latex system, the presence of unilacunar nodes and mostly unisexual flowers. Whereas the family Sapotaceae has a well developed latex system, mostly trilacunar nodes and bisexual flowers.

The family is represented in India by the the genus *Diospyros*.

For recent taxonomic studies refer Howard & Norlindh (1962), Kostermans (1977, 1978) ; for general notes refer Hunter (1981), Rathore (1973) ; for chromosome studies refer Somego (1978).

GENERAL

EBN 1 Bakhuizen van den Brink, R. C. 1936-1941

Revisio Ebenacearum Malayensium. *Bull. Jard. Bot. Btzg.* III, 15 : 1-49. 1936 ; *ibid.* 179-368. 1938 ; *ibid.* 369-515. 1941.

EBN 2 Candolle, A. de 1844

Ebenaceae. *In* : DC., *Prodr.* 8 : 209-243.

EBN 3 Ghazanfar, S. A. 1978

Ebenaceae, *Fl. W. Pakistan* 116 : 1-3, 1 fig.

EBN 4 Hiern, W. P. 1873

A monograph of the Ebenaceae. *Trans. Cambridge Philos. Soc.* 12 : 27-300, pl. 1-11.

EBN 5 Parmentier, P. 1892

Histologie comparee des Ebenacees dans ses rapports avec la morphologie et l' histoire genealogique de ces plantes. *Rnn. Univ. Lyon* 6 : 1-150, pl. 1-4. Phylogeny of the family.

EBN 6 Phengklai, C. 1978

Ebenaceae of Thailand. *Thai. For. Bull.* 11 : 1-103. 60 spp. descr., key, illust.

EBN 7 Wood, Carrol E. Jr. & Channell, R. B. 1960

The genera of the Ebenales in the South-Eastern United States. *Journ. Arn. Arb.* 41 : 17-22.

Diospyros Linn.

EBN 8 Berry, E. W. 1912

Some ancestors of the persimmon. *Pl. World* 15 : 15-21.

EBN 9 Burbidge, F. W. 1897

The date plums or kaki fruits of Japan. *Gard. Chron.* III, 22 : 441. Historical details of *Diospyros kaki.*

EBN 10 Busch, P. 1913

Anatomisch-systematische Untersuchung der Gattung *Diospyros* 1-94.

EBN 11 Gumbleton, W. E. 1891

Diospyros kaki : The persimmon or divine pear. *Gard. Chron.* III, 9 : 170-172. fig. 43. Largely a classification of horticultural forms.

EBN 12 Hemsley, W. B. 1907

Diospyros kaki. Curtis's Bot. Mag. 133 : pl. 8127. See also *Kew Bull.* 1911 : 235-245.

EBN 13 Hemsley, W. B. 1911

Persimmons (*Diospyros kaki* Linn. f. and *D. roxburghii* Carriere). *Kew Bull.* 1911 : 235-245.

EBN 14 Howard, R. A. 1961

The correct name for *Diospyros ebenaster. Journ. Arn. Arb.* 42 : 430-436.

EBN 15 Howard, R. A. & Norlindh, T. 1962

The typification of *Diospyros ebenum* and *Diospyros*

ebenaster. *Journ. Arn. Arb.* 43 : 94-102, pl. 5. Nomenclature & discussion.

EBN 16 Hunter, J. R. 1981

Tendu (*Diospyros melanoxylon*) leaves, bidi cigarettes and resource management. *Econ. Bot.* 35 : 450-459, 2 fig.

EBN 17 Kostermans, A. J. G. H. (1977) 1978

A new species of *Diospyros* (Ebenaceae) from Western India. *Journ. Bombay Nat. Hist. Soc.* 74(2) : 326. *D. saldanhae* sp. nov., descr. from Hassan Dist., Karnataka.

EBN 18 Kostermans, A. J. G. H. 1977

Notes on Ceylonese Ebony trees (Ebenaceae). *Cey. Journ. Sci.* (Bio. Sci.) 12 : 89-108. Species of *Maba* are transferred to the genus *Diospyros*. The status of *D. peregrine* is discussed.

EBN 19 Naithani, H. B. 1980

A note on the distribution and nomenclature of *Maba cacharensis*. *Indian Forester* 106 : 583-585, fig. 1. Transferred to the genus *Diospyros*.

EBN 20 Ng, F. S. P. 1978

Diospyros roxburghii and the origin of *Diospyros kaki*. *Malaysian Forester* 41(1) : 43-50. Chrom. nos., map.

EBN 21 Phengkhalai, C. 1972

The genus *Diospyros* Linn. (Ebenaceae) in Thailand. *Thai. Forest Bull. Bot.* No. 6 : 1-27. Key to 56 spp.

EBN 22 Rathore, J. S. 1973

Diospyros melanoxylon, a bread winner tree of India. *Econ. Bot.* 26(4) : 333-339.

EBN 23 Sarkar, B. K. 1963

A note on Bidi leaf (*Diospyros melanoxylon*). *Indian Forester* 89 : 39-45.

EBN 24 Somego, M. 1978

Chromosome numbers of *Diospyros roxburghii*. *Malaysian Forester* 41(1) : 51-52. Chrom. nos.

EBN 25 White, F. 1956

Distribution of the African species of "*Diospyros*". *Webbia* 11 : 525-540.

EBN 26 White, F. 1962

Geographic variation and speciation in Africa with particular reference to *Diospyros*. *System. Ass. Publ.* 4 : 71-103, 11 fig. Ecological and genetical view points.

EBN 27 Wight, H. 1904

The genus *Diospyros* in Ceylon : its morphology, anatomy and taxonomy. *Ann. Roy. Bot. Gard. Peradeniya* 2 : 1-106, 134-210, tab. 1-20.

ADDITION : GENERAL

EBN 28 Clarke, C. B. 1862

Ebenaceae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 3 : 549-572.

EHRETIACEAE

(Refer also Boraginaceae)

The family Ehretiaceae is recognised by Hutchinson and included in the order Verbenales ; while Dahlgren included the family in the order Solanales. Bentham & Hooker, Cronquist, Engler, Takhtajan and Thorne did not recognise Ehretiaceae as a family and considered it as part of the family Boraginaceae.

The tribes Ehretioideae and Cordioideae are treated together under the family Ehretiaceae. The family is characterised by exstipulate alternate leaves, cymose rarely capitate inflorescence, usually 5-merous floral parts, superior ovary with 2 to 4 locules with two erect ovules generally attached basally to the axis (axile placentation) or rarely pendulous.

The family generally consists of shrubs and trees and is considered allied to Verbenaceae. The ehretiaceous flora of India is represented by the following genera : *Coldenia, Carmona, Cordia, Ehretia, Rotula.*

For taxonomic revisions refer Kazmi (1970) ; for palynology refer Nowicke & Ridgway (1973), Rao & Fong (1974).

Coldenia Linn.

EHR 1 Kazmi, S. M. A. 1970

Coldenia L. A revision of the Boraginaceae of West Pakistan and Kashmir. *Journ. Arn. Arb.* 51(2) : 148.

Cordia Linn.

EHR 2 Hutchinson, J. 1918

Cordia myxa and allied species. *Kew Bull. Misc. Inf.* 1918 : 217-222, 2 fig.

EHR 3 Jacob, K. C. 1944

A new species of *Cordia. Journ. Bombay Nat. Hist. Soc.* 45 : 78-79, pl. 1. *C. diffusa* from Coimbatore, Tamil Nadu.

EHR 4 Kazmi, S. M. A. 1970

Cordia L. A revision of the Boraginaceae of West Pakistan and Kashmir. *Journ. Arn. Arb.* 51(2) : 139-145.

EHR 5 Nowicke, J. W. & Ridgway, J. E. 1973

Pollen studies in the genus *Cordia* (Boraginaceae). *Amer. Journ. Bot.* 60(6) : 584-591.

Ehretia P. Br.

EHR 6 Kazmi, S. M. A. 1970

Ehretia L. A revision of Boraginaceae of West Pakistan and Kashmir. *Journ. Arn. Arb.* 51(2) : 145-148.

EHR 7 Rao, A. N. & Fong, Ling Leong 1974

Pollen morphology of certain tropical plants. *Reinwardtia* 9 : 153-176. *Ehretia microphylla* p. 166.

ELAEAGNACEAE

The family Elaeagnaceae is included in the order Daphnales by Bentham & Hooker, in the order Rhamnales by Hutchinson and Thorne, in the order Thymelaeales by Engler, in the order Proteales by Cronquist and in the order Elaeagnales by Takhtajan.

The Elaeagnaceae is characterised by the presence of silvery or golden hairs which are either scaly or peltate, flowers without petals, stamens as many or twice as many sepals, superior ovary with one carpel and one erect anatrophous ovule, a pseudodrupeous fruit, the fleshy portion being the thickened lower part of the persistent calyx.

The family is related to the Thymelacaceae but is distinguished by the golden or silvery indumentum and the pseudo-drupaceous nature of the fruit. The perigynous nature of flowers which result in the loss of petals, reduction of the number of carpels to one, corolloid nature of calyx, nonendospermous seeds and tanniferous secretory cells seen in the families Elaeagnaceae and Proteaceae led phylogenist Cronquist (1968) to consider Proteaceae and Eleagnaceae as allied families having common ancestory. The family Elaeagnaceae is allied to the family Thymelaeaceae through the genus *Elaeagnus* and to the Penaeaceae through the genus *Hippophae*.

The family is represented in India by the following genera: *Elaeagnus, Hippophae*.

For recent taxonomic revisions refer Hart & Veldkamp (1980), Momiyama & Hara (1973), Rousi (1971) ; for palynology refer Sorso (1971).

GENERAL

ELE 1 Gilg, E. 1894

Elaeagnaceae. Engler & Prantl, *Pflanzenf.* III, 6a : 246-251.

ELE 2 Hawker, L. E. & Fraymouth, J. 1951

A reinvestigation of the root nodules of species of *Elaeagnus, Hippophae, Abnus* and *Myrica* with special reference to the morphology and life-histories of the causative organisms. *Journ. Gen. Microbiology* 5 : 369-386.

ELE 3 Lecomte, H. 1915

Elaeagnacees de Chine et d' Indo-Chine. *Bull. Mus. Hist. Nat. (Paris)* 21 : 161-168.

ELE 4 Leins, P. 1967

Morphologische untersuchungen an Elaeagnaceae Pollen Korner. *Grana Palynologica* 7(2-3) : 390-399.

ELE 5 Massagetov, P. S. 1946

[Alkaloids of plants of the family Elaeagnaceae]. *Zhur. Obshch Khim.* 16 : 139, 140. In Russian with English summary.

ELE 6 Nasir, Y. 1975

Elaeagnaceae. *Fl. W. Pakistan* No. 85 : 1-6, 1 fig.

ELE 7 Nelson, A. 1935

The Elaeagnaceae—a monogeneric family. *Amer. Journ. Bot.* 22 : 681-683.

ELE 8 Richard, A. 1823

Monographie de la famille des Elaeagnees. *Mem. Soc. Hist. Paris* 1 : 375-408, pl. 24-25.

ELE 9 Schlechtendal, D. F. L. von 1857

Elaeagnaceae. *In* : DC., *Prodr.* 4 : 606-616. Monographic.

ELE 10 Schlechtendal, D. F. L. von 1859-1860

Eleagnacearum in Candollei prodromo (Vol. XIV) expositarum adumbratio. *Linnaea* 30 : 304-386.

ELE 11 Schlechtendal, D. F. L. von 1863

Supplementum I ad Elaeagnacearum adumbrationem. *Linnaea* 32 : 294-304.

ELE 12 Servettaz, C. 1908

Note preliminaire sur la systematique des Elaeagnacees. *Bull. Herb. Boiss.* II, 8 : 381-394. Enumeration of 38 spp. keys to tribes.

ELE 13 Servettaz, C. 1909

Monographie des Eleagnacees. *Beih. Bot. Centralb.* 25(2) : 1-420. Morphology, taxonomy and anatomy.

Elaeagnus Linn.

ELE 14 Gardner, I. C. 1958

Nitrogen fixation in Elaeagnus root nodules. *Nature* 181 : 717-718.

ELE 15 Hart, E'T. & Veldkamp, J. F. 1980

A revision of *Elaeagnus* (Elaeagnaceae) in Malesia. *Blumea* 26 : 393-401. Key ; *E. conferta* Roxb., *E. triflora* with two varieties.

ELE 16 Momiyama, Y. & Hara, H. 1973

The genus *Elaeagnus* of Eastern Himalaya. *Journ. Jap. Bot.* 48 : 257-267, 4 fig. Key to spp., *E. infundibularis, E. Kanaii, E. tricholepis.*

Hippophae Linn.

ELE 17 Rousi, A. 1971

The genus *Hippophae* L., a taxonomic study. *Ann. Bot. Fenn.* 8(3) : 177-227. Chrom. no., key.

ELE 18 Shchukin, S. S. 1850

[*Hippophae rhamnoides* L. and its recently discovered oil]. *Trudy Vol'n Ekonom. Obshch.* 1850(2) Smies : 41-48.

ELE 19 Shikhovskii, I. 1850

[Description of the genus *Hippophae* and its species]. *Turdy Vol'n Ekonom. Obshch.* 1850(2) : 189-198, 1 pl. In Russian, description of 4 spp.

ELE 20 Sorsa, P. 1971

Pollen morphological study of the genus *Hippophae* L., including the new taxa recognised by A. Rousi. *Ann. Bot. Fenn.* 8(3) : 228-236.

ADDITION : GENERAL

ELE 21 Hooker, J. D. 1886

Elaeagnaceae. In : Hooker, J. D. *ed., Fl. Brit. India* 5 : 201-203.

ELAEOCARPACEAE

(Refer also Tiliaceae)

The family Elaeocarpaceae is included in the order Malvales by Engler, Cronquist, Takhtajan and Thorne. However Bentham & Hooker and Hutchinson did not recognise Elaeocarpaceae as a family, but considered it as part of the family Tiliaceae.

The Elaeocarpaceae is characterised by its stipulate leaves, petals usually valvate or imbricate with fringed or lacerated apex, presence of numerous stamens, 2-loculed anthers which dehisce through terminal pores, presence of intrastaminal disc, superior ovary with two to many locules with ovules two to many in each locule and pendulous ovules arising from the central axis.

The Elaeocarpaceae is related to the families Tiliaceae and Malvaceae. Cronquist (1968) suggested affinities with some of the Flacourtiaceae. It is considered that the Elaeocarpaceae is one of the primitive families of the order Malvales as seen by the wood anatomy, floral morphology and the absence of nectary.

The family is represented in India by the following genera : *Echinocarpus, Elaeocarpus, Sloanea.*

For recent taxonomic studies refer Moore (1953), Weibel (1972) ; for chromosome studies refer Mehra & Sareen (1973).

ELC 1 Moore, H. E. Jr. 1953

Some notes on cultivated Elaeocarpaceae. *Baileya* 1 : 112-113. Key to genera & spp., nomenclatural notes.

ELC 2 Schlechter, R. 1916

Die Elaeocarpaceen Papuasiens. *Bot. Jahrb.* 54 : 92-155. Phytogeographical notes p. 92-95 ; pan tropical family with main centre in Papuasia (5 genera & 190 spp.) and S. America (5 genera & 70 spp.) ; absent from Africa.

ELC 3 Schumann, K. 1890 & 1897

Elaeocarpaceae. Engler & Prantl, *Pflanzenf.* III, 6 : 1-8. 1890 ; Nachtr. 230, 1897.

Elaeocarpus Linn.

ELC 4 Kanehira, R. 1914

[On the seed of *Elaeocarpus ganitrus*]. *Trans. Nat. Hist. Soc. Formosa* 4 : 208-209. In Japanese.

ELC 5 Mehra, P. N. & Sareen, T. S. 1973

Cytology of some Himalayan trees—Thalamiflorae. *Silvae Genet.* 22(3) : 66-70.

ELC 6 Merrill, E. D. 1951

Notes on *Elaeocarpus* Linnaeus. *Journ. Arn. Arb.* 32 : 157-200.

ELC 7 Merrill, E. D. 1952

Reductions in *Elaeocarpus. Proc. Roy. Soc. Queensland* 62 : 49-50.

ELC 8 Oza, G. M. 1972

10-celled stone of *Elaeocarpus ganitrus* Roxb. *Curr. Sci.* 41(7) : 269.

ELC 9 Tirel, C. & Raynal, J. 1980

Recherches bibliographiques sur trois especes d' *Elaeocarpus* (Elaeocarpaceae). *Adansonia* ser. 2, 20 : 169-177, 3 pl. Name changes.

ELC 10 Weibel, R. 1972

Deux especes nouvelles du genre *Elaeocarpus* provenant des montagnes du sud de 1' Inde. *Candollea* 27(1) : 15-19. *E. blascoi* Weibel ; *E. gaussenii* Weibel.

Muntingia Linn.

ELC. 11 Venkataratnam, L. 1951

Muntingia calabura Linn., a drought resistant exotic plant. *Journ. Bombay Nat. Hist. Soc.* 49 : 804-806, 1 photo. Descr., notes.

ELATINACEAE

The family Elatinaceae is assigned to the order Guttiferales by Bentham & Hooker, to the order Caryophyllales by Hutchinson, to the order Violales by Engler, to the order Theales by Cronquist, Takhtajan and Thorne.

The Elatinaceae is characterised by having stipulate leaves which are opposite decussate or whorled, superior ovary with two to five locules and numerous ovules on axile placentation capsular fruit which dehisces septifragally and seeds with characteristic sculpturings.

According to Airy Shaw (1960) Elatinaceae is a peripheral Centrosperm group (cf. Frankeniaceae & Tamaricaceae), but with possible connections also to Hippuridaceae, Haloragidaceae and Lythraceae. Takhtajan has pointed out similarities between the Elatinaceae and the genus *Hypericum* in the Hypericaceae. In the nature of membranous stipules it is allied to the family Caryophyllaceae.

The Elatinaceae is represented in India by the following genera : *Bergia, Elatine.*

For recent taxonomic studies refer Ramayya & Rajagopal (1974), Sharma (1977).

ELT 1 Backer, C. A. 1951

Elatinaceae. *In* : van Steenis, *Fl. Males.* I, 4 : 203-206, 1 fig.

ELT 2 Niedenzu, F. 1925

Elatinaceae. *In* : Engler & Prantl, *Pflanzenf. ed.* 2, 21 : 270-276.

ELT 3 Ramayya, N. & Prabhaker, M. 1975

Morphology of the appendages 2. Elatinaceae. *Journ. Indian Bot. Soc.* 54(1-2) : 110-115.

ELT 4 Sohmer, S. H. 1980

Elatinaceae. *Revised. Handb. Fl. Ceylon ed.* New Delhi 1 : 424-427.

Elatine Linn.

ELT 5 Dumortier, B. C. 1873

Examen critique des Elatinees. *Bull. Soc. Bot. Belg.* 11 : 254-274.

ELT 6 Fernald, M. L. 1941

Elatine americana and *E. triandra. Rhodora* 43 : 208-211.

ELT 7 Gluck, H. 1936

Elatine. In : Pascher, E., *Die Suisswasser. Fl. Mitteleuropas* 15 : 299-313. Jena.

ELT 8 Ramayya, N. & Rajagopal, T. (1971) 1974

Systematics, distribution and anatomy of the two Indian species of the genus *Elatine* L. *Bull. Bot. Surv. India* 13 : 328-337, fig. 48. Key to *E. ambigua & E. triandra ;* descr., phenology, distr.

ELT 9 Seubert, M. 1845

Elatinearum Monographia. *Nova Acta Acad. Leop-Carol.* 21 : 35-60.

ELT 10 Sharma, V. S. 1977

Elatine triandra Schkuhr.—an interesting distributional new record for North-Western Himalayas. *New Botanist* 4 : 125-129. *E. ambigua* Wt. is reduced to a syno-

nym of *E. triandra* as the former is considered as an ecotype of the latter.

ADDITION : GENERAL

ELT 11 Thiselton-Dyer, W. T. 1872

Elatineae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 1 : 250-252.

ERICACEAE

(includes Vacciniaceae)

The family Ericaceae is included in the order Ericales by Bentham & Hooker, Cronquist, Dahlgren, Engler, Hutchinson, Takhtajan and Thorne. Hutchinson separated the genus *Vaccinium* from the family Ericaceae and recognised the family Vacciniaceae based on the genus *Vaccinium*.

The family Ericaceae is characterised by its ericoid habit, exstipulate leaves, flowers having four to five merous floral parts, corolla usually gamopetalous to form a tubular corolla, anthers bilocular inverted during development with dehiscence by terminal pores, awned or spurred anthers, pollen in tetrads, generally superior ovary (excepting in the subfamily Vaccinioideae, where it is semi-inferior) and usually a capsular fruit (excepting in the subfamily Vaccinioideae where it is a berry).

Following four subfamilies are recognised : Rhododendroideae, Ericoideae, Vaccinioideae and Epigaeoideae. Watson (Journ. Linn. Soc. Bot. 59 : 111-125. 1965) on the basis of studies on anatomical and morphological characters supports the inclusion of Vaccinoideae in the family Ericaceae.

Cronquist (1968) suggested that tetradinous pollen, appendiculate poricidal anthers help adapt the plants to particular kinds of pollinators. The subfamilies Pyroleae and Monotropoideae are considered as separate families Pyrolaceae and Monotropaceae. The small scarcely differentiated acotyledonous embryo of the above mentioned families indicates their dependence on mycorhizal fungus. It is interesting to note the tendencies of symbiosis seen in the families of the order Ericales which generally grow in acidic

soil. Just as the families of the order Sarraceniales which grow on soils deficient in nitrogen develop mechanisms of insect trapping or carnivorous habit, the families of the order Ericales which grow in acidic soil try to depend on fungal symbionts.

The family is represented in India by the following genera : *Agapetes, Arctostaphylos, Cassiope, Corollobotrys, Craibiodendron, Enkianthus, Gaultheria, Leucothoe, Lyonia, Pieris, Rhododendron, Vaccinium.*

For recent taxonomic studies refer Cullen (1980), Cullen & Chamberlain (1978), Sleumer (1963, 1964, 1980), Stevens (1971), Watson (1976) ; for pollen studies refer Franks & Watson (1963) ; for chemotaxonomic studies refer Harborne & Williams (1973).

GENERAL

ERI 1 Candolle, A. P. de 1839

Ericaceae. *In* : DC., *Prodr.* 7 : 580-733.

ERI 2 Copeland, H. F. 1943

A study, anatomical and taxonomic of the genera Rhododendroideae. *Ann. Midl. Nat.* 30 : 533-625, fig. 1-229. Mainly morphological.

ERI 3 Cox, H. T. 1948

Studies in the comparative anatomy of the Ericales, Ericaceae, subfamily : Rhododendroideae. *Ann. Midl. Nat.* 39 : 220-245. Phylogeny.

ERI 4 Don, D. 1834

An attempt at a new arrangement of the Ericaceae. *Edinburgh New Philos. Journ.* 17 : 150-160.

ERI 5 Drude, O. 1889

Ericaceae. *In* : Engler & Prantl, *Pflanzenf.* IV(1) : 15-65.

ERI 6 Evans, W. E. 1927

Some interesting and undescribed Vacciniaceae from Burma and Western China. *Notes Bot. Gard. Edinb.* 15 : 199-208, pl. 219-221.

ERI 7 Franks, J. W. & Watson, L. 1963

The pollen morphology of some critical Ericales. *Pollen et Spores* 5(1) : 51-68.

ERI 8 Harborne, J. B. & Williams, C. A. 1973

A chemotaxonomic survey of flavonoids and simple phenols in leaves of the Ericaceae. *Bot. Journ. Linn. Soc.* 66(1) : 37-54.

ERI 9 Johnson, A. T. 1942

Ericaceae and Vacciniaceae, shrubs of garden merit and interest. *Journ. Roy. Hort. Soc. (London)* 67 : 362-366, fig. 115-119.

ERI 10 Matthews, J. R. & Knox, E. M. 1926

The comparative morphology of the stamen in the Ericaceae *Trans. and Proc. Roy. Soc. Edinb.* 29 : 248-281.

ERI 11 Paquereau, M. M. 1959

Determination generique et specifique du pollen de quelques Ericacees. *Pro. Soc. Linneene Bordeaux* 97 : 1-7.

ERI 12 Sleumer, H. 1941

Vacciniooideen Studien. *Bot. Jahrb. Engler* 71 : 375-510. Systematic monograph with reclassification of genera & sections.

ERI 13 Sleumer, H. O. 1963

Florae Malesianae Precursores XXXV. Supplementary notes towards the knowledge of the Ericaceae in Malaysia. *Blumea* 12 : 89-144.

ERI 14 Sleumer, H. O. 1964

Florae Malesianae Precursores XXXIX. Supplementary notes towards the knowledge of the Ericaceae in Malesia II. *Blumea* 12 : 339-347.

ERI 15 Sleumer, H. O. 1965

The role of Ericaceae in the tropical and subalpine forest vegetation of Malaysia. *In : Unesco symposium*

on Ecological Research in Humid Tropics Vegetation, Kuching 1963 : 179-184.

ERI 16 Sleumer, H. O. 1966-1967

Ericaceae, *In* : van Steenis, *Fl. Males.* I, 6 : 469-668 ; Ericaceae, *ibid.* 669-914. 1967.

ERI 17 Stevens, P. F. 1971

A classification of the Ericaceae, subfamilies and tribes. *Bot. Journ. Linn. Soc.* 64(1) : 1-53.

ERI 18 Stoker, F. 1935

Ericaceous plants. *Journ. Roy. Hort. Soc.* (*London*) 60 : 473-482, 6 pl. Mainly horticultural.

ERI 19 Wallace, G. D. (1975) 1976

Interrelationships of the subfamilies of the Ericaceae and derivation of the Monotropoideae. *Bot. Notiser* 128(3) : 286-298.

ERI 20 Watson, L. 1976

Ericales revisited. *Taxon* 25(2-3) : 269-271.

Agapetes D. Don ex G. Don

ERI 21 Airy-Shaw, H. K. 1935

Studies in the Ericales : 1. New and less known species of *Agapetes. Kew Bull. Misc. Inf.* 1935 : 24-53.

ERI 22 Airy-Shaw, H. K. 1948

Studies in the Ericales : V. Further notes on *Agapetes. Kew Bull.* 1948 : 77-104, fig. 1-4.

ERI 23 Airy-Shaw, H. K. 1959

Studies in the Ericales : XI. Further new species and notes on the *Agapetes* of continental Asia. *Kew Bull.* 1958 : 468-514. Keys, critical notes.

ERI 24 Airy-Shaw, H. K. 1960

Studies in the Ericales XII : A few new or noteworthy

Agapetes from the Calcutta Herbarium. *Kew Bull.* 14 : 110-113. 3 new spp. of *Agapetes*.

ERI 25 Airy-Shaw, H. K. 1968

Studies in the Ericales : XV. New or noteworthy *Agapetes* from Assam and Burma. *Kew Bull.* 21 : 471-476.

ERI 26 Balakrishnan, N. P. & Chowdhury, S. 1966

A new species of *Agapetes* from Bhutan. *Reinwardtia* 7 : 287-290, fig. 1-9. *Agapetes bhutanica* Balak. & Chowdhury, is allied to *A. odontocera* (Wt.) Hook. f. and *A. variegata* (Roxb.) D. Don ex G. Don.

ERI 27 Sleumer, H. O. 1960

Florae Malesianae precursores XXIV. The genus *Agapetes* D. Don in Malaysia. *Nova Guinea* (Bot.) No. 1 : 1-7.

ERI 28 Stevens, P. F. 1972

Notes on the infrageneric classification of *Agapetes* with four new taxa from New Guinea. *Notes Roy. Bot. Gard. Edinb.* 32 : 13-28, 5 fig., 1 tab.

Arctostaphylos Adans.

ERI 29 Eastwood, A. 1934

A revision of *Arctostaphylos* with key and descriptions. *Leafl. West. Bot.* 1 : 105-127.

Azalea Linn.

ERI 30 Bowers, C. G. 1968

Rhododendrons and Azaleas. Their origin, cultivation and development. 2nd ed. New York 525 p.

ERI 31 Hume, H. H. 1931

Azaleas and *Camellias*. i-viii, 1-90, pl. 1-6, horticultural notes.

ERI 32 Hume, H. H. 1948

Azaleas, kinds and culture. New York.

ERI 33 Koch, K. 1857

Die chinesischen oder indischen Azaleen. *Berl. Allg. Gartenz.* 1857 : 153-159.

ERI 34 Lee, F. P. 1958

The Azalea book. i-xii, 1-324. Horticultural and botanical notes.

ERI 35 Planchon, J. E. 1854

Sur l' histoire botanique et horticole des plantes dites Azalees de I' Inde. *Rev. Hort. (Paris)* IV, 3 : 61-68.

ERI 36 Sleumer, H. O. 1961

Der Gattungsname *Azalea* L. *In* : *Rhododendron und Immergruine Laubgeholzer. Jahrb. d. Deutsch. Rhodod. Ges. Bremen* 1961 : 82-88.

Cassiope D. Don

ERI 37 Good, R. D'O 1926

The genera *Phyllodoce* and *Cassiope. Journ. Bot. Brit. and For.* 64 : 1-10, fig. 1, 2.

ERI 38 Stapf, O. 1924

Cassiope selaginoides. Curtis's Bot. Mag. 149 : pl. 9003. Occurs in the Himalayan region extending up to Yunnan.

Craibiodendron W. W. Smith

ERI 39 Smith, W. W. 1912

New species of *Craibiodendron. Notes Roy. Bot. Gard. Edinb.* 5 : 157-160. pl. 108-110. Includes *C. henryi, C. yunnanense* and *C. forresti* from Western China.

Enkianthus Lour.

ERI 40 Craib, W. G. 1919

Hardy species of *Enkianthus* under cultivation in the Royal Botanic Garden, Edinburgh. *Notes Roy. Bot. Gard. Edinb.* 11 : 163-168. Key and horticultural notes.

ERI 41 Fang, Wen-pei 1935

A preliminary study of the Chinese species of *Enkianthus* Lour. *Contr. Biol. Lab. Sci. Soc. China Bot.* 10 : 13-28. Key, taxonomic study.

ERI 42 Ghosh, R. B. & Banerjee, R. N. (1976) 1977

A note on *Enkianthus himalaicus* Hook. f. et Thoms. (Ericaceae). *Journ. Bombay Nat. Hist. Soc.* 73(2) : 431.

ERI 43 Hooker, J. D. 1879

Enkianthus himalaicus. Curtis's Bot. Mag. 105 : pl. 6460. Native of Eastern Himalaya.

ERI 44 Hsu, T. 1982

[Classification, distribution and phylogeny of the genus *Enkianthus*]. *Acta Bot. Yunnanica* 4(4) : 355-362.

ERI 45 Palibin, J. W. 1899

Revisio generis *Enkianthus* Lour. *Script. Bot. Hort. Univ. Petrop.* 15 : 1-18. Monographic ; 9 spp. from Asia, key and descr. in Latin.

ERI 46 Sealy, J. R. 1935

Enkianthus chinensis. Curtis's Bot. Mag. 158 : pl. 9413, 1 fig. Native of Yunnan, N. Burma.

ERI 47 Ueno, Jitsuro 1950

On *Enkianthus :* a classification of the genus *Enkianthus* based upon the characters of pollen grains and of crystals in the leaf. *Journ. Inst. Polytech. Osaka City Univ.* Ser. D, 1 : 55-62.

ERI 48 Sax, Hally J. 1960

Polyploidy in *Enkianthus* (Ericaceae). *Journ. Arn. Arb.* 41 : 191-195. Chrom. nos.

ERI 49 Wilson, E. H. 1907

The genus *Enkianthus. Gard. Chron.* III, 41 : 311, 344, 363. A synopsis of the known spp.

ERI 50 Wilson, E. H. 1929

The noteworthy family of *Enkianthus*. *House & Gard.* 55(6) : 84, 142, 180, 1 fig. A popular descr. of four spp.

Gaultheria Linn.

ERI 51 Airy-Shaw. H. K. 1942

Gaultheria tetramera. *Curtis's Bot. Mag.* 163. pl. 9618, 1 fig. Native of Yunnan & Sikkim.

ERI 52 Airy-Shaw, H. K. 1940

Studies in the Ericales : IV. Classification of the Asiatic species of *Gaultheria*. *Kew Bull.* 1940 : 306-330. Merges *Chiogenes* with *Gaultheria*.

ERI 53 Airy-Shaw, H. K. 1948

Studies in the Ericales : VI. Further notes on *Gaultheria dumicola* W. W. Sm. *Kew Bull.* 1948 : 109-110.

ERI 54 Airy-Shaw, H. K. 1948

Studies in the Ericales : VII. Illustrations of four scarce Asiatic gaultherias. *Kew Bull.* 1948 : 158-163, fig. 1-4.

ERI 55 Airy-Shaw, H. K. 1952

Studies in the Ericales : X. An undescribed Asiatic *Gaultheria* with a key to the Sino-Himalayan species of Section *Leucothoides*. *Kew Bull.* 1952 : 171-174. *Gaultheria stapfiana*, a new species from Yunnan, N. Burma & Sikkim.

ERI 56 Airy-Shaw, H. K. & Sealy, J. R. 1938

Gaultheria wardii. *Curtis's Bot. Mag.* 161 : pl. 9516. Native of N. E. Assam, S. E. Tibet and Upper Burma.

ERI 57 Besant, J. W. 1939

Gaultherias. *New Fl. & Silva* 11 : 211-218, fig. 68-70. Horticultural notes.

ERI 58 Boothman, H. S. 1930

Gaultherias. *Gard. Chron.* III, 88 : 411-412. Notes on cultivated species.

ERI 59 Burtt, B. L. 1952

Gaultheria semi-infera. Curtis's Bot. Mag. 169 : pl. 197, 1 fig. Native of E. Himalayas (Sikkim) to Yunnan.

ERI 60 Hanger, F. 1943

Gaultherias. *Journ. Roy. Hort. Soc.* (*London*) 68 : 107-110. Horticultural notes and review.

ERI 61 Johnson, A. T. 1938

Gaultherias. *Journ. Roy. Hort. Soc.* (*London*) 63 : 201-209, 7 pl. Horticultural notes.

ERI 62 Sleumer, H. O. 1957

Florae Malesianae precursores XV. The genus *Gaultheria*. *Reinwardtia* 4 : 163-188.

ERI 63 Sleumer, H. O. 1961

Florae Malesianae precursores XXVII. Supplementary notes on Malaysian Ericaceae (*Gaultheria, Costera, Diplycosia*). *Blumea* 11 : 1-8.

ERI 64 Subba Rao, G. V. & Kumari, G. R. (1968) 1969

A new species of *Gaultheria* from NEFA. *Bull. Bot. Surv. India* 10 : 223-225.

Leucothoe D. Don

ERI 65 Sleumer, H. O. 1959

Studien uber die Gattung *Leucothoe* D. Don. *Bot. Jahrb.* 78 : 435-480.

Pieris D. Don

ERI 66 Leveille, H. 1906

Le genre *Pieris* en Chine. *Bull. Soc. Bot. France* 53 : 202-207. A revision.

ERI 67 Wilkie, D. 1948

The genus *Pieris*. *Arboretum Bull.* 11(2) : 6-7, 38. Horticultural notes on cultivated spp.

Rhododendron Linn.

ERI 68 Anderson, F. J. 1975

The Rhododendron : grandeur and glory of the garden. *Garden Journ.* 25(2) : 34-41. Horticultural and botanical notes.

ERI 69 Anderson, F. J. 1976

The Rhododendrons : grandeur and glory of the garden. *Quart. Bull. Amer. Rhododendron Soc.* 30(1) : 10-19.

ERI 70 Anonymous, 1928

List of *Rhododendron* species. *Rhod. Soc. Notes* 3 : 209-219.

ERI 71 Anonymous, 1931

List of Synonyms [of *Rhododendron* species]. *Year Book Rhod. Assoc.* 1931 : 125-131.

ERI 72 Anonymous, 1932

A list of illustrations of *Rhododendron,* which have been published or treated since the issue of "The Species of Rhododendron". *Rhod. Soc. Notes* 3 : 277. Additions to Stevenson, J. B. 1930.

ERI 73 Atwood, A. C. 1927

Rhododendrons and Azaleas. *Nat. Hort. Mag.* 6 : 51-54. Horticultural literature.

ERI 74 Balfour, I. B. 1916-1920

New species of Rhododendron I. *Notes Roy. Bot. Gard. Edinb.* 9 : 207-320. 1916 ; *Ibid.* II, 10 : 79-166. 1977 ; *Ibid.* III, 11 : 19-154. 1918 ; *Ibid.* IV, 12 : 85-186. 1920. Key, spp. listed alphabetically under each section.

ERI 75 Balfour, I. B. 1917

Chinese Rhododendrons introduced to cultivation in Europe with names of raiser and introducer and data of introduction. *Rhod. Soc. Notes* 1 : 145-149. List of species introduced with notes.

ERI 76 Balfour, I. B. 1917

Rhododendrons of the Irroratum series. *Trans. Bot. Soc. Edinb.* 27 : 157-220.

ERI 77 Balfour, I. B. 1919

Some large-leaved Rhododendrons. *Rhod. Soc. Notes* 1 : 204-222. Key with critical notes.

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On the structure of populations in the genus *Vaccinium*. *Brittonia* 4 : 189-204.

ERI 236 Chithra, V. & Rajan, R. 1980

Notes on *Vaccinium lechenaulti*-complex (Vacciniaceae) in South India. *Journ. Bombay Nat. Hist. Soc.* 77(2) : 365-366.

ERI 237 Darrow, G. M. *et al.* 1944

Chromosome numbers in *Vaccinium* and related groups. *Bull. Torrey Bot. Club* 71 : 498-506.

ERI 238 Darrow, G. M. & Camp, W. H. 1945

Vaccinium hybrids and the development of new horticultural material. *Bull. Torrey Bot. Club* 72 : 1-21.

ERI 239 Longley, A. E. 1927

Chromosomes in *Vaccinium*. *Science* 66 : 566.

ERI 240 Rozanova, M. A. 1934

[A survey of the literature on the genera *Vaccinium* L. and *Oxycoccus* (Tourn.) Hill.]. *Bull. Appl. Bot. & Pl. Breed.* VIII, 2 : 121-186. A monographic work in Russian.

ERI 241 Sleumer, H. O. 1961

Florae Malesianae precursores—28. The genus *Vaccinium* in Malaysia. *Blumea* 11 : 9-112.

ADDITION : GENERAL

ERI 242 Clarke, C. B. 1882

Ericaceae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 3 : 456-476.

ERIOCAULACEAE

The family Eriocaulaceae is included in the order Glumaceae by Bentham & Hooker, in the order Eriocaulales by Cronquist, Dahlgren,

Hutchinson and Takhtajan, in the order Commelinales by Engler and Thorne.

The Eriocaulaceae is characterised by the regular 2-3 merous unisexual flowers arranged in dense heads subtended by an involucre of bracts, the perianth in two series, but not differentiated into sepals and petals, stamens are as many or twice as many as the outer perianth segments, superior ovary with 2 or 3 fused carpels, solitary pendulous ovule in each locule, loculicidal capsule and seeds with floury endosperm. As in the family Compositae, the flowers of the Eriocaulaceae are clustered into an involucrate head. These involucrate heads are comparatively showy and thus help in insect pollination. The family is represented in India by the genus, *Eriocaulon.*

For recent taxonomic studies refer Moldenke (1946, 1947, 1949, 1957, 1970-71, 1974, 1975-1976, 1979) ; for palynology refer Sharma (1965).

GENERAL

ERO 1 Kornicke, F. 1856

Monographia scripta de Eriocaulaceis. 1-132. index i-ii. Monographic.

ERO 2 Kornicke, F. 1856

Eriocaulacearum monographiae suppelmentum. *Linnaea* 27 : 561-692. Supplement to the Kornicke's monograph.

ERO 3 Moldenke, H. N. 1946

The known distribution of the members of the Eriocaulaceae together with a check list of scientific names proposed in the group 1-62. Alphabetical list with synonymy.

ERO 4 Moldenke, H. N. 1947

Addenda and errata to the alphabetic list of scientific names proposed in the Eriocaulaceae including misspellings and misaccreditions. *Phytologia* 2 : 377-381. Addition to Moldenke, H. N. 1946.

ERO 5 Moldenke, H. N. 1947-1949

The known geographic distribution of the (members of

the) Eriocaulaceae, Supplement 2. *Phytologia* 2 : 372-377. 1947 ; (Suppl. 5) 3 : 141-144. 1949.

ERO 6 Moldenke, H. N. 1949-1957

Additional notes on the Eriocaulaceae III. *Phytologia* 3 : 178-192. 1949 ; IV. *Ibid.* 3 : 382-400. 1950 ; VI. *Ibid.* 3 : 468-472. 1951 ; XII. *Bull. Jard. Bot. Etal. Brux.* 27 : 115-141.1957.

ERO 7 Moldenke, H. N. 1968

Additional notes on the Eriocaulaceae XIV-XV. *Phytologia* 17 : 372-395, 450-467.

ERO 8 Moldenke, H. N. 1970-1971

Additional notes on the Eriocaulaceae XXXIII-XXXVII. *Phytologia* 20 : 277-308. 339-368, 404-425. 1970 ; *Ibid.* 21 : 426-432. 1971.

ERO 9 Moldenke, H. N. 1974

Additional notes on the Eriocaulaceae. XLVIII-XLIV. *Phytologia* 29 : 78-113, 193-239.

ERO 10 Moldenke, H. N. 1975-1976

Additional notes on the Eriocaulaceae LVII. *Phytologia* 32 : 458-470. 1975 ; LVIII. *Ibid.* 32 : 487-506. 1976 ; LIX, *Ibid.* 33 : 9-58. 1976.

ERO 11 Moldenke, H. N. 1976

A fifth summary of the Verbenaceae, Avicenniaceae, Stilbaceae, Dicrastylidaceae, Symphoremaceae, Nyctanthaceae and Eriocaulaceae of the world as to valid taxa. geographic distribution and synonymy. *Phytologia* 34(3) : 247-281.

ERO 12 Moldenke, H. N. 1979

Additional notes on the Eriocaulaceae LXXXII. *Phytologia* 41(7) : 451-485.

ERO 13 Ruhland, W. 1903

Eriocaulaceae. *In* : Engler, *Pflanzenr.* 13 : (IV. 30) : 1-294. fig. 1-40.

ERO 14 Ruhland, W. 1914

Zur geographischen Verbreitung der Eriocaulaceen. *Bot. Jahrb.* 50. Suppl. 363-374.

ERO 15 Ruhland, W. 1930

Eriocaulaceae. *In* : Engler & Prantl, *Pflanzenf.* ed. 2. 15a : 39-57, fig. 16-25.

ERO 16 Thanikaimoni, G. 1965

Contribution to the pollen morphology of Eriocaulaceae. *Pollen et Spores* 7(2) : 181-191.

Eriocaulon Linn.

ERO 17 Fyson, F. F. 1921-1922

The Indian species of *Eriocaulon*. *Journ. Indian Bot. Soc.* 1 : 49-53. 1921 ; *Ibid.* 2 : 133-150, 192-208, 259-266. 1921 ; *Ibid.* 3 : 12-18, 91-115. 1922.

ERO 18 Kulkarni, A. R. & Desai, M. H. 1970

Tubers in *Eriocaulon ritchieanum* Ruhl. *Journ. Bombay Nat. Hist. Soc.* 67 : 134-135. First report in the family.

ERO 19 Naik, V. N. 1973

Some interesting species of *Eriocaulon* Linn. from India. *Journ. Indian Bot. Soc.* 52 : 108-113, 3 fig.

ERO 20 Sharma, M. 1965

Pollen morphological studies in *Eriocaulon* Linn. from India. *Palynological Bull. Lucknow* 1 : 45-48.

ADDITION : GENERAL

ERO 21 Hooker, J. D. 1873

Eriocauleae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 6 : 571-585.

ERYTHROPALACEAE

(Refer also Olacaceae)

The family Erythropalaceae is included in the order Santalales by Takhtajan, in the order Celastrales by Hutchinson. However Bentham & Hooker, Cronquist, Dahlgren, Engler and Thorne considered Erythropalaceae as part of the family Olacaceae.

The Erythropalaceae is characterised by its lianous habit, exstipulate alternate leaves with 3-5 nervation at the base, 5-merous flowers, 5 opposipetalous stamens, pentagonal cupular disk, 3-carpelled inferior ovary, becoming one locular due to the disappearance of septa, one apical pendulous anatropous ovule per locule and drupaceous fruit.

A monogeneric family, the family is represented in India by the genus *Erythropalum*.

ERP 1 Sleumer, H. O. 1942

Salvadoraceae, Icacinaceae, Peripterygiaceae, Erythropalaceae. *In*: Engler & Prantl, *Pflanzenf.* ed. 2, 20b : 232-239, 322-403.

ERP 2 Sleumer, H. 1980

A taxonomic account of the Olacaceae of Asia, Malesia and the adjacent areas. *Blumea* 26 : 145-168. The genus *Erythropalum* Bl. is included in the family Olacaceae.

ERYTHROXYLACEAE

(Refer also Linaceae)

The family Erythroxylaceae is assigned to the order Geraniales by Dahlgren, Engler, Takhtajan and Thorne, to the order Linales by Cronquist, to the order Malpighiales by Hutchinson. Bentham & Hooker included Erythroxylaceae as part of the family Linaceae *sensu latiore*.

The Erythroxylaceae is characterised by alternate stipulate leaves, 5-merous flowers with petals having appendages, stamens united at base, 3-4-carpelled superior ovary, but usually with only one locule developing in fruit, 1-2 pendulous anatrophous ovule in the fertile locule and drupaceous fruit.

The family Erythroxylaceae is allied to the Linaceae and sometimes included in it. However in the Linaceae petals are without appendages and the fruit is mostly capsular, rarely nut like. Whereas in the family Erythroxylaceae petals are internally appendiculate and fruit is drupaceous. Its nearest allied family is Humiriaceae which has exstipulate leaves and petals without appendages.

The family is represented in India by the genus *Erythroxylum*.

For recent taxonomic revisions refer Payens (1958), Plowman (1976) ; for pollen studies refer Oltman (1968).

GENERAL

ERX 1 Payens, J. P. D. W. 1958

Erythroxylaceae. *In* : van Steenis, *Fl. Males.* I, 5 : 543-552. 4 fig.

ERX 2 Oltmann, O. 1968

Die pollenmorphologie der Erythroxylaceae und systematische Bedeuting (Vorlaufige Mittleilung). *Ber. dtsch. Bot. Geselloch* 81(11) : 505-511.

ERX 3 Schulz, O. E. 1907

Erythroxylaceae. *In* : Engler, *Pflanzenr.* 29(IV. 134) : 1-176.

ERX 4 Schulz, O. E. 1931

Erythroxylaceae. *In* : Engler & Prantl, *Pflanzenf.* ed. 2. 19a : 130-143, fig. 60-67.

ERX 5 Tieghem, P. van 1903

Structure et affinites des Erythroxylacees. Un nouvel exemple de cristarque. *Bull. Mus. Hist. Nat. Paris* 9 : 287-295.

Erythroxylum P. Br.

ERX 6 Plowman, T. 1976

Orthography of *Erythroxylum* (Erythroxylaceae). *Taxon* 25(1) : 141-144. *Erythroxylum* not *Erythroxylon*.

ESCALLONIACEAE

(Refer also Saxifragaceae)

The family Escalloniaceae is included under the order Saxifragales by Takhtajan, under the order Cunoniales by Hutchinson. While Bentham & Hooker, Dahlgren, Engler and Thorne considered it as part of the family Saxifragaceae. However Cronquist included it as part of the family Grossulariaceae.

The Escalloniaceae is characterised by alternate or opposite exstipulate leaves, 4-5 merous floral parts, presence of a disk, ovary 1-6 carpelled, sometimes reduced to 1-locule, many ovules on axile or parietal placentation. A woody saxifragaceous segregate, the family Escalloniaceae requires further study for understanding its systematic position.

The family is represented in India by the following genus : *Polyosma*.

ESC 1 Klopper, K. 1973

Florale Morphogenese und Taxonomie der Saxifragaceae sensu lato. *Fedde, Repert* 84 : 475-516. Subfamilial delimitation.

EUCOMMIACEAE

The family Eucommiaceae is included in the order Eucommiales by Cronquist, Dahlgren and Takhtajan, in the order Hamamelidales by Thorne, in the order Urticales by Engler and Hutchinson.

The Eucommiaceae is characterised by trees having simple alternate exstipulate leaves, the unisexual flowers, the male and female flowers borne on different plants, flowers without perianth, 6-10 stamens dehiscing by slits in male flowers, superior bicarpellate ovary with apicallate 2 pendulous ovules, developing into 1-seeded samara in female flowers.

The family Eucommiaceae with a single genus and species (*Eucommia ulmoides*) represents the order Eucommiales. According to Takhtajan (1969) the sum total of the characters of the family Eucommiaceae (absence of stipules, unilacunar node, the tricolpate pollen grains, the single integument, the cellular endosperm, the

presence of laticiferous cells) indicate the validity of a separate order. It is allied to the Ulmaceae, the most primitive family of the order Urticales.

The family is represented in India by the genus *Eucommia*.

For recent phylogeny studies refer Tippo (1940), Varossieau (1942).

GENERAL

ECM 1 Harms, H. 1930

Eucommiaceae. *In* : Engler & Prantl, *Pflanzenf.* ed. 2, Bd. 18a : 348-351.

ECM 2 Lemesle, R. 1947

Contribution a l'etude morphologique et phyto-genetique des Eupteleacees, Cercidiphyllacees, Eucommiacees (ex-Trochodendracees). *Ann. Sci. Nat. Bot. Ser.* XI, 7 : 41-52, fig. 1-13.

ECM 3 Tippo, O. 1940

The comparative anatomy of the secondary xylem and the phylogeny of the Eucommiaceae. *Amer. Journ. Bot.* 27 : 832-838, fig. 1-4. Placed in the Urticales near the family Ulmaceae.

Eucommia Oliv.

ECM 4 Anonymous, 1901

Gutta percha from a chinese tree (*Eucommia ulmoides* Oliv.). *Kew Bull. Misc. Inf.* 1901 : 89-94. Mainly economic notes.

ECM 5 Anonymous, 1904

Eucommia ulmoides. Flora & Sylva 2 : 73. General note.

ECM 6 Anonymous, 1904

A hardy India-rubber tree (*Eucommia ulmoides* Oliv.). *Kew Bull. Misc. Inf.* 1904 : 4-6, 1 pl.

ECM 7 Eckardt, T. 1956

Zur systematischen Stellung von *Eucommia ulmoides*. *Ber. Deuts. Bot. Ges.* 69 : 487-498.

ECM 8 Eckardt, T. 1963

Some observations on the morphology and embryology of *Eucommia ulmoides*. *Journ. Indian Bot. Soc.* 42A : 27-34.

ECM 9 Hanley, J. H. 1937

A distinctive ornamental tree. *Horticulture n. ser.* 15 : 73. 1 fig.

ECM 10 Harms, H. 1933

Zur Kenntnis von *Eucommia ulmoides* Oliv. *Mitt. Deutsch. Dendr. Ges.* 45 : 1-4, 1 fig. Yields medicinal gum and bark.

ECM 11 Mottet, S. 1909

Eucommia ulmoides. *Rev. Hort* (*Paris*) 1909 : 150-152.

ECM 12 Nalor, E. E. 1943

Rubber from a hardy tree. *Journ. New York Bot. Gard.* 44 : 11-13, 1 fig. *Eucommia ulmoides,* native of China.

ECM 13 Oliver, D. 1890-95

Eucommia ulmoides Oliv. *Hook. Icon. Pl.* 20 : pl. 1950. 1890 ; 24 : pl. 2361. 1895.

ECM 14 Parkin, J. 1921

Eucommia ulmoides, the tu-chung of the Chinese. *Kew Bull. Misc. Inf.* 1921 : 177-185.

ECM 15 Solereder, H. 1899

Zur Morphologie und Systematik der Gattung *Cercidiphyllum* Sieb. et Zucc. mit Berucksichtigung der Pattung *Eucommia* Oliv. *Bericht. Deutsch. Bot. Ges.* 17 : 387-406, pl. 28.

ECM 16 Varossieau, W. W. 1942

On the taxonomic position of *Eucommia ulmoides* Oliv. *Blumea* 5 : 81-92. Comprehensive bibliography included.

ECM 17 Weiss, F. E. 1907

Gutta percha from a Chinese tree. (*Eucommia ulmoides* Oliver). *Mem. Proc. Manchester Lit. Philos. Soc.* 51 : ii-vi, fig. 1-2.

EUPHORBIACEAE

The family Euphorbiaceae is included in the order Euphorbiales by Cronquist, Dahlgren, Hutchinson, Takhtajan and Thorne. Engler however considered the Euphorbiaceae under the order Geraniales. Bentham & Hooker included this in the order Unisexuales.

The Euphorbiaceae is characterised by the presence of latex, stipulate leaves, unisexual usually 5-merous flowers, stamens one to many which are free or united in various ways, presence of pistillode in male flowers, superior 3-loculate ovary with one or two ovules pendulous on axile placentas in female flowers. The fruit is usually a schizocarp [drupe in some genera (*Drypetes*)]. The seeds are endospermous and in many genera seeds are carunculate.

The family is divided into four subfamilies based on the nature of cotyledons and number of ovules per locule. The subfamilies are : Phyllanthoideae, Euphorbioideae, Porantheroideae, Ricinocarpoideae.

The family Euphorbiaceae due to diverse selection pressures caused by their occurrence in different habitats from arid regions to wet humid tropics, have developed diverse growth forms from stunted succulents to tall canopy trees. The presence of male and female flowers in different combinations and patterns in the inflorescence is indicative of their adaptations to different pollinators : i.e. presence of male and female flowers in the same cluster, or presence of one female flower to each cluster of male flowers or presence of cyathium which is a turbinate involucre containing a central female flower surrounded by simple male flowers. Cronquist (1968) indicates that "a comprehensive theory of how selection could drive the inflorescence through a full cycle from normal flowers to separate, reduced, unisexual flowers to pseudanthia has not been presented."

The family Euphorbiaceae has been treated as a receptacle for placing apetalous flowering plants of doubtful systematic position. Some of the genera of doubtful systematic affinities included in the family Euphorbiaceae are given below and they are treated as separate families by different botanists : *Aextoxicon*, *Androstachys*, *Antidesma*, *Bischofia*, *Centroplacus*, *Daphniphyllum*, *Hymenocardia*, *Pera* and *Uapaca*. The family Euphorbiaceae is distantly related to the families Flacourtiaceae, Malvaceae and Urticaceae. Kohler (1965) presents the palynology data that within the Euphorbiaceae pollen grains with biorate, monorate and nonorate colpi occur in the genera *Breynia* and *Sauropus*. According to Kohler (1980, 1981) the pollen grains in Didymelaceae which have colpi with two ora and those of Buxaceae which have colpi with two or more ora show their euphorbiaceous affinity.

The Euphorbiaceae is allied to the family Buxaceae, but differs in having epitrophous ovule with ventral raphe, stipulate leaves and often presence of latex and disk. Whereas in the Buxaceae the ovules are apotropous with dorsal raphe, absence of stipules, latex and disk.

According to Hans (1973) from a chromosomal study, it is considered that the Euphorbiaceae might have originated in Asia, whereas the primitive Phyllantheae may have evolved in the New World.

The euphorbiaceous flora of India is represented by the following genera : *Acalypha*, *Actephila*, *Agrostistachys*, *Alchornea*, *Andrachne*, *Aporusa*, *Baccaurea*, *Baliospermum*, *Blachia*, *Blumeodendron*, *Breynia*, *Bridelia*, *Chaetocarpus*, *Chamaesyce*, *Chrozophora*, *Claoxylon*, *Cleidion*, *Cleistanthus*, *Cnesmone*, *Codiaeum*, *Croton*, *Dalechampia*, *Dimorphocalyx*, *Doryxylon*, *Drypetes*, *Endospermum*, *Epiprinus*, *Euphorbia*, *Excoecaria*, *Fahrenheitia*, *Flueggea*, *Givotia*, *Glochidion*, *Homonoia*, *Hymenocardia*, *Jatropha*, *Kirganelia*, *Koilodepas*, *Kurziodendron*, *Macaranga*, *Mallotus*, *Margaritaria*, *Meineckia*, *Mercurialis*, *Micrococca*, *Mischodon*, *Neoscortechinia*, *Ostodes*, *Pedilanthus*, *Phyllanthus*, *Prosorus* (reduced to *Margaritaria*), *Pseudoglochidion*, *Pterococcus*, *Putranjiva* (reduced to *Drypetes*), *Reidia*, *Ricinus*, *Sapium*, *Sauropus*, *Sebastiania*, *Securinega*, *Sphyranthera*, *Sumbaviopsis* (reduced to *Doryxylon*) *Suregada*, *Synostemon*, *Tragia*, *Trewia*, *Trigonostemon*.

Several species of the following genera are cultivated in India : *Aleurites, Hevea, Hippomane, Hura, Joannesia, Manihot, Synadenium.*

Some of the well-known ornamental plants cultivated in gardens are : Red-hot cattail (*Acalypha hispida* Burm. f.) ; Painted Copper leaf (*Acalypha wilkesiana* Muell.-Arg. ex A. DC.) ; Croton [*Codiaeum variegatum* (L.) Bl.] ; Picara (*Excoecaria cochin-chinensis* Lour.) ; Gout stalk (*Jatropha podagirica* Hook.) ; Slipper flower [*Pedilanthus tithimaloides* (L.) Poit.].

For recent taxonomic revisions refer Airy-Shaw (1949-1969, 1963-1966, 1968, 1969, 1972, 1974, 1975, 1978, 1980, 1981), Webster (1975) ; for cytological studies refer Choda & Mehra (1972), Gill, Chawla & Kanwal (1973), Hans (1973), Perry (1943) ; for pollen morphology refer Erdtman (1952), Khan (1968), Kohlera (1965), Punt (1962), Webster & Rupert (1973) ; for phylogeny and classification refer Croizat (1940), Janssonius (1950).

EUP 1 Airy-Shaw, H. K. 1949-1960

Notes on Malaysian Euphorbiaceae I. *Kew Bull.* 3 : 484. 1949 ; II-XV. *Ibid.* 14 : 353-397, 1960 ; XVI-XIX. *Ibid.* 14 : 469-475. 1960. Notes on *Koilodepas & Agrostistachys.*

EUP 2 Airy-Shaw, H. K. 1962-1966

Notes on Malaysian and other Asiatic Euphorbiaceae XX-XLVII. *Kew Bull.* 16 : 342-372. 1962 ; XLIX-LV. *Ibid.* 19 : 299-328. 1965 ; LVI-LXVI. *Ibid.* 20 : 25-49. 1966 ; LXVII-LXXXII. *Ibid.* 20 : 379-415. 1966. New spp. and genera described.

EUP 3 Airy-Shaw, H. K. 1968

Notes on Malesian and other Asiatic Euphorbiaceae. *Kew Bull.* 22 : 353-418. Taxonomic notes of *Mallotus.*

EUP 4 Airy-Shaw, H. K. 1969

Notes on Malesian and other Asiatic Euphorbiaceae. *Kew Bull.* 23 : 1-131. New combination in genera *Drypetes, Dimorphocalyx, Suregada.*

EUP 5 Airy-Shaw, H. K. 1972

The Euphorbiaceae of Siam. *Kew Bull.* 26 : 191-363. Taxonomic notes and key to *Euphorbia* spp. & *Homonoia* spp.

EUP 6 Airy-Shaw, H. K. 1972

Notes on Malesian and other Asiatic Euphorbiaceae. *Kew Bull.* 27 : 3-93. Notes on *Farenheitia integrifolia* (Airy-Shaw) Airy-Shaw ; *Trigonostemon beddomei* (Benth.) Balakrishnan incl. under *Dimorphocalyx beddomei* (Benth.) Airy Shaw.

EUP 7 Airy-Shaw, H. K. 1974

Noteworthy Euphorbiaceae from tropical Asia (Burma to New Guinea). *Hook. Ic. Pl.* 38 : t. 3701-3725. Descriptions and drawings.

EUP 8 Airy-Shaw, H. K. 1974

Notes on Malesian and other Asiatic Euphorbiaceae. *Kew Bull.* 29 : 281-331. New spp. and generic records.

EUP 9 Airy-Shaw. H. K. 1975

The Euphorbiaceae of Borneo. *Kew Bull. Add. Ser.* IV. 1-245. 1 map. About 340 spp., keys and distribution.

EUP 10 Airy-Shaw, H. K. 1978

Notes on Malesian and other Asiatic Euphorbiaceae. *Kew Bull.* 33(1) : 25-77.

EUP 11 Airy-Shaw, H. K. 1980

Notes on Euphorbiaceae from Indo-Malesia, Australia and the Pacific. *Kew Bull.* 35 : 383-399. New spp. and critical notes.

EUP 12 Airy-Shaw, H. K. 1980

The Euphorbiaceae of New Guinea. *Kew Bull. Add. Ser.* VII, 1-243. Critical notes on 48 genera and about 500 species ; detailed bibliography.

EUP 13 Airy-Shaw, H. K. 1981

Notes on Asiatic, Malesian and Melanesian Euphorbiaceae CCXLII-CCLII. *Kew Bull.* 36 : 599-612.

EUP 14 Bailey, I. W. 1924

The problem of identifying the wood of Cretaceous and later dicotyledons *Paraphyllanthoxylon arizonense*. *Ann. Bot.* 38 : 439-451, pl. 15.

EUP 15 Baillon, H. 1858

Etude generale du groupe des Euphorbiacees. Paris 1-684, Atlas 1-52. Classification of genera.

EUP 16 Balakrishnan, N. P. (1961) 1962

Nomenclatural notes on Euphorbiaceae. *Bull. Bot. Surv. India* 3 : 39-40. Name changes.

EUP 17 Balakrishnan, N. P. (1968) 1969

Studies in Indian Euphorbiaceae-3. Miscellaneous notes. *Bull. Bot. Surv. India* 10 : 245.

EUP 18 Bentham, G. 1878

Notes on Euphorbiaceae. *Journ. Linn. Soc. Bot.* 17 : 185-267. Discussions of affinities and distributional notes.

EUP 19 Boissier, E. 1866

Euphorbiaceae. *In* : DC., *Prodr.* 15(2) : 3-18. A monographic treatment of *Euphorbia*.

EUP 20 Caius, J. F. 1938

The medicinal and poisonous spurges of India. *Journ. Bombay Nat. Hist. Soc.* 40 : 264-313. Includes notes and a key to 36 genera.

EUP 21 Chandler, M. J. 1954

Some upper Cretaceous and Eocene fruits from Egypt. *Bull. Brit. Mus. Geol.* 2 : 147-187, pl. 10-16. Presumably euphorbiaceous.

EUP 22 Charyan, S. M. 1974

[Some data on characteristics of protein representatives of Euphorbiaceae in relation to their taxonomy]. *Biol. Zhurn. Arm.* 27(5) : 24-30. In Armenian.

EUP 23 Choda, S. P. & Mehra, P. N. 1972

Cytological studies in some Euphorbiaceae. *Curr. Sci.* 41(2) : 76. Chrom. nos. in *Andrachne, Chrozophora, Croton, Phyllanthus, Sarcoccoca & Euphorbia.*

EUP 24 Cockerell, T. D. A. 1909

Fossil Euphorbiaceae with a note on Saururaceae. *Torreya* 9 : 117-119.

EUP 25 Croizat, L. 1938

Notes on Chinese Euphorbiaceae. *Journ. Arn. Arb.* 19: 134-148.

EUP 26 Croizat, L. 1938

Glands of Euphorbiaceae and of *Euphorbia. Chron. Bot.* 4 : 512-514.

EUP 27 Croizat, L. 1940

On the phylogeny of the Euphorbiaceae and some of their presumed allies. *Revista Univ. Chile* 25 : 205-220.

EUP 28 Croizat, L. 1940

New and critical Euphorbiaceae from eastern tropical Asia. *Journ. Arn. Arb.* 21 : 490-510.

EUP 29 Croizat, L. 1941

The tribe Plukenetinae of the Euphorbiaceae in eastern tropical Asia. *Journ. Arn. Arb.* 22 : 417-431. The genera studied are *Plukenetia, Tragia, Megistostigma* and *Cnesmone.*

EUP 30 Croizat, L. 1942

On certain Euphorbiaceae from tropical Far East. *Journ. Arn. Arb.* 23 : 29-54. Critical notes.

EUP 31 Croizat, L. 1942

Peculiarities of the inflorescence in the Euphorbiaceae. *Bot. Gaz.* 103 : 771-779.

EUP 32 Croizat, L. 1942

Notes on the Euphorbiaceae III. *Bull. Bot. Gard. Buitenzorg* 17 : 209-219. Critical notes on *Sauropus, Breynia* and *Gelonium.*

EUP 33 Croizat, L. 1947

Nomenclatural transfers and corrections in the Euphorbiaceae. *Trop. Woods* 88 : 30-32.

EUP 34 Erdtman, G. 1952

Pollen morphology and plant taxonomy. Angiosperms. xii + 539 pp. Stockholm, Waltham, Mass. 1952. Euphorbiaceae pp. 165-175.

EUP 35 Gage, A. T. 1914

New Euphorbiaceae from India & Malaya. *Kew Bull.* 1914 : 236-241.

EUP 36 Gill, B. S., Chawla, A. & Kanwal, R. 1973

Cytological studies in North West Indian Euphorbiaceae. *Cytologia* 38(3) : 393-401. Chrom. no.

EUP 37 Gruening, G. 1913

Euphorbiaceae—Porantheroideae et Ricinocarpoideae. *In* : Engler, *Pflanzenr.* 58 (iv-147) : 1-97.

EUP 38 Hans, A. S. 1973

Chromosomal conspectus of the Euphorbiaceae. *Taxon* 22(5/6) : 591-636. Evolution of the family is reviewed from a chromosomal point of view. The family Euphorbiaceae is considered to have originated in Asia, whereas the primitive Phyllantheae may have evolved in the New World.

EUP 39 Hegenauer, R. 1966

Chemotaxonomic der Pflanzen. Band 4. Dicotyledoneae :

Daphniphyllaceae—Lythraceae. 1-551, Basel & Stuttgart. *Euphorbiaceae* 103-140, 490-492.

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EUP 54 Pax, F. 1890-1914

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EUP 55 Pax, F. 1910

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EUP 56 Pax, F. 1910

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EUP 60 Pax, F. & Hoffmann, K. 1912

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EUP 61 Pax, F. & Hoffmann, K. 1912

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EUP 62 Pax, F. & Hoffmann, K. 1912

Euphorbiaceae—Acalypheae—Chrozophorinae. *In* : Engler, *Pflanzenr.* 57 (IV. 147) : 1-142, fig. 1-45. Genera *Agrostistachys, Chrozophora.*

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EUP 64 Pax, F. & Hoffmann, K. 1914

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EUP 66 Pax, F. & Hoffmann, K. 1919

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EUP 68 Pax, F. & Hoffmann, K. 1924

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EUP 113 Airy-Shaw, H. K. 1972

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EUP 133 Airy-Shaw, H. K. 1972

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The origin of the cultivated *Xylophylla* hybrid, *Phyllanthus* × *elongatus. Brittonia* 11 : 177-182. Botanical curiosity : The most common *Xylophylla, Phyllanthus* × *elongatus* (Jac.) Steud. is apparently a hybrid between *P. angustifolium* and *P. epiphyllanthus.*

EUP 307 Webster, G. L. 1970

A revision of *Phyllanthus* (Euphorbiaceae) in the continental United States. *Brittonia* 22 : 44-76.

Poinsettia Grah.

(Refer *Euphorbia*)

EUP 308 Dressler, R. L. (1961) 1962

A synopsis of *Poinsettia* (Euphorbiaceae). *Ann. Missouri Bot. Gard.* 48 : 329-341.

Pterococcus Hassk.

(Includes species of *Plukenetia*)

EUP 309 Airy-Shaw, H. K. 1972

Pterococcus : The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 327.

Putranjiva Wall.

(Refer also *Drypetes*)

EUP 310 Hurusawa, I. 1954

Eine nochmalige Durchsicht des herkommlichen Systems der Euphorbiaceen im weiteren Sinne. *Journ. Fac. Sci. Univ. Tokyo Bot.* 6 : 209-342, pls. 1-4. Combined the genera *Putranjiva* and *Drypetes*.

Reidia Wt.

EUP 311 Sebastine, K. M. & Henry, A. N. 1960

A new species of *Reidia* from South India. *Bull. Bot. Surv. India* 2 : 437-439, photo 1, fig. 10. *R. singampattiana* from Tamil Nadu, descr.

Ricinus Linn.

EUP 312 Aranez, A. T. 1980

Studies on *Ricinus communis* L. (family Euphorbiaceae). *Nat. & Appl. Sci. Bull.* 32 : 53-99, 4 fig., 15 pl., 18 tab., var. mentioned.

EUP 313 Beilmann, A. P. 1947

The castor bean—an important crop for the future. *Missouri Bot. Gard. Bull.* 35 : 171-175.

EUP 314 Chandrasekaran, S. N. & Sundararaj, D. D. 1946

A note on the inflorescence of *Ricinus communis* Linn. *Journ. Indian Bot. Soc.* 25 : 103.

EUP 315 Dandeno, J. B. 1904

The mechanics of seed-dispersion in *Ricinus communis*. *Bull. Torrey Bot. Club* 31 : 89-92.

EUP 316 Datta, R. M. 1945

On the description of the inflorescence of *Ricinus communis* Linn. *Sci. Cult.* 10 : 451, 452.

EUP 317 Gates, B. N. 1943

Carunculate seed dissemination by ants. *Rhodora* 45 : 438-445. Notes on *Ricinus* 439-440.

EUP 318 Harland, S. C. 1928

The genetics of *Ricinus communis*. *Bibligr. Genet.* 4 : 171-178.

EUP 319 Hilpert, F. 1941

Zur Morphologie der Blütenstände von *Ricinus*. *Biol. Zentralbl.* 61 : 182-208. A study of inflorescence structure and growth form.

EUP 320 Jacob, K. M. 1956

The pachytene chromosomes of Castor oil plant. *Cytologia* 21 : 76-80.

EUP 321 Konwar, P. C. 1960

Observations of hermaphroditism in the flowers of *Ricinus communis* Linn. (Castor plant). *Sci. Cult.* 26 : 83.

EUP 322 Meinders, H. C. & Jones, M. D. 1950

Pollen shedding and dispersal in the castor plant, *Ricinus communis* L. *Agron. Journ.* 42 : 206-209.

EUP 323 Nakamoto, M. & Yokoyama, H. 1958

[Studies on the blooming habits of castor bean (*Ricinus communis* L.)]. *Gifu Univ. Fac. Liberal Arts Educ. Sci. Rep. Nat. Sci.* 2 : 175-180. In Japanese with English summary.

EUP 324 Narain, A. 1951

Mutants in castor oil plant. *Sci. Cult.* 16 : 484, 485.

EUP 325 Narain, A. 1953

Artificial production of tetraploids in *Ricinus communis* Linn. *Curr. Sci. Bangalore* 22 : 268, 269.

EUP 326 Olsson-Seffer, R. I. 1910

The castor oil plant (*Ricinus communis* Linn.). *Amer. Rev. Trop. Agr.* 1 : 102-107.

EUP 327 Pijl, L. van der. 1952

The stamens of *Ricinus*. *Phytomorphology* 2 : 130-132.

EUP 328 Poole, D. D. & Hadley, H. H. 1954

Haploidy in castor beans. *Journ. Hered.* 45 : 285-288.

EUP 329 Reed, E. L. 1923

Extra-floral nectar glands of *Ricinus communis*. *Bot. Gaz.* 76 : 102-106.

EUP 330 Shifriss, O. 1956

Sex instability in *Ricinus*. *Genetics* 41 : 265-280.

EUP 331 Shrader, J. H. 1920

The castor oil industry. *US Dep. Agr. Bull.* 867 : 1-40.

EUP 332 Singh, P. 1956

Pharmacognostic study of the root of *Ricinus communis* Linn. *Journ. Sci. Industr. Res.* 15C(12) : 259-262.

EUP 333 Singh, R. P. 1954

Structure and development of seeds in Euphorbiaceae : *Ricinus communis* L. *Phytomorphology* 4 : 118-123.

EUP 334 Weibel, R. O. 1948

The castor oil plant in the United States. *Econ. Bot.* 2 : 273-283.

EUP 335 Zimmerman, L. H. 1958

Castor beans : a new oil crop for mechanized production. *Advances Agron.* 10 : 257-288.

Sapium P. Br.

EUP 336 Airy-Shaw, H. K. 1972

Sapium : The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 329-330.

EUP 337 Chang, Yi 1957

Tallow tree : *Taiwan Forests* 2(9) : 22-24. Botanical and economic studies of *Sapium sebiferum*.

EUP 338 Hemsley, W. B. 1901-1902, 1909

Sapium. *Hooker's Ic. Pl.* 27 : pl. 2647-2650, 2677-2684. 1901-1902 ; *Ibid.* 29 : pls. 2878-2900. 1909. Discussions and notes on spp.

EUP 339 Horn, E. F. 1946

Another rubber producing Euphorbiaceae (*Sapium*). *Trop. Woods* 86 : 13, 14.

EUP 340 Howes, F. N. 1949

The Chinese tallow-tree (*Sapium sebiferum* Roxb.), a source of drying oil. *Kew Bull.* 1949 : 573-580.

EUP 341 Huber, J. 1906

Revue critique des especes du genre *Sapium*. *Jacq. Bull. Herb. Boiss.* II. 6 : 345-364, 433-452. Keys, illustr. Mueller merged *Sapium* with *Excoecaria*. However recognised by many botanists on the basis of its monoecious inflorescence, biglandular petioles and fleshy seeds.

EUP 342 Lee, Shu-Kang. 1956

Genus *Sapium* in the Chinese flora. *Acta Phytotax. Sin.* 5 : 111-130, pl. 22, 23, 1 text-map. A systematic treatment.

EUP 343 Leonard, J. 1959

Notes sur les especes africaines continentales des genres *Sapium* P. Br. et *Excoecaria* L. (Euphorbiacees). *Bull. Jard. Bot. Bruxelles* 29 : 133-146. Delimitation of the genus *Sapium* from allied genera, discussions.

EUP 344 Pax, F. 1926

Die Verbreitung der Gattung *Sapium*. *Pflanzenareale* 1 : 21, map. 13.

Sauropus Bl.

EUP 345 Airy-Shaw, H. K. 1972

Sauropus. The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 330-340.

EUP 346 Airy-Shaw, H. K. 1979

Notes on Malesian and other Asiatic Euphorbiaceae 223. *Sauropus* Bl. *Kew Bull.* 33(3) : 530-531.

Sebastiania Spreng.

EUP 347 Airy-Shaw, H. K. 1972

Sebastiania. The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 339-340.

EUP 348 Steenis, C. G. G. J. van 1948

Provisional note on the genus *Sebastiania* in Malaysia. *Bull. Bot. Gard. Buitenzorg* III, 17 : 409, 410. The genus *Excoecaria* is related to *Sebastiania,* but is distinguished by its axillary dioecious inflorescences and ecarunculate seeds.

Securinega Comm. ex Juss.

EUP 349 Airy-Shaw, H. K. 1972

Securinega. The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 340-341.

Sumbavia Baill.

(Reduced to *Doryxylon* ; others treat it under **Sumbaviopsis**)

EUP 350 Airy-Shaw, H. K. 1960

On *Sumbavia macrophylla* Muell.-Arg. Notes on Malaysian Euphorbiaceae. *Kew Bull.* 14 : 357-358. *Sumbavia macrophylla* Muell.-Arg. is reduced to *Sumbaviopsis albicans* (Bl.) J. J. Sm.

EUP 351 Airy-Shaw, H. K. 1972

Sumbaviopsis. The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 341-342.

Suregada Roxb. ex Rottl.

EUP 352 Airy-Shaw, H. K. 1972

Suregada. The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 342.

Synostemon F. v. Muell.

EUP 353 Airy-Shaw, H. K. 1972

Synostemon. The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 343.

Tithymalus Gaertn.

(Refer under *Euphorbia*)

EUP 354 Prokhanoff, J. I. 1933

[Conspectus systematicus Tithymalorum Asiae Mediae. A systematical review of the spurges of Middle Asia]. 1-241, fig. 1-70, maps 1-46. A monographic treatment in Russian, diagnoses in Latin.

EUP 355 Wheeler, L. C. 1946

Tithymalus [Tourn] proposed for conservation. *Amer. Journ. Bot.* 33 : 569-570. Nomenclature.

Tragia Linn.

EUP 356 Knoll, F. 1905

Die Brennhaare der Euphorbiaceen Gattungen *Dalecham-*

pia und *Tragia*. *Sitz. ber. Math.-Nat. Akad. Wiss. Wien.* 114 (Abt. I) : 29-48. pls. 1, 2.

EUP 357 Lourteig, A. & O'Donell, C. A. 1941

Tragiae Argentinae. *Lilloa* 6 : 347-380.

EUP 358 Rao, J. S. & Sundararaj, D. D. 1951

Stinging hairs in *Tragia cannabina* L. f. *Journ. Indian Bot. Soc.* 30 : 88-91.

Trewia Linn.

EUP 359 Airy-Shaw, H. K. 1972

Trewia. The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 343-344.

Trigonostemon Bl.

EUP 360 Airy-Shaw, H. K. 1972

Trigonostemon. The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 344-349.

EUP 361 Airy-Shaw, H. K. 1979

Notes on Malesian and other Asiatic Euphorbiaceae : 226. *Trigonostemon* Bl. *Kew Bull.* 33 : 534-536.

EUP 362 Airy-Shaw, H. K. 1982

An undescribed Trigonostemon (Euphorbiaceae) from Assam. *Kew Bull.* 37(1) : 121-122. *Trigonostemon praetervisus.*

Vernicia Lour.

EUP 363 Airy-Shaw, H. K. 1972

Vernicia. The Euphorbiaceae of Siam. *Kew Bull.* 26(2) : 349-350.

EUP 364 Radcliffe-Smith, A. 1973

Typification of *Vernicia fordii* (Euphorbiaceae). *Kew Bull.* 28(2) : 296. Based on *Aleurites fordii* Hemsl.

ADDITIONS : GENERAL

EUP 365 Hooker, J. D. 1887 & 1888

Euphorbiaceae. In : Hooker, J. D. *ed., Fl. Brit. India* 5 : 239-462. 1887 ; 463-477. 1888.

EUP 366 Kohler, E. 1965

Die Pollen morphologie der biovulaten Euphorbiaceae und et Bedeutung fur der Taxonomie—*Grana Palyn.* 6 : 26-120.

Euphorbia Linn.

EUP 367 Kopaczewski, W. & Dupont, G. 1948

Conrtibution a' l' etude des resines d' Euphorbiacees I. Extraction et historique Revue Gen. Caoutehouc. *Revue Gen. Caoutchouc.* 25 : 103.

Chamaesyce S. F. Gray

EUP 368 Takemoto, T. & Inagaki, M. 1958

Constituents of *Euphorbia maculata.* Constituents of *Euphorbia pilulifera. Journ. Pharm. Soc. Japan* 78 : 292-294 ; 294-295. In Japanese with English Summary.

Jatropha Linn.

EUP 369 Miller, K. I. & Webster, G. L. 1962

Systematic position of *Cnidoscolus* and *Jatropha. Brittonia* 14 : 174-180.

Sapium P. Br.

EUP 370 Jin, D.-C. 1982

[A preliminary investigation of biological characters of *Sapium sebiferum* Roxb. *Guihaia* 2(1) : 41-44.]

EUPTELEACEAE

The family Eupteleaceae is included in the order Hamamelidales by Cronquist and Thorne, in the order Magnoliales by Engler, in

the order Eupteleales by Takhtajan, in the order Trochodendrales by Dahlgren. Hutchinson however included the Eupteleaceae as part of the family Trochodendraceae ; while Bentham & Hooker included the family as part of the family Magnoliaceae.

A monogeneric family based on the genus *Euptelea,* the family is characterised by alternate exstipulate leaves, inflorescence consisting of a cluster of 6-12 flowers, absence of perianth and androecium consisting of number of stamens borne on flattened receptacle and gynoecium of 6-18 free carpels and fruit consisting of a cluster of stipulate samaras.

The Eupteleaceae is allied to the family Platanaceae. In Platanaceae, the plants are monoecious, stamens are 3-4(7) having apically enlarged and peltate connective, and leaves are stipulate palmately veined ; whereas in Eupteleaceae the flowers are perfect, stamens are numerous having ordinary type of connective and leaves are exstipulate and pinnately veined.

Dahlgren (1983) considered the family Eupteleaceae in the order Cercidiphyllales instead of Trochodendrales. According to Dahlgren (1983), in the lack of vessels (the wood consists of trachedis), free carpels and in the cellular endosperm formation, the families Trochodendraceae and Tetracentraceae (together with Cercidiphyllaceae and Eupteleaceae) may seem to approach Magnoliiflorae. The nature of pollen morphology and chemical characters of the above mentioned families show similarities to those of the Hamamelidales. The lack of vessels in angiosperms is a feature of independent origin (Young, 1981).

According to Takhtajan (1969), the temperate flora of the Himalaya, Assam and Burma are extraordinarily diverse and distinctive not only in numerous endemic species but also in many endemic genera. Amongst the woody genera Takhtajan mentioned the genus *Euptelea,* along with other ancient woody genera *Trochodendron, Tetracentron, Decaisnea, Eucommia, Davidia, Helwingia, Aucuba, Nandina, Sargentodoxa.*

The family is represented in India by the genus *Euptelea.* For recent taxonomic revisions refer Smith (1946) ; for palynology refer **Praglowski (1975).**

GENERAL

EPT 1 Dahlgren, R. 1983

General aspects of angiosperm evolution and macrosystematics. *Nord. Journ. Bot.* 3 : 119-149.

EPT 2 Lemesle, R. 1947

Contribution a l'etude morphologique et phytogenetique des Eupteleacees, Cercidiophyllacees, Eucommiacees (ex-Trochodendracees). *Ann. Sci. Nat. Bot. Ser.* XI. 7 : 41-52, fig. 1-13. Bibliography.

EPT 3 Takhtajan, A. 1969

Flowering Plants, origin and dispersal, 1-310, Oliver & Boyd, Edinburgh.

EPT 4 Young, D. A. 1981

Are the angiosperms primitively vesselless ? *Syst. Bot.* 6 : 313-330.

Euptelea Sieb. & Zucc.

EPT 5 Hooker, J. D. & Thomson, T. 1864

On the genus *Euptelea* Sieb & Zucc. *Journ. Linn. Soc. Bot.* 7 : 240-243, pl. 2. *E. pleiosperma* from N. India & Tibet.

EPT 6 Nast, C. G. & Bailey, I. W. 1946

Morphology of *Euptelea* and comparison with *Trochodendron. Journ. Arn. Arb.* 27 : 186-192.

EPT 7 Praglowski, J. (1974) 1975

The pollen morphology of the Trochodendraceae, Tetracentraceae, Cercidiphyllaceae and Eupteleaceae with reference to taxonomy. *Pollen & Spores* 16(4) : 449-467.

EPT 8 Smith, A. C. 1946

A taxonomic review of *Euptelea. Journ. Arn. Arb.* 27 : 175-185, fig. 1. Recognises 2 spp. from Himalayas, China & Japan.

EURYALACEAE-refer **NYMPHAEACEAE**

FABACEAE-refer **PAPILIONACEAE & LEGUMINOSAE**

FAGACEAE

The family Fagaceae is included in the order Fagales by Cronquist, Dahlgren, Engler, Hutchinson, Takhtajan and Thorne. The Fagaceae is considered under the order Unisexuales by Bentham & Hooker.

The Fagaceae is characterised by unisexual flowers, flowers in dichasia which are often arranged in catkins sometimes the dichasia are reduced to single flower, the presence of 4 to 7 perianth lobes which are bract like, male flowers having 5 to many stamens with or without rudimentary ovary, female flowers are in groups of 1 to 3, each group surrounded by a basal involucre, inferior tricarpellate ovary and the characteristic fruit which is subtended by a involucre or cupule.

Forman (1964) classified the family into three subfamilies : Fagoideae, Castaneoideae and Quercoideae. The Fagaceae is closely related to the Betulaceae. The family is represented in India by the following genera : *Castanopsis, Lithocarpus, Quercus.* The following genera are cultivated in India : *Castanea, Fagus.*

For recent taxonomic revisions refer Barnett (1944), Brett (1964), Forman (1960, 1961, 1964), Soepadmo (1972) ; for palynology refer Hanks (1972), Kuprianova (1965), Vishnu-Mittre & Singh (1963) ; for phylogeny refer Abbe (1974), Forman (1960) ; for chromosome studies refer Mehra, Hans & Sareen (1972).

Ehrendorfer (1983) mentions that in the current classifications one of the main differences is concerned with Amentiferae. It is seen that amentiferous orders are combined with Hamamelididae as proposed by Cronquist and Takhtajan. While they are segregated into different sub-classes as proposed by Thorne and Dahlgren. Ehrendorfer (1983) has shown that the Hamamelidae 'can be regarded as remnants of an ancient stock of dicots, sometimes linking Magnoliidae *s.l.* and Rosidae—Dilleniidae. They tend towards anemophily and reduction of polymerous to oligomerous monochlamydous flowers but there are trends towards the formation of petals from stamens and towards secondary multiplication of stamens'.

Meeuse (1975) has given reasons for considering the amentifers (Fagales, Juglandales, Myricales, Casuarinales) with the simply constructed and wind-pollinated flowers as relatively ancestral. As stated by Ehrendorfer (1977), it is a derived polyphyletically from insect-pollinated groups.

GENERAL

FAG 1 Abbe, E. C. 1974

Flowers and inflorescence of the "Amentiferae". *Bot. Rev.* 40(2) : 159-261.

FAG 2 Bailey, I. W. 1910

Notes on the wood structure of the Betulaceae and Fagaceae. *Forestry Quart.* 8 : 178-185.

FAG 3 Barnett, E. C. 1942

The Fagaceae of Thailand and their geographical distribution. *Trans. Bot. Soc. (Edinburgh)* 33 : 327-343, 1 map. Taxonomic study, keys to genera.

FAG 4 Barnett, E. C. 1944

Keys to the groups of *Quercus, Lithocarpus* and *Castanopsis* of Eastern Asia with notes to their distribution. *Trans. & Proc. Bot. Soc. Edinb.* 34 : 159-204.

FAG 5 Berridge, E. M. 1914

The structure of the flower of the Fagaceae and its bearing on the affinities of the group. *Ann. Bot.* 28 : 509-526.

FAG 6 Brett, D. W. 1964

The inflorescence of *Fagus* and *Castanea* and the evolution of the cupules of the Fagaceae. *New Phytologist* 63 : 96-118. The following subdivision of Fagaceae proposed : subfamily I. Fagoideae and subfamily II. Castaneoideae ; Tribes under subfamily Castaneoideae : (i) Castaneae, (ii) Lithocarpeae, (iii) Pasanieae, (iv) Querceae.

FAG 7 Camus, A. 1932

Sur quelques genres de Fagacees. *Rev. Sci.* (Nice) 18 :

37-42. Comparison of genera *Castanea, Castanopsis, Lithocarpus* and *Quercus* ; new combinations.

FAG 8 Endress, P. K. 1977

New ideas about the early differentiation of angiosperms. *Pl. Syst. Evol. Suppl.* 1 : 321-347.

FAG 9 Forman, L. L. 1960

On the evolution of cupules in the Fagaceae. *Kew Bull.* 18 : 385-420, 14 fig.

FAG 10 Forman, L. L. 1961

Generic delimitation in the Castaneoideae. *Kew Bull.* 18 : 421-426.

FAG 11 Forman, L. L. 1964

Trigonobalanus, a new genus of Fagaceae, with notes on the classification of the family. *Kew Bull.* 17 : 381-396.

FAG 12 Geoze, E. 1887

Die cupuliferen. *Hamburg Gart. Blumenzeit.* 43 : 433-445. Data on distribution and uses.

FAG 13 Hanks. S. La B 1972

Palynotaxonomy of *Fagus* and *Nothofagus. Diss. Abstr. Int.* B. 33(5) : 1959-1960.

FAG 14 Hjelmqvist, H. 1948

Studies on the floral morphology and phylogeny of the Amentiferae. *Bot. Notiser Suppl.* 2(1) : 1-171, fig. 1-58.

FAG 15 Kao, Yun-Chang 1957

[Chinese Fagaceae]. *Biol. News China* 1957 (12) : 30-36, fig. 1-4. In Chinese ; a general survey, uses.

FAG 16 Koidzumi, Genichi 1912-1913

Morphology, systematics and phytogeography of Cupuliferae DC. (Fagaceae A. Br.). *Bot. Mag. Tokyo* 26 : 377-399, fig. 1-9. 1912 ; 27 : 7-23, fig. 10, 93-108. fig. 11-19, 151-158. fig. 20, 194-209. 1913.

FAG 17 Koidzumi, Genichi 1916

On the classification of Castaneaceae. *Bot. Mag. Tokyo* 30 : 92-103, 185-215. Enumeration.

FAG 18 Kuprianova, L. A. 1965

The palynology of the Amentiferae. *Komarov Bot. Inst. Acad. Sci. URSS* 1 : 1-214.

FAG 19 Lendner. A. 1916

Sur la cupule des Fagacees. *Bull. Soc. Bot. Geneve* II, 8 : 161-166, 2 fig.

FAG 20 Mehra, P. N., Hans, A. S. & Sareen, T. S. 1972

Cytomorphology of Himalayan Fagaceae. *Silvae Genet.* 21(3-4) : 102-109. Chrom. nos.

FAG 21 Melchior, H. 1964

Fagaceae. *In* : Engler & Prantl, *Pflanzenf.* ed. 12, 2 : 49-51.

FAG 22 Nasir. Y. 1976

Fagaceae. *Fl. W. Pakistan* No. 104 : 1-9.

FAG 23 Okamoto, M. 1978

Taxonomic studies of the Fagaceae-2. *Bull. Osaka Mus. Nat.* No. 31 : 81-92.

FAG 24 Schwarz, O. 1936

Entwurf zu einem naturlichen system der cupiliferen und der Gattung *Quercus* L. *Notizbl. Berl. Dahlem* 13 : 1-22. Subdiv. of *Quercus* and Keys.

FAG 25 Soepadmo, E. 1972

Fagaceae. *In* : van Steenis. *Fl. Males.* I. 7 : 265-403, 39 fig.

FAG 26 Suzuki, Hitoshi 1931

On the determination of Formosan species of Fagaceae basing on the morphological characters of the leaves. *Sylvia* 2(2) : 51-81, pl. 1-4. Keys & descriptions of 56 spp.

Castanea Mill.

FAG 27 Camus, A. 1928-1929

Les Chataigniers. Monographie des genres *Castanea* et *Castanopsis* 1-604, fig. 1-28, 1929 ; Atlas, pl. 1-34. 1928. Monographic.

FAG 28 Khariuzova, E. D. 1934

[Chestnut—A revision of genus *Castanea* (Tourn.) Mill. based on literature]. *Bull. Appl. Bot. & Pl. Breed.* VIII. 3 : 3-112, fig. 1-21. In Russian ; monographic.

FAG 29 Mckay, J. W. & Crane, H. L. 1953

Chinese chestnut—a promising new orchard crop. *Econ. Bot.* 7 : 229-242, fig. 1-8. *Castanea mollissima,* cultivation and uses.

Castanopsis (D. Don) Spach

FAG 30 Biswas, S. N. (1969) 1971

Nomenclatural changes in *Castanopsis* Spach (Fagaceae). *Bull. Bot. Surv. India* 11(1-2) : 189-190. *C. kurzii* (Haner) S. N. Biswas and *C. roxburghiana* S. N. Biswas nom. nov.

FAG 31 King, G. 1889

The Indo-Malayan species of *Quercus* and *Castanopsis. Ann. Roy. Bot. Gard. Calcutta* 2 & 17 : 107, t. 15-104.

FAG 32 Soepadmo, E. 1968

Florae Malesianae Praecursores XLVII—Census of Malesian *Castanopsis* (Fagaceae). *Reinwardtia* 7 : 383-410, 1 fig.

Fagus Linn.

FAG 33 Wyman, Donald 1964

Registration list of cultivar names of *Fagus* L. *Arnoldia* 24 : 1-8.

Lithocarpus Bl.

FAG 34 Biswas, S. N. (1968) 1969

Some new combination in *Lithocarpus* Bl. (Fagaceae). *Bull. Bot. Surv. India* 10 : 258-259.

FAG 35 Huang, Cheng-Chiu 1978

New species of Chinese Fagaceae, with critical notes on some south-eastern Asiatic *Lithocarpus*. *Acta phytotax. Sin.* 16(4) : 70-76, fig. 2. New spp. and comb. nov. in *Lithocarpus* and *Quercus*.

FAG 36 Soepadmo, E. 1970

Florae Malesianae Praecursores XLIV. Malesian species of *Lithocarpus* Bl. *Reinwardtia* 8 : 197-308, 13 fig., 1 map. 105 Malesian spp., of which 25 are new spp., *Pasania*, *Synaedrys* and *Cyclobalanus* are included under *Lithocarpus*.

Quercus Linn.

FAG 37 Bahadur, K. N. 1971

Quercus dilatata is now *Quercus himalayana* Bahadur. *Indian Forester* 97 : 523-525.

FAG 38 Bahadur, K. N. 1975

A name change for *Quercus incana* Roxb. is inevitable. *Indian Forester* 101(1) : 99-102.

FAG 39 Barnett, E. C. 1944

Keys to the species groups of *Quercus, Lithocarpus* and *Castanopsis* of eastern Asia, with notes on their distribution. *Trans. Bot. Soc. Edinb.* 34 : 159-204.

FAG 40 Bean, W. J. 1904

Hardy evergreen oaks (*Quercus*). *Garden* 65 : 320-321, 353-354, 370-371, 385-386. Includes Asiatic spp.

FAG 41 Burger, W. C. 1975

The species concept in *Quercus*. *Taxon* 24(1) : 45-50.

FAG 42 Camus, A. 1934-1936

Les Chenes. Monographie du genre *Quercus* 2 vols. (1 : 1-93, atlas pl. 1-78, pl. I-XXX, 1034 ; 2 : 1-177, atlas pl. 79-236, pl. XXXI-LVII. 1935-36). Descr., illust. The plates in roman numbers deals with anatomy.

FAG 43 Hardin, J. W. 1976

Terminology and classification of *Quercus* trichomes. *Journ. Elisha Mitchell Sci. Soc.* 92(4) : 151-161.

FAG 44 Jain, D. K. & Singh, .V. 1974

Epidermal studies on some Himalayan species of oaks and their taxonomic significance. *Proc. Indian Acad. Sci.* B. 80(4) : 188-196. Key.

FAG 45 King, G. 1889

The Indo-malayan species of *Quercus* and *Castanopsis*. *Ann. Roy. Bot. Gard. Calcutta.* 2 : 17-107, t. 15-104. Descr., illust.

FAG 46 Koidzumi, Genichi 1912

Lepidobalanus Asiae orientalis. *Bot. Mag. Tokyo* 26 : 159-167. A revision, 14 spp. of which 4 new spp. and 2 new var.

FAG 47 Kurz, S. 1875

Notes on a few oaks from India. *Journ. Asiat. Soc. Beng.* n. s. II, 45 : 196-198, t. 14.

FAG 48 Menitsky, G. 1973

Conspectus specierum generis *Quercus* L. (sub. g. *Quercus* Asiae orientalis. *Nov. Syst. Pl. Vasc.* 10.

FAG 49 Menitsky, G. 1974

Notulae de genere *Quercus* L. Asiae orientalis. *Nov. Syst. Pl. Vasc.* 11 : 88-92.

FAG 50 Nakamura, J. 1943

The size frequency of *Quercus* pollen. *Res. Rep. Kochi Univ.* 5(21) : 1-5.

FAG 51 Nicholson, G. 1882-1883

The Kew arboretum. The oaks. *Gard. Chron.* n. ser. 17 : 227-228. 1882 ; 18 : 107. 1882 ; 19 : 592. 1883. Synonymy and description of several Asiatic spp.

FAG 52 Orsted, A. S. 1867

Bidrag til Egeslaegtens Systematik. [Contribution to the taxonomy of the oaks]. *Vid. Meded. Nat. For. Kjobenhavn* 1866 : 11-88, pl. 1, 2, fig. 1-24. A critical study of *Quercus, Lithocarpus* and *Pasania.*

FAG 53 Sax, H. J. 1930

Chromosome numbers in *Quercus. Journ. Arn. Arb.* 11 : 220-223.

FAG 54 Schwartz, O. 1936

Entwurf zu einem naturlichen Systema der Cupiliferen und der Gattung *Quercus* L. *Notizbl. Bot. Gart. Berlin* 13 : 1-22, fig. 1-2.

FAG 55 Spoel-Walvius, M. R. van der 1963

Les caracteres de l'exine chez quelques especes de *Quercus. Acta Bot. Neerl.* 12 : 525-532.

FAG 56 Vishnu-Mittre & Singh, G. 1963

On the pollen of the Western Himalayan oaks. *Journ. Indian Bot. Soc.* 42 : 130-134.

FAG 57 Warburg, O. & Warburg, E. F. 1933

Oaks in cultivation in the British Isles. *Journ. Roy. Hort. Soc.* 58 : 176-189, fig. 38-53. *Quercus lodicosa* nom. nov. ; notes of Asiatic spp.

FAG 58 Wenzig, T 1886

Die Eichen europas, Nordafrikas und des Orients : neue bearbeitet. *Jahrb. Berlin Bot. Gart.* 4 : 179-213.

FAG 59 Wenzig, T. 1886

Die Eichen Ost-und Suidasiens. *Jahrb. Bot. Gart. Berlin* 4 : 214-240. Revision.

ADDITIONS : GENERAL

FAG 60 Dahlgren, R. 1983

General aspects of angiosperm evolution and macrosystematics. *Nord. Journ. Bot.* 3 : 119-149.

FAG 61 Ehrendorfer, F. 1977

New ideas about the early differentiation of angiosperms. *Plant Syst. Evol., Suppl.* 1 : 227-234.

FAG 62 Ehrendorfer, F. 1983

Summary statement. *Nord. Journ. Bot.* 3 : 151-155.

FAG 63 Mears, J. A. (1973) 1974

Chemical constituents and systematics of Amentiferae. *Brittonia* 25(4) : 385-394.

FAG 64 Meeuse, A. D. J. 1975

Floral evolution in the Hamamelidae I. General assessment of the probable phylogeny and taxonomic position of the group. *Acta Bot. Neerl.* 24 : 155-164.

FAG 65 Meeuse, A. D. J. 1975

Floral evolution in the Hamamelidae II. Interpretative floral morphology of the Amentiferae. *Acta Bot. Neerl.* 24 : 165-179.

FAG 66 Meeuse, A. D. J. 1975

Floral evolution of the Hamamelidae III. Hamamelidales and associated groups including Urticales and final conclusions. *Acta Bot. Neerl.* 24 : 181-191.

FAG 67 Stearn, W. L. (1973) 1974

Development of the amentiferous concept. *Brittonia* 25 (4) : 316-333.

FAG 68 Stone, D. E. (1973) 1974

Patterns in the evolution of amentiferous fruits. *Brittonia* 25(4) : 371-384.

FAG 69 Thorne, R. F. (1973) 1974

The Amentiferae or Hamamelidae as an artificial group, a summary statement. *Brittonia* 25(4) : 395-405.

FICOIDACEAE—refer **AIZOACEAE**

FLACOURTIACEAE

(includes Homaliaceae & Samydaceae)

The family Flacourtiaceae is included in the order Violales by Cronquist, Dahlgren, Engler and Takhtajan, in the order Bixales by Hutchinson and in the order Cistales by Thorne. The family Flacourtiaceae consists of about 93 genera and 1,000 species of tropical and subtropical trees and shrubs.

The Flacourtiaceae is characterised by the presence of numerous stamens, often undifferentiated perianth, usually superior ovary, rarely the ovary is semi-inferior, ovules on parietal placentas, fruit a capsule or berry and seeds often arillate and endospermous.

The family is classified into the following tribes by Gilg (1925). Erythrospermeae, Oncobeae, Pangieae, Paropsieae, Abatieae, Trichostephaneae, Scolopieae, Homalieae, Phyllobotryeae, Flacourtieae, Casearieae, Bembicieae.

According to Airy-Shaw the Flacourtiaceae is related to the Euphorbiaceae, Tiliaceae and Passifloraceae. Cronquist mentions "that tendencies toward perigyny and epigyny unisexuality, reduction of stamens, fusion of filaments, the development of corona, reduction in the number of carpels, fusion of styles and loss of endosperm from the seed can all be seen in the family Flacourtiaceae".

The family is represented in India by the following genera : *Casearia, Flacourtia, Gynocardia, Homalium, Hydnocarpus, Ryparosa, Scolopia, Xylosma.* The following genera are cultivated in India : *Doryalis, Oncoba.*

For recent taxonomic revisions refer Mukherjee (1972), Sleumer (1954) ; for palynology refer Keating (1973, 1976) ; for chromosome studies refer Mehra & Sareen (1973).

According to Dahlgren (1983) taxa of both Flacourtiaceae and Passifloraceae form cyanogenic compounds and those of Caricaceae contain glucosinolates. It is seen that cyclo-pentenoid cyanogenic glycosides are restricted to the closely related families Flacourtiaceae, Passifloraceae and Turneraceae.

GENERAL

FLC 1 Briquet, J. 1898

Observations sur quelques Flacourtiacees d l' herbier Delessert. *Ann. Cons. Jard. Geneve* 2 : 41-78. Key to 15 spp. of *Scolopia.*

FLC 2 Clos, D. 1855

Monographie de la famille des Flacourtiacees. Premiere partie. Considerations generales. *Ann. Sci. Nat.* IV. *Bot.* 4 : 362-387.

FLC 3 Clos, D. 1857

Revision des genres des especes appartenant a' la famille des Flacourtiacees. *Ann. Sci. Nat.* IV. 8 : 209-274. Revision ; key to spp., includes several genera now assigned to different families, Samydaceae, Bixaceae etc.

FLC 4 Gilg, E. 1925

Flacourtiaceae. *In* : Engler & Prantl, *Pflanzenf.* ed. 2. 21 : 377-456.

FLC 5 Keating, R. C. 1972

The pollen morphology and systematics of the Flacourtiaceae. *Brittonia* 24 : 121-122.

FLC 6 Keating R. C. 1973

Pollen morphology and relationships of the Flacourtiaceae. *Ann. Missouri Bot. Gard.* 60(2) : 273-305.

FLC 7 Keating, R. C. (1975) 1976

Trends in specialization in pollen of Flacourtiaceae with comparative observations of Cochlospermaceae and Bixaceae, *Grana* 15(1-3) : 29-49.

FLC 8 Mukherjee, N. 1972

Six new taxa of Flacourtiaceae from India and Burma. *Journ. Bombay Nat. Hist. Soc.* 69 : 390-394. *Casearia rubescens* Dalz. var. *gamblei* Mukh. (Kerala & N. Kanara) ; *Scolopia crenata* (Wt.) Clos. var. *brevifolia* Mukh. from Tamil Nadu.

FLC 9 Mukherjee, N. (1972) 1975

Nomenclatural notes on some section of Flacourtiaceae of India, Burma and Ceylon. *Bull Bot. Surv. India* 14 : 183-184. Name changes on species of *Hydnocarpus, Scolopia & Casearia.*

FLC 10 Mukherjee, N. 1972

Revision of the family Flacourtiaceae of India, Burma and Ceylon. *Bull. Bot. Soc. Bengal* 26 : 31-45, tab. 3. Geogr. distr., nomencl. & taxonomy.

FLC 11 Sleumer, H. O. 1954

New Malaysian Flacourtiaceae. *Blumea* 7 : 484-497.

FLC 12 Sleumer, H. O. 1954

Flacourtiaceae. *In* : van Steenis, *ed., Fl. Males.* I, 5 : 1-106, fig. 1-37.

FLC 13 Slooten, D. F. van 1919

Bijdrage lot de Kennis der Combretaceen en Flacourtiaceen van Nederlandsch-India. Thesis. Utrecht 57-175.

FLC 14 Slooten, D. F. van 1925

The Flacourtiaceae of the Dutch East Indies. *Bull. Jard. Bot. Buitenzorg* III, 7 : 291-421, fig. 1-15.

FLC 15 Zepernick, B. 1978

Typen und Typoide der Flacourtiaceae in Generalherbar des Botanischen Museums Berlin-Dahlem. *Willdenowia* 8(2) : 409-424.

Casearia Jacq.

FLC 16 Gagnepain, F. (1916) 1917

Les *Casearia* et les *Homalium* sont-ils de la mem famille ? *Bull. Soc. Bot. France* 63 : 72-75. Critical notes.

FLC 17 Mukherjee, N. 1965

Identity of *Casearia varians* Bedd. non Thw. *Bull. Bot. Soc. Bengal* 19 : 109-110. *C. bourdillonii* nom. nov.; descr., key to *C. varians* Thw. & *C. bourdillonii* Mukh.

Flacourtia Comm. ex L'Herit

FLC 18 Mehra, P. N. & Sareen, T. S. 1973

Cytology of some Himalayan trees—Thalamiflorae. *Silvae Genet.* 22(3) : 66-70.

Gynocardia R. Br.

FLC 19 Rock, J. F. 1922

The Chaulomoogra tree and some related species ; a survey conducted in Siam, Burma, Assam and Bengal. *U. S. Dept. Agric. Bull.* No. 1957 : 1-29, tab. 1-16.

Homalium Jacq.

FLC 20 Gagnepain, F. (1916) 1917

Les *Casearia* et les *Homalium* sont-ils de la mem famille ? *Bull. Soc. Bot. France* 63 : 72-75. Critical notes and comparison of *Casearia* and *Homalium*.

FLC 21 Henry, A. N. & Swaminathan, M. S. 1981

A new *Homalium* Jacq. (Flacourtiaceae) from South India. *Journ. Bombay Nat. Hist. Soc.* 78 : 570-572. *H. jainii* sp. nov., allied to *H. grandiflorum* from Muthukuzhivayal, Tamil Nadu.

FLC 22 Nayar, M. P. & Giri, G. S. 1981

A new species of *Homalium* Jacq. (Flacourtiaceae) from Burma. *Journ. Bombay Nat. Hist. Soc.* 78(3) : 568-570.

Hydnocarpus Gaertner

FLC 23 Deb, D. B., Mondal, S. K. & Malick, K. C. (1978) 1979

Identification of seeds of *Hydnocarpus* and *Gynocardia* (Flacourtiaceae). *Bull. Bot. Surv. India* 20 : 31-35. Key to seeds of 5 taxa.

FLC 24 Schaeffer, J. 1972

Pollen morphology of the genus *Hydnocarpus* (Flacourtiaceae). *Blumea* 20(1) : 65-87.

FLC 25 Sleumer, H. 1938

Monographie der Gattung *Hydnocarpus* Gaertner. *Bot. Jahrb.* 69 : 1-94, pl. 1-4. Taxonomy, anatomy of fruits & seeds.

Scolopia Schreb.

FLC 26 Gagnepain, F. 1908

Essai de classification des *Scolopia* et *Flacourtia* asiatiques. *Journ. de Bot.* 21 : 223-228. Key to 22 spp.

FLC 27 Sleumer, H. 1972

A taxonomic revision of the genus *Scolopia* Schreb. (Flacourtiaceae). *Blumea* 20(1) : 25-64. Key to 37 spp., distr., ecology.

ADDITIONS : GENERAL

FLC 28 Dahlgren, R. 1983

General aspects of angiosperm evolution and macrosystematics. *Nord. Journ. Bot.* 3 : 119-149.

FLC 29 Hutchinson, J. 1967

Flacourtiaceae. *The Genera of Flowering Plants* 2 : 201-232.

FLC 30 Kolbe, K. P. & John, T. 1979

Serologische Untersuchungen Zur Systematik der Violales. *Bot. Jahrb. Syst.* 101 : 3-15.

Doryalis E. Mey. ex Arn.

FLC 31 Sleumer, H. 1972

A taxonomic revision of the genus *Doryalis E.* Mey. ex Arn. (Flacourtiaceae). *Bot. Jahrb.* 92(1) : 64-89. 14 species in Africa (not in Madagascar), 1 species in Sri Lanka ; key.

FLAGELLARIACEAE

The family Flagellariaceae is included in the order Calycinae by Bentham & Hooker, in the order Commelinales by Engler, Hutchinson and Thorne and in the order Restionales by Cronquist and Takhtajan. Dahlgren however included the Flagellariaceae in the order Poales.

The Flagellariaceae is characterised by branching terminal racemes, presence of bisexual or unisexual flowers, 6-merous perianth in two whorls of three, stamens 6-merous in two whorls of three and 3 locular superior ovary with a single ovule attached on axile placentation. In certain features of pollen and anatomy, it shows relationship with the Gramineae. The Flagellariaceae with perfect flowers and closed sheathing leaves is allied to the Commelinaceae and Restoniaceae. Chanda (1966) delineates palynological connection of the Centrolepidaceae to the Restoniaceae, the Flagellariaceae and the Gramineae with possible connection to the Cyperaceae through the genus *Mapania*.

The family is represented in India by the genus *Flagellaria*.

For recent taxonomic revisions refer Backer (1951), Larsen (1972) ; for pollen morphology refer Chanda (1965, 1966), Chanda & Rowley (1967) ; for chromosome studies refer Shetty & Subramanyam (1964) ; for chemotaxonomy refer Lee *et al.* (1975).

Dahlgren (1983) did not support Cronquist (1981) in treating Poaceae and Cyperaceae in one order. According to Dahlgren (1983) the Cyperaceae represents a separate order Cyperales. The affinity of Juncales to Cyperales is well established whereas in the order Poales, the affinities of families Flagellariaceae, Joinvilleaceae, Poaceae, Restoniaceae and Centrolepidaceae are more pronounced.

GENERAL

FLG 1 Backer, C. A. 1951

Flagellariaceae. *In* : van Steenis, *Fl. Males.* I, 4 : 245-250, fig. 1-2.

FLG 2 Chanda, S. 1965

On the pollen morphology of the Flagellariaceae with reference to taxonomy. *Trans. Bose Res. Inst.* 28(2) : 53-55.

FLG 3 Chanda, S. 1966

On the pollen morphology of the Centrolepidaceae, Restionaceae and Flagellariaceae with special reference to taxonomy. *Grana Palynologica* 6(3) : 355-415.

FLG 4 Chanda, S. & Rowley, J. 1967

Apertural types in pollen of the Restoniaceae and Flagellariaceae. *Grana Palynologica* 7(1) : 16-36.

FLG 5 Cutler, D. F. 1966

Anatomy and taxonomy of the Restoniaceae. *Jodrell Lab. Notes* 4 : 1-25.

FLG 6 Khan, M. S. & Huq, A. M. 1975

Ochnaceae, Turneraceae, Fumariaceae, Tropaeolaceae and Flagellariaceae. *Fl. Bangladesh* 3 : 1-13. *Bangladesh Agricultural Research Council.*

FLG 7 Larsen, K. 1972

Flagellariaceae. *In* : Smitinand, T., Larsen, K. & Hansen, B. *ed., Fl. Thailand* 2(2) : 162-163.

FLG 8 Lee, D. W., Yap Kim Pin & Liew Foo Yew 1975

Serological evidence on the distinctness of the monocotyledonous families Flagellariaceae, Hanguanaceae and Joinvilleaceae. *Bot. Journ. Linn. Soc.* 70(1) : 77-81.

FLG 9 Shetty, B. V. & Subramanyam, K. 1964

Cytology of *Flagellaria indica* Linn. *Curr. Sci.* 33 : 279-280.

ADDITIONS : GENERAL

FLG 10 Cronquist, A. 1981

An integrated system of classification of flowering plants. *Columbia Univ. Press,* New York.

FLG 11 Dahlgren, R. 1983

General aspects of angiosperm evolution and macrosystematics. *Nord. Journ. Bot.* 3 : 119-149.

FLINDERSIACEAE

(Refer also Meliaceae & Rutaceae)

The family Flindersiaceae is elevated to the family rank by Airy-Shaw and considered it as an intermediate family linking Rutaceae and Meliaceae. The Flindersiaceae includes the genera *Flindersia* and *Chloroxylon*. Bentham & Hooker, Cronquist, Engler, Hutchinson, Takhtajan and Thorne did not recognise the family Flindersiaceae. Thorne (1983) mentions "that the Indo-Malesian-Australasian *Flindersia* and Indian *Chloroxylon*, sometimes segregated in their own family Flindersiaceae, definitely belong in Rutaceae best treated as Flindersioideae".

The family is represented in India by the genus *Chloroxylon*.

GENERAL

FLN 1 Popham, S. 1979

The satin wood tree (*Chloroxylon swietenia*). *Bull. Pac. Trop. Bot. Gard.* 9 : 50-54, 1 fig.

FLN 2 Thorne, R. F. 1983

Proposed new realignments in the angiosperms. *Nord. Journ. Bot.* 3 : 85-117.

FRANKENIACEAE

The family Frankeniaceae is included in the order Caryophyllinae by Bentham & Hooker, in the order Violales by Cronquist and Engler, in the order Tamaricales by Dahlgren, Hutchinson, Takhtajan and Thorne.

The Frankeniaceae is allied to the Tamaricaceae, but differs in having opposite leaves, free sepals and presence of one style ; while in the Tamaricaceae, leaves are alternate, sepals are connate below and styles are three to four. According to Meeuse (1975) the order Tamaricales (Tamaricaceae and Frankeniaceae) is allied to the order Violales and Salicales.

The Frankeniaceae is represented in India by the genus *Frankenia*.

For systematic position and phylogeny refer Gunderson (1927), Walia & Kapil (1965).

GENERAL

FNK 1 Gunderson, A. 1927

The Frankeniaceae as a link in the classification of dicotyledons. *Torreya* 27 : 65-71.

FNK 2 Meeuse, A. D. J. 1975

Taxonomic relationships of Salicaceae and Flacourtiaceae : their bearing on interpretative floral morphology and dilleniid phylogeny. *Acta Bot. Neerl.* 24 : 437-457.

FNK 3 Walia, K. & Kapil, R. N. 1965

Embryology of *Frankenia* Linn. with some comments on the systematic position of the Frankeniaceae. *Bot. Notis.* 118 : 412-429.

FUMARIACEAE

(Refer also Hypecoaceae & Papaveraceae)

The family Fumariaceae is included in the order Papaverales by Cronquist, Dahlgren and Takhtajan, and in the order Rhoeadales by Hutchinson. However Bentham & Hooker, Engler and Thorne did not accept Fumariaceae as a family and treated it as part of the family Papaveraceae.

The Fumariaceae is characterised by herbs with watery (not milky) juice, alternate exstipulate leaves, flowers having calyx with two squamiform lobes, corolla 4 in two series one or both outer petals saccate or spurred at base, the two inner more or less coherent at apex, the stamens arranged in two bundles, opposite the inner petals, each bundle has a single filament which divides into three parts at the apex, the central part bears a complete 2-loculed anther and the lateral parts bear one loculed half anther.

The family is represented in India by the following genera : *Corydalis, Dicentra, Fumaria.*

The family Fumariaceae differs from the family Papaveraceae in having 4 or 6 stamens, zygomorphic flowers, saccate or spurred petals, absence or occasional presence of latex system by having scattered secretory cells. Whereas in the family Papaveraceae,

stamens are numerous, flowers are regular, petals are neither spurred nor saccate and the latex system is well-developed. According to Cronquist (1968) that "most of the characters which mark Fumariaceae as a separate group within the order represent phylogenetic advances over the characters of the Papaveraceae." However it is seen that the two families are parallel groups which show individual specializations for particular ecological situation and co-evolution with particular group of pollinators in time and space.

While glucosinolates are the common hall mark or taxonomic marker of the order Capparales, benzylisoquinoline alkaloids are the characteristic feature of the order Papaverales (Papaveraceae and Fumariaceae) the chemical feature commonly seen in the other Magnoliales and Ranunculales. It is also seen that spirobenzylisoquinoline alkaloids occur only in the family Fumariaceae (Preisner & Shamma, 1980) ; whereas benzylisoquinoline alkaloids occur in the family Papaveraceae.

For recent taxonomic studies refer Hutchinson (1921), Jafri (1974), Ludlow & Stearn (1975), Ryberg (1955) ; for palynology refer Stern (1962, 1971) ; for phylogeny refer Ryberg (1960) ; for chemotaxonomy refer Preisner & Shamma (1980).

GENERAL

FUM 1 Candolle, A. P. de 1824

Fumariaceae. *In* : DC., *Prodr.* 1 : 125-130.

FUM 2 Ernst, W. R. 1962

The genera of Papaveraceae and Fumariaceae in the South Eastern United States. *Journ. Arn. Arb.* 43 : 315-343.

FUM 3 Hutchinson, J. 1921

The genera of Fumariaceae and their distribution. *Kew Bull. Misc. Inf.* 1921 : 97-115. Key, enumeration with notes on genera.

FUM 4 Jafri, S. M. H. 1974

Fumariaceae. *Fl. W. Pakistan* No. 74 : 1-43.

FUM 5 Prain, D. 1896

Noviciae Indicae 10. Some additional Fumariaceae. *Journ. As. Soc. Beng.* n. s. II, 65 : 10-41.

FUM 6 Ryberg, M. 1960

A morphological study of the Fumariaceae and the taxonomic significance of the characters examined. *Act. Hort. Berg.* 19 : 121-248.

Corydalis Vent.

FUM 7 Anonymous, 1904

The genus *Corydalis*. *Gard. Chron.* III, 35 : 306-307, fig. 130-133.

FUM 8 Chou, Y.-H. & Hsu, C.-C. 1977

[The nomenclature of the Chinese drug Yanhusoo]. *Acta Phytotax. Sin.* 15(2) : 81-83. *Corydalis*.

FUM 9 Fedde, F. 1922-1923

Neue Arten von *Corydalis* aus dem Himalaya and den angrenzenden Teilen von Tibet I, *Repert Sp. Nov. Fedde* 18 : 28-32. 1922 ; II, *Ibid.* 19 : 119-120. 1923.

FUM 10 Krylov, P. N. 1931

Asiatische Arten der Gattung *Corydalis* DC. die Sibirien bewohnen. *Pflanzenar.* 3 : 17-18, maps 18-20. Distribution.

FUM 11 Lowe, D. B. & Smith, G. F. 1979

Recent arrivals from Nepal : 7. *Corydalis cashmeriana* Royle, a short stemmed form. *Quart. Bull. Alp. Gard. Soc.* 47(2) : 118-121.

FUM 12 Ludlow, F. 1976

Reliquae botanicae Himalaiceae. *Bull. Brit. Mus.* (*Nat. Hist.*) *Bot.* 5(5) : 269-290. *Corydalis brevicalcarata* & *C. sherrifii*.

FUM 13 Ludlow, F. & Stearn, W. T. 1975

New Himalayan and Tibetan species of *Corydalis* (Papaveraceae). *Bull. Brit. Mus.* (*Nat. Hist.*) *Bot.* 5(2) : 47-69, pl. 1-15.

FUM 14 Mottet, S. 1899

Les Corydalis. *Rev. Hort.* (*Paris*) 1899 : 554-556, fig. 234-237. General notes.

FUM 15 Ryberg, M. 1955

A taxonomical survey of the genus *Corydalis* Ventenat with special reference to cultivated species. *Acta Hort. Berg.* 17 : 115-175, pl. 1-8, fig. 1-5. Nomenclature, distribution, bibliography without key.

Dicentra Borckh. corr. Bernh.

FUM 16 Blunt, W. 1976

Poppycock : two bleeding hearts. *Garden* (*London*) 101(7) : 378-379. *Dicentra spectabilis.*

FUM 17 Khanh, T. C. (1972) 1973

Beitrag zur Kenntnis der Sippenstruktur des genus, *Dicentra* Benth., subgen. *Dactylicapnos* (Wall.) K. R. Stern. (Fumariaceae). *Feddes Repert* 83(7-8) : 511-578.

FUM 18 Schulze, G. M. 1936

Uber die sogenannten Stipulargebilde von *Dicentra spectabilis* (L.) Lem. *Notizbl. Bot. Gart. Berlin* 13 : 390-393, fig. 11. Cultivated in gardens.

FUM 19 Stern, K. R. 1961

Revision of *Dicentra* (Fumariaceae). *Brittonia* 13 : 1-57.

FUM 20 Stern, K. R. 1962

Phylogenetic trends in the pollen morphology of *Dicentra. Amer. Journ. Bot.* 49(6 : 2) : 679.

FUM 21 Stern, K. R. 1962

The use of pollen morphology in the taxonomy of *Dicentra. Amer. Journ. Bot.* 49(4) : 362-368.

FUM 22 Stern, K. R. (1970) 1971

Pollen aperture variation and phylogeny in *Dicentra* (Fumariaceae). *Madrono* 20(7) : 354-359.

Fumaria Linn.

FUM 23 Hammar, O. N. 1854

En Monografi ofver slagtet Fumaria i-xvi, 1-58. Lund.

FUM 24 Hammar, O. N. 1857-1858

Monographia generis Fumariarum, Uppsala 1957 ; Re-Printed in *Nova Acta Regiae Soc. Sci. Upsal.-Kong.* Vet. ser. 3, 2(8) : 257-306.

FUM 25 Parlatore, F. 1844

Monografia delle Fumarie. *Giorn. Bot. Ital.* 1 : 124-160.

FUM 26 Pugsley, H. W. 1919-1937

A revision of the genera *Fumaria* and *Rupicapnos. Journ. Linn. Soc. Bot.* 44 : 233-255. 1919 ; *loc. cit.* 47 : 427-469. 1927 ; *loc. cit.* 49 : 93-113. 1932 ; *loc. cit.* 49 : 517-529. 1934 ; *loc. cit.* 50 : 541-559. 1937.

ADDITIONS : GENERAL

FUM 27 Dahlgren, R. 1983

General aspects of angiosperm evolution and macrosystematics. *Nord. Journ. Bot.* 3 : 119-149.

FUM 28 Preisner, R. M. & Shamma, M. 1980

The spirobenzylisoquinoline alkaloids. *Journ. Nat. Prod.* 43 : 305-318.

GENTIANACEAE

The Gentianaceae consists of about 80 genera and 900 species, a cosmopolitan family occurring from alpine conditions to halophytic and marshy habitat.

The family Gentianaceae is included in the order Gentianales by Bentham & Hooker, Cronquist, Dahlgren, Engler, Hutchinson, Takhtajan and Thorne.

The Gentianaceae is characterised by its terrestrial habit exstipulate usually opposite leaves (alternate in *Swertia*), 4-5 merous

floral parts, involute or imbricate corolla ; while its allied family Menyanthaceae (formerly considered as the subfamily Menyanthoideae under the family Gentianaceae) is distinguished by its marsh or aquatic habit alternate leaves and induplicate valvate corolla. The Gentianaceae is allied to the Loganiaceae but differs in its herbaceous habit, leaves without stipules and the presence of glucoside gentiopicrin but lacking alkaloids. While the Loganiaceae is distinguished by its woody habit, leaves with stipules and often having alkaloids but not gentiopicrin glucoside.

The family Menyanthaceae differs from the Gentianaceae in lacking internal phloem, in the presence of alternate leaves and in the cellular endosperm (it is generally nuclear in the Gentianales, Dahlgren 1983). It is also seen that serologically the Apocynaceae, Asclepiadaceae, Gentianaceae and Rubiaceae form a cluster which has common occurrence of seco-iridoids. Though the Menyanthaceae, a segregate of the Gentianaceae is kept in the Gentianales, its carbohydrate chemistry is different due to the presence of fructose oligosaccharides (Pollard & Amuti, 1981).

The genus *Gentiana* with about 500 species are well-known as ornamental plants : *Gentiana lutea, Gentiana purpurea, Gentiana cruciata, Gentiana verna.* The Kuroo root which is medicinal is derived from *Gentiana kurroo Royle.* Gentian brandy is prepared from *Gentiana lutea.*

The family is represented in India by the following genera : *Canscora, Centaurium, Cotylanthera, Enicostema, Exacum, Gentiana, Halenia, Hoppea, Jaeschkea, Megacodon, Pleurogyna, Sebaea.*

For recent taxonomic revisions refer Burtt (1965), Cullen (1978), Smith (1965), Taylor (1973) ; for palynology refer Nilsson (1967, 1970) ; for biotaxonomy & biosystematics refer Khoshoo & Khushu (1966), Weaver & Rudenberg (1975) ; for chemical systematics refer Daniel & Sabnis (1978), Lebreton & Dangy-Caye (1973).

GENERAL

GEN 1 Agarwal, Sunita & Bhattacharyya, U. C. (1980) 1982

Some nomenclatural notes on family Gentianaceae. *Bull. Bot. Surv. India* 22 : 184-185. Two new comb. *Gentianella thomsonii* (Clarke) Bhattacharyya & Sunita ; *G.*

moorcroftiana (Wall. ex G. Don) Airy-Shaw var. *falconeri* (Clarke) Bhattacharyya *et* Sunita.

GEN 2 Burkill, I. H. 1906

Gentianacearum species novas descripsit I. H. Burkill sequentes. *Journ. Proc. Asiat. Soc. Beng. n. ser.* 2 : 309-327. About 40 new spp., var. described.

GEN 3 Burtt, B. L. 1965

Notes chiefly nomenclatural on Gentianaceae of Pakistan and India. *Notes Roy. Bot. Gard. Edinb.* 26(3) : 269-278.

GEN 4 Clarke, C. B. 1875

Notes on Indian Gentianaceae. *Journ. Linn. Soc. Bot.* 14 : 423-457.

GEN 5 Clausen, R. T. 1941

Studies in the Gentianaceae. *Bull. Torrey Bot. Club* 68 : 660-663.

GEN 6 Daniel, M. & Sabnis, S. D. 1978

Chemical systematics of family Gentianaceae. *Curr. Sci.* 47(4) : 109-111. The study of flavonoids, saponins and tanins justify the families Menyanthaceae and Exacaceae.

GEN 7 Don. D. 1837

Description of Indian Gentianaceae. *Trans. Linn. Soc.* 17 : 503-532.

GEN 8 Gilg, C. 1939

Beitrage zur Morphologie und Systematik der Gentianoideae-Gentiancae-Erythracinae. *Notizbl. Bot. Gart. Berlin* 14 : 417-430.

GEN 9 Gilg, E. 1865

Gentianaceae. *In* : Engler & Prantl, *Pflanzenf.* IV (2) : 50-108.

GEN 10 Gopal Krishna, G. & Puri, V. 1962

Morphology of the flower of some Gentianaceae with special reference to placentation. *Bot. Gaz.* 124 : 42-57.

GEN 11 Grisebach, A. H. R. (1838) 1839

Genera et species Gentianearum adjectis observationibus quisbusdam phytogeographicis i-viii, 1-364. Keys ; Monograph.

GEN 12 Grisebach, A. H. R. 1845

Gentianaceae. *In* : DC., *Prodr.* 9 : 38-141. Monographic.

GEN 13 Hemsley, W. B. & Franchet, A. 1890

Gentianaceae in "Index Flora Sinensis" *Journ. Linn. Soc. Bot.* 26 : 122-138.

GEN 14 Knoblauch, E. 1894

Beitrage zur Kenntnis der Gentianaceae. *Bot. Centralb.* 60 : 321-334, 353-363, 385-401.

GEN 15 Lebreton, P. & Dangy-Caye, M. P. 1973

Contribution biochimique a l'etude taxonomique des Gentianacees. *Pl. Med. Phytother* 7(2) : 87-94.

GEN 16 Love, A. & Love, D. 1972

Favargera and *Gentianodes,* two new genera of alpine Gentianaceae. *Bot. Notis.* 125 : 255-258, map 1. New combs. in Asiatic spp.

GEN 17 Maiti, G. G. 1982

Gentianaceae of Eastern India. *Journ. Econ. Taxon. Bot.* 3(2) : 541-547.

GEN 18 Marquand, C. V. B. 1937

Contributions to the gentian flora of southern Tibet, N. E. Burma and Bhutan. *Kew Bull. Misc. Inf.* 1937 : 180-191. Enumeration & critical notes.

GEN 19 Marquand, C. V. B. 1937

The gentians of China. *Kew Bull. Misc. Inf.* 1937 : 134-180. A systematic study.

GEN 20 Nilsson, S. 1967

Pollen morphological studies in the Gentianaceae—Gentianinae. *Grana Palynologica* 7(1) : 46-114.

GEN 21 Nilsson, S. 1967

Notes on pollen morphological variation in Gentianaceae —Gentianinae. *Pollen et Spores* 9(1) : 49-58.

GEN 22 Nilsson, S. 1970

Pollen morphological studies in the Gentianaceae. *Acta Univ. Upsal* 165 : 18 p.

GEN 23 Smith, H. 1936

Gentianaceae. *In* : Handel-Mazzetti, H. *Symbolae Sinicae* 7 : 948-988.

GEN 24 Smith, H. 1965

Notes on Gentianaceae. *Notes Roy. Bot. Gard. Edinb.* 26 : 237-258.

GEN 25 Weaver, R. E. & Rudenberg, L. 1975

Cytotaxonomic notes on some Gentianaceae. *Journ. Arn. Arb.* 56(2) : 211-222. Chrom. nos.

Canscora Lamk.

GEN 26 Bedi, S. J. & Sabnis, S. D. 1969

A note on *Canscora concanensis* C. B. Clarke (Gentianaceae). *Indian Forester* 95 : 679. Descr.

Centaurium Hill.

GEN 27 Khoshoo, T N. & Khushu, C. L. 1966

Biosystematics of Indian plants-2. The problem of *Centaurium pulchellum* complex. *Proc. Indian Acad. Sci.* 63B : 152-160, 7 fig., 1 pl. Three Chrom. races.

Cotylanthera Bl.

GEN 28 Hara, Hiroshi. 1975

A new species of *Cotylanthera* from Philippines with a

conspectus of the genus. *Journ. Jap. Bot.* 50(11) : 321-328. Synopsis of genus.

Crawfurdia Wall.

(Refer *Gentiana*)

GEN 29 Smith, H. 1965

Notes on Gentianaceae I. The status of *Crawfurdia* and *Tripterospermum*. *Notes Roy. Bot. Gard. Edinb.* 26 : 237-258. 9 fig., pl. 26-35. Proposal to keep these genera separate from *Gentiana*.

Enicostema Bl.

GEN 30 Raynal, A. 1969

Revision du genre *Enicostema* Blume. *Adansonia* 9 : 57-85, 10 fig. Descr., ecol., 3 spp.

GEN 31 Veldkamp, J. F. 1968

A synopsis of the genus *Enicostema* Bl. nom. cons. (Gentianaceae). *Blumea* 16(1) : 133-136. 4 spp. recognised, key, *E. hyssopifolium* (Willd.) I. C. Verdoorn = *E. littorale* Bl.

Erythraea Borckh.

(reduced to *Centaurium*)

GEN 32 Melderis, A. 1932

Genetical and taxonomical studies in the genus *Erythraea* Rich. *Acta Hort. Bot. Univ. Latv.* 6 : 123-156.

GEN 33 Wheldon, J. A. & Salmon, C. E. 1925

Notes on the genus *Erythraea*. *Journ. Bot.* 63 : 345-352.

Gentiana Linn.

GEN 34 Cullen, J. 1978

Asiatic gentians of series Ornatae. *Journ. Scott. Rock Gard. Club* 16(2) : 85-97.

GEN 35 Hall, K. S. 1973

George Forrest's gentians and their hybrids. *Journ. Scott. Rock. Gard. Club* 13(3) : 179-183.

GEN 36 Harley, A. 1926

A selection of gentians. *Garden* 90 : 434-435, 4 fig. ; 448-449, 3 fig General notes.

GEN 37 Harrow, R. L. 1931

Some Asiatic gentians. *New Fl. & Silva* 3 : 119-126, fig. 41-45. General notes.

GEN 38 Ingwersen, W. E. T. 1921

The ornate gentians. *Gard. Chron.* III, 69 : 20-21, fig. 11, 12.

GEN 39 Ingwersen, W. E. T. 1927

Gentians. *Gard. Chron.* III, 81 : 143-144, fig. 71.

GEN 40 Kingdon-Ward, F. 1934

Some new and rare gentians. *Gard. Chron.* III, 95 : 263-264.

GEN 41 Kuznetzov, N. I. 1894

[Subgenus Eugentiana of genus *Gentiana* Tourn.]. *Trav. Soc. Nat. St. Petersb.* 24 : Bot. i-vii, 1-531, 1 pl., 4 maps. A monographic work. Latin Translation, Kuznetzov, N. I. 1896-1905, Subgenus Eugentiana Kuznetz., generis *Gentiana* Tournef. *Act. Hort. Petrop.* 15 : i-iv, 1-507, 1 pl., 4 maps.

GEN 42 Marquand, C. V. B. 1928

New Asiatic Gentians I. *Kew Bull.* 1928 : 49-62.

GEN 43 Marquand, C. V. B. 1931

New Asiatic Gentians II. *Kew Bull.* 1931 : 68-88.

GEN 44 Marquand, C. V. B. 1932

The cultivated gentians of China and the Himalaya. *Journ. Roy. Hort. Soc.* 57 : 188-211. Includes key to sections & species.

GEN 45 Marquand, C. V. B. 1937

Gentiana sherriffi Marquand. *New Fl. & Silva* 9 : 254-255, 1 pl. A new species from S. Tibet, adjoining Himalayas.

GEN 46 Marquand, C. V. B. 1937

The gentians of China. *Kew Bull. Misc. Inf.* 1937 : 134-180. A systematic study.

GEN 47 Musgrave, C. T. 1935

Gentians. *Journ. Roy. Hort. Soc.* (*London*) 60 : 381-392, 8 pl. Mainly horticultural notes.

GEN 48 Pritchard, N. 1978

Gentians. *Journ. Scott. Rock Gard. Club* 16(1) : 7-18.

GEN 49 Sealy, J. R. 1954

Gentiana depressa. *Curtis's Bot. Mag.* 170 : pl. 230, 1 fig. Native of Himalayan region.

GEN 50 Smith, H. 1961

Gentiana cachemirica of Flora of British India. *Kew Bull.* 1961 : 43-55.

GEN 51 Taylor, A. W. 1973

Gentians from the Himalayas. *Quart. Bull. Alp. Gard. Soc.* 41(1) : 20-27. Horticultural notes.

GEN 52 Wilkie, D. 1936-1950

Gentians. 1-187. 1936 ; ed. 2, 1-255, 65 pl. 1950. Horticultural and botanical descriptions.

Gentianella Moench

(Refer also *Gentiana*)

GEN 53 Agrawal, Sunita & Bhattacharyya, U. C. (1980) 1982

A note on *Gentianella gentianoides* (Franchet) H. Smith (Gentianaceae). *Bull. Bot. Surv. India* 22 : (1-4) : 187-188. A new record from Kumaon Himalayas.

Hoppea Willd.

GEN 54 Ghosal, S., Jaiswal, D. K. & Biswas, K. 1978

New glycoxanthones and flavanone glycosides of *Hoppea dichotoma*. *Phytochemistry* 17(12) : 2119-2123.

GEN 55 Paul, S. R. 1977

A new forma of *Hoppea* (Gentianaceae) from Bihar. *Acta Botanica Indica* 5 : 183-184. *Hoppea dichotoma* Heyne ex Willd. forma *pedicellata* S. R. Paul.

GEN 56 Raynal, A. 1966

Le genre *Hoppea* Willd. in Afrique. *Adansonia* 6 : 545-548, 1 pl. *H. dichotoma* Heyne ex Willd. is recorded in Senegal and Ethiopia.

Jaeschkea Kurz

GEN 57 Kurz, S. 1870

Gentiana jaeschkei, re-established as a new genus of Gentianaceae. *Journ. Asiatic Soc. Beng.* 39(2) : 229-230, pl. 13. Collected from Lahul Himalayas, *Jaeschkea gentianoides*.

Swertia Linn.

GEN 58 Burkill, I. H. 1906

On *Swertia angustifolia* Ham. and its allies. *Journ. Proc. Asiat. Soc. Beng. n. s.* 2 : 363-381. Critical notes.

GEN 59 Burkill, I. H. 1907

A note on *Swertia tongluensis* and a new variety of *S. purpurescens*. *Journ. Asiat. Soc. Bengal* 3 : 33-35.

GEN 60 Geesink, R. 1973

A synopsis of the genus *Swertia* (Gentianaceae) in Malesia. *Blumea* 21(1) : 179-183. Key.

GEN 61 Kashyapa, K. 1961

The correct name of *Swertia decussata* Nimmo (Gentianaceae). *Kew Bull.* 15 : 42. *S. densifolia* (Griseb.) Kashyapa.

GEN 62 Maiti, G. & Banerji, M. L. 1976

Exomorphic seed structure of the Himalayan species of *Swertia* Linn. (Gentianaceae). *Proc. Indian Acad. Sci. B.* 84(6) : 231-237.

GEN 63 Maiti, G. & Banerji, M. L. 1978

Nectary of the Himalayan species of *Swertia* Linn. (Gentianaceae). *Bull. Bot. Soc. Bengal* 30 : 11-18. Key to spp.

GEN 64 Natarajan, P. N. & Prasad, S. 1972

Pharmacognostical studies on *Swertia alata. Proc. Indian Acad. Sci. B.* 76(4) : 171-180.

GEN 65 Pringle, J. S. 1977

New combinations in *Swertia* (Gentianaceae). *Phytologia* 41(3) : 139-143. Chrom. nos.

GEN 66 Smith, W. W. 1911

A new Gentian and two new swertias from the East Himalaya. *Proc. Asiat. Soc. Beng. n. ser.* 7(3) : 77-79, t. 182.

ADDITIONS : GENERAL

GEN 67 Dahlgren, R. 1983

General aspects of angiosperm evolution and macrosystematics. *Nord. Journ. Bot.* 3 : 119-149.

GEN 68 Pollard, O. & Amuti, K. S. 1981

Fructose oligosaccharides : possible markers of phylogenetic relationships among dicotyledonous plant families. *Biochem. Syst. Ecol.* 9 : 69-78.

GEN 69 Sankara Rao, K. & Chinnappa, C. C. 1983

Pericolporate pollen in Gentianaceae. *Can. Journ. Bot.* 61(1) : 174-178.

Exacum Linn.

GEN 70 Klackenberg, J. 1983

A re-evaluation of the genus *Exacum* (Gentianaceae). *Nord. Journ. Bot.* 3(3) : 355-370.

GEN 71 Mohanan, M., Henry, A. N. & Nair, N. C. (1982) 1983 *Exacum walkeri* Griseb. (Gentianaceae)—a new record for India. *Journ. Bombay Nat. Hist. Soc.* 79 : 450-451.

GERANIACEAE

The family Geraniaceae includes 5 genera and about 750 species a cosmopolitan family of mainly herbs.

The family Geraniaceae is included in the order Geraniales by Bentham & Hooker, Cronquist, Dahlgren, Engler, Hutchinson, Takhtajan and Thorne.

The Geraniaceae is characterised by often stipulate leaves, 5-merous floral parts, trinucleate pollen, a beaked schizocarp or septicidally dehiscent capsule, styles united below and seeds with or without endosperm, if present endosperm scanty. The Geraniaceae is closely allied to the Oxalidaceae. In the family Oxalidaceae, the leaves are mostly without stipules, pollen is binucleate, fruit is a beakless capsule or rarely berry, styles are free and seeds are with well-developed endosperm.

The family is represented in India by the following genera : *Erodium, Geranium, Monsonia.* Several species of *Pelargonium* are introduced and cultivated as ornamental plants.

The cytological studies (Warburg, 1938) indicate close relationships among the families Geraniaceae, Oxalidaceae and Trapaeolaceae. The taxonomic position of the Geraniales is not yet settled. Dahlgren (1983) considers separate orders Balsaminales for the family Balsaminaceae and order Tropaeolales for the families Tropaeolaceae and Limnanthaceae. According to Dahlgren (1983), "the main families of Geraniales, Zygophyllaceae, Erythroxylaceae, Humiriaceae, Linaceae, Oxalidaceae and Geraniaceae seem to form a fairly homogenous group."

For recent taxonomic revisions refer Carolin (1964), Davis (1970), Veldkamp & Moerman (1978) ; for chromosome studies refer Harney (1976), Larsen (1958) ; for chemotaxonomy refer Batesmith (1973), Stafford (1961).

GENERAL

GER 1 Barnes, E. 1939

The species of Geraniaceae occurring on the Travancore high range, including the description of a new balsam. *Journ. Indian Bot. Soc.* 18 : 95-105.

GER 2 Candolle, A. P. de 1824

Geraniaceae. *In* : DC., *Prodr.* 1 : 637-682.

GER 3 Carolin, R. C. 1964

Geraniaceae. *In* : van Steenis, *Fl. Males.* I, 6 : 445-449, 1 fig.

GER 4 Gagnepain, M. F. 1903

Contribution a' l'etude du pollen des Geraniacees. *Bull. Soc. Hist. Nat. Autun.* 16 : 1-15.

GER 5 Knuth, R. 1912

Geraniaceae. *In* : Engler, *Pflanzenr.* 53(IV) 129, 1-640, fig. 1-80.

GER 6 Stafford, H. A. 1961

Distribution of tartaric acid in Geraniaceae. *Amer. Journ. Bot.* 48 : 699.

GER 7 Warburg, E. F. 1938

Taxonomy and relationships in the Geraniales in the light of their cytology. *New Phytol.* 37 : 130-159, 189-210.

GER 8 Yeo, P. F. 1973

The biology and systematics of *Geranium* sections *Anemonifolia* Knuth and *Ruberta* Dum. *Bot. Journ. Linn. Soc.* 67 : 285-346.

Erodium L'Herit.

GER 9 Baker, E. G. & Salmon, C. E. 1921

Some segregates of *Erodium cicutarium* L'Herit. *Journ. Bot.* 58 : 123-127.

GER 10 Brumhard, P. 1905

Monographische Ubersicht der Gattung *Erodium*. *Arbeit. Bot. Gart. Univ. Breslau* 1905 : 1-59.

GER 11 Larsen, K. 1958

Cytological and experimental studies on the genus *Erodium* with special references to the collective species *E. cicutarium* (L.) L'Her. *Biol. Medd.* 23(6) : 1-25.

Geranium Linn.

GER 12 Bate-Smith, E. C. 1973

Chemotaxonomy of *Geranium*. *Bot. Journ. Linn. Soc.* 67(4) : 347-359. Chrom. nos.

GER 13 Davis, P. H. 1970

Geranium, sect., *Tuberosa,* revision and evolutionary interpretation. *Israel Journ. Bot.* 19 : 91-113.

GER 14 Knuth, R. 1902-1903

Uber die geographische Verbreitung und die Anpassungserscheinungen der Gattung Geranium im Verhaltnis zu ihrer systematischen Gliedrung. *Engler Bot. Jahrb.* 32 : 190-230. Includes Asiatic spp. & their distribution.

GER 15 Veldkamp, J. F. & Moerman, A. 1978

A review of the Malesian species of *Geranium* L. (Geraniaceae). *Blumea* 24 : 463-477. Chrom. nos., key.

GER 16 Yeo, P. F. 1973

Geranium procurrens. *Curtis's Bot. Mag.* 179(3) : t. 644. Reported from Sikkim & Nepal.

Pelargonium L'Herit.

GER 17 Harney, P. M. 1976

The origin, cytogenetics and reproductive morphology of the Zonal geranium : a review. *Hortscience* 11(3) : 189-194.

GESNERIACEAE

The Gesneriaceae includes about 120 genera and 2000 species of mostly herbaceous nature, epiphytes and root climbers adorning the tropical or subtropical forests.

The family Gesneriaceae is included in the order Personales by Bentham & Hooker and Hutchinson, in the order Tubiflorae by Engler, in the order Bignoniales by Thorne and in the order Scrophulariales by Cronquist, Dahlgren and Takhtajan.

The Gesneriaceae is characterised by 5-merous bisexual flowers, five sepals tubular at base, five petals usually 2-lipped, two or four stamens often cohering in pairs, presence of annular or one sided disk or sometimes represented by 5 glands, 1-loculed superior or inferior ovary with parietal placentas, sometimes placentas are intrusive so that ovary becomes bilocular.

The family is allied to Scrophulariaceae but is distinguished by the unilocular ovary with parietal placentation. It is distinguished from the Orobanchaceae by its non parasitic habit.

Burtt (1963) classified the family into following subfamilies : (i) Cyrtandroideae (Cotyledons becoming unequal after germination ; ovary always superior), (ii) Gesnerioideae (Cotyledons remaining equal after germination ; ovary superior or more or less inferior).

The gesneriaceous flora in India is represented by the following genera : *Aeschynanthus, Boea, Boeica, Briggsia, Corallodiscus, Didymocarpus, Epithema, Hemiboea, Jerdonia, Leptobaea, Loxostigma, Lysionotus, Petrocosmea, Platystemma, Rhynchoglossum, Rhynchotechum, Stauranthera, Tetraphyllum, Trisepalum.*

Some of the species of the following genera are cultivated in gardens as ornamental plants : *Achimenes, Episcia, Gesneria, Sinningia, Smithiantha.*

For recent taxonomic revisions refer Burtt (1954, 1963, 1967, 1968, 1970, 1971, 1977), Burtt & Jong (1975), Morton & Denham (1972), Theobald & Grupe (1972, 1973) ; for chromosome studies refer Milne (1975), Rattler (1975) ; for classification refer Moore & Lee (1967).

Dahlgren (1983) used the presence or absence of iridoid compounds for the disposition of the core families of the gamopetalous

group. Three clusters of families are recognised : Scrophulariales includes families Scrophulariaceae, Acanthaceae, Bignoniaceae, Gesneriaceae. They are chemically different from the two other clusters in the absence of seco-iridoids and the presence of carbocyclic iridoids (Jensen *et al.*, 1975). While in the clusters Gentianales and Dipsacales there is presence of seco-iridoids (Gershenzon & Mabry, 1983).

The gesneriaceous flowers are usually protandrous and many are adapted for insect pollination. According to Cronquist (1968) "specialization of particular pollinators often marks individual genera and even species in the various families". Bird pollination is associated in genera *Aeschynanthus* and *Columnea* with their characteristic bent corolla and presence of nectar adapted to particular pollinators.

"*Gloxinias*" of horticulturists belong to the genus *Sinningia* ; the well-known African violet belongs to the genus *Saintpaulia*.

GENERAL

GSN 1 Beddome, R. H. 1908

Gesneriaceae, with annotated list of the genera and species which have been introduced into cultivation. *Journ. Roy. Hort. Soc.* (*Lond.*) 33 : 74-100.

GSN 2 Burtt, B. L. 1954

Studies in the Gesneriaceae of the Old World-1. General Introduction. *Notes Roy. Bot. Gard. Edinb.* 21 : 185-192.

GSN 3 Burtt, B. L. 1954

Studies in the Gesneriaceae of the Old World-2. Types and Lectotypes of certain genera and groups of lower rank. *Notes Roy. Bot. Gard. Edinb.* 21 : 193-208. *Didymocarpus innominatus* B. L. Burtt. = *D. rottlerianus* Wall.

GSN 4 Burtt, B. L. 1962

Studies on the Gesneriaceae of the Old World-24. Tentative keys to the tribes and genera. *Notes Roy. Bot. Gard. Edinb.* 24 : 205-220.

GSN 5 Burtt, B. L. 1967

Gesneriads as a family. *Plants & Gardens n. ser.* 23 : 54-57. A state of art report on the family with 2000 spp., of which 300 are in cultivation.

GSN 6 Burtt, B. L. 1968

Studies in the Gesneriaceae of the Old World-29. A reconsideration of generic limits in tribe Trichosporeae. *Notes Roy. Bot. Gard. Edinb.* 28 : 219-225.

GSN 7 Burtt, B. L. 1970

Studies in the Gesneriaceae of the Old World-31. Some aspects of functional evolution. *Notes Roy. Bot. Gard. Edinb.* 30 : 1-10.

GSN 8 Burtt, B. L. 1971

Studies in the Gesneriaceae of the Old World-34. A miscellany from South Eastern Asia. *Notes Roy. Bot. Gard. Edinb.* 31 : 35-52, 4 fig.

GSN 9 Burtt, B. L. 1977

Classification above the genus as exemplified by Gesneriaceae with parallels from other groups. *Plant Syst. Evol., Suppl.* 1 : 97-109. Phylogeny.

GSN 10 Burtt, B. L. & Jong, K. 1975

The evolution of morphological novelty exemplified in the growth patterns of some Gesneriaceae. *New Phytologist* 75 : 297-311.

GSN 11 Chun, W. Y. 1946

Gesneriacearum plantae novae Sinicarum. *Sunyatsenia* 6 : 271-304, pl. 44-47, fig. 32-34. New genera & new spp. described.

GSN 12 Clarke, C. B. 1874

Commelinaceae et Cyrtandraceae Bengalenses Calcutta 63-133, tab. 43-93. Detailed notes & descriptions.

GSN 13 Clarke, C. B. 1883

Cyrtandreae (Gesneracearum tribus). *In* : De Candolle, *Monogr. Phan.* 5 : 1-303, pl. 1-32. Monographic.

GSN 14 Fritsch, K. 1904

Die Keimpflanzen der Gesneriaceen 1-188, Jena.

GSN 15 Fritsch, K. 1913

Beitrage zur Kenntnis der Gesnerioideae. *Engler Bot. Jahrb.* 50 : 392-439.

GSN 16 Ivanina, L. I. 1965

Application of the carpological method to the taxonomy of Gesneriaceae. *Notes Roy. Bot. Gard. Edinb.* 26 : 383-403.

GSN 17 Leveille, H. 1906

Les Gesneracees de la Chine. *Compt. Rend. Assoc. Franc. 34 sess. Cherbourg* 422-429. Key to the genera and list of spp.

GSN 18 Milne, C. 1975

Chromosome numbers in the Gesneriaceae : 5. *Notes Roy. Bot. Gard. Edinb.* 33(3) : 523-525.

GSN 19 Moore, H. E. Jr. & Lee, R. E. 1967

The broadening basis of classification in the Gesneriaceae. *Baileya* 15 : 97-108.

GSN 20 Morton, C. V. & Denham, D. 1972

Lectotypification of some generic names of Gesneriaceae. *Taxon* 21(5-6) : 669-678.

GSN 21 Rattler, J. A. 1975

A survey of chromosome numbers in the Gesneriaceae of the Old World. *Notes Roy. Bot. Gard. Edinb.* 33(3) : 527-543. Tribal affinities based on Chrom. nos.

GSN 22 Santapau, H. 1949

Notes on the Gesneriaceae of Bombay. *Journ. Bombay Nat. Hist. Soc.* 48 : 489-492.

GSN 23 Saylor, W. R. 1973

The world of gesneriads. *Horticulture* 51 (6) : 22-23, 48-49.

GSN 24 Thathachar, T. 1942

Studies in Gesneriaceae. *Journ. Ind. Bot. Soc.* 21 : 185-193. Morphology.

GSN 25 Theobald, W. L. & Grupe, D. A. 1973

Gesneriaceae. *Revised Fl. Ceylon* 1 : 87-106, 8 fig. Keys.

GSN 26 Wang, Weng-Tsai 1975

Notulae de Gesneriaceis sinensibus. *Acta Phytotax. Sin.* 13(3) : 97-105. Key, 8 genera, descr., in Chinese.

GSN 27 Weber, A. 1978

Transitions from pair-flowered to normal cymes in Gesneriaceae. *Notes Roy. Bot. Gard. Edinb.* 36(2) : 355-368.

Aeschynanthus Jack

GSN 28 Burtt, B. L. 1940

Aeschynanthus mimetes. Curtis's Bot. Mag. 162 : pl. 9595. A new species from Assam & Yunnan.

GSN 29 Burtt, B. L. & Woods, P. J. B. 1975

Studies in the Gesneriaceae of the Old World-39. Towards a revision of *Aeschynanthus*, *Notes Roy. Bot. Gard. Edinb.* 33(3) : 471-489.

GSN 30 Wang, Wen-Tsai 1975

Notulae de Gesneriacees sinensibus. *Acta Phytotax. Sin*, 13 : 62-70. Genera *Aeschynanthus & Lysionotus*.

Briggsia Craib.

GSN 31 Craib, W. G. 1919

Gesneracearum novitates. *Notes Roy. Bot. Gard. Edinb.* 11 : 233-254. New genera *Ancylostemon, Briggsia & Isometrum*.

GSN 32 Evans, W. E. 1928

Briggsia kurzii (Clarke) W. E. Evans. comb. nov. *Notes Roy. Bot. Gard. Edinb.* 16 : 133-134. Comparison with *B. amabilis* Craib.

Chirita Buch.-Ham.

GSN 33 Burtt, B. L. 1960

Studies in the Gesneriaceae of the Old World-20 : Mis-

cellaneous notes. *Notes Roy. Bot. Gard. Edinb.* 23 : 94-102. *Chirita cristata* (Dalzell) Burtt. = *Didymocarpus cristatus* Dalz.

GSN 34 Burtt, B. L. 1965

Studies in the Gesneriaceae of the Old World-26 : A contribution to the study of *Chirita. Notes Roy. Bot. Gard. Edinb.* 26 : 261-268, 1 fig.

GSN 35 Panigrahi, G. 1967

Two new taxa from Eastern India.*Bull. Bot. Soc. Bengal* 21 : 29-32. *Chirita macrophylla* subsp. *tirapensis* Panigr. from Tirap, Arunachal Pradesh.

GSN 36 Schroeder, W. 1978

Introducing *Chirita zeylanica. Gloxinian* 28(5) : 13-14.

GSN 37 Theobald, W. L. & Grupe, D. A. 1972

A new name and combination in the Gesneriaceae. *Cey. Journ. Sci. Biol.* 10 : 70-71. Deals with *Chirita* and *Rhynchoglossum.*

GSN 38 Wood, D. 1972

Studies in the Gesneriaceae of the Old World-33 : New species and combinations in *Chirita. Notes Roy. Bot. Gard. Edinb.* 31 : 367-372.

GSN 39 Wood, D. 1974

A revision of *Chirita* (Gesneriaceae). *Notes Roy. Bot. Gard. Edinb.* 33 : 123-205, 1 fig. *C. hamosa* R. Br. = *C. cristata* (Dalz.) Burtt., key to sections & spp.

GSN 40 Weber, A. 1975

The cristate inflorescence of *Chirita* sect. *microchirita* (Gesneriaceae). *Notes Roy. Bot. Gard. Edinb.* 34(2) : 221-230.

Corallodiscus Batalin

GSN 41 Burtt, B. L. 1947

Didissandra and *Corallodiscus. Gard. Chron.* III, 122 : 204, 212. A synopsis of *Corallodiscus.*

Cyrtandra Forst.

GSN 42 Balakrishnan, N. P. 1976

Cyrtandra and *Cyrtandromoea* on the Nicobar islands, India. *Notes Roy. Bot. Gard. Edinb.* 35 : 115-120, fig. 1-2. *Cyrtandra burttii* Balakr. is allied to *C. sulcata* Balakr.

GSN 43 Balakrishnan, N. P. & Burtt, B. L. 1978

Studies in the Gesneriaceae of the Old World-46 : A second *Cyrtandra* on the Nicobar islands. *Notes Roy. Bot. Gard. Edinb.* 37 : 153-156, 1 fig. *C. occidentalis* Balakr. & Burtt., descr. & illust. allied to *C. decurrens.*

GSN 44 Gillett, G. W. 1967

The genus *Cyrtandra* in Fuji. *Contr. US Natl. Herb.* 37 : 107-159.

GSN 45 Hooker, J. D. 1882

Distribution geographique de plusieurs Cyrtandrees. *Arch. Sci. Phys. Nat.* III, 8 : 472. Distribution.

GSN 46 Hosokawa, Takahide 1935

On the generic distribution of *Cyrtandra* (Gesneriaceae) with the description of a new species from Botel Tobago. *Trans. Nat. Hist. Soc. Formosa* 26 : 410-413, 1 text map.

Didissandra Clarke

(Refer *Briggsia & Corallodiscus*)

GSN 47 Burtt, B. L. 1947

Didissandra and *Corallodiscus. Gard. Chron.* III. 122 : 204-212.

GSN 48 Craib, W. G. 1919

Didissandra and allied genera in China and North India. *Notes Roy. Bot. Gard. Edinb.* 11 : 255-268. Keys.

GSN 49 Forrest, G. 1916

Didissandra lanuginosa Clarke. *Gard. Chron.* III, 60 : 205, fig. 80. Distribution in the Himalayan region upto western China

Didymocarpus Wall.

GSN 50 Burtt, B. L. 1978

Studies in the Gesneriaceae of the Old World-43 : Notes on Malesian *Didymocarpus*. *Notes Roy. Bot. Gard. Edinb.* 36(1) : 151-155.

GSN 51 Smith, W. W. 1911

New Burma-Chinese species of *Didymocarpus*. *Notes Roy. Bot. Gard. Edinb.* 5 : 149-155, pl. 103-107. 6 new spp. & 1 new var.

Gesneria Linn.

GSN 52 Skog, L. E. 1976

A study of the tribe Gesnerieae, with a revision of *Gesneria* (Gesneriaceae : Gesnerioideae). *Smithsonian Contrib. Bot.* No. 29 : 1-182. Keys, illust., maps.

Hemiboea Clarke

GSN 53 Solereder, H. 1912

Uber die Gattung *Hemiboea*. *Beih. Bot. Centralbl.* 29(2) : 117-126, fig. 1-7.

Klugia Schlecht.

(Refer *Rhynchoglossum*)

Loxostigma Clarke

GSN 54 Burtt, B. L. 1975

Studies in the Gesneriaceae of the Old World-40 : The genus *Loxostigma*. *Notes Roy. Bot. Gard. Edinb.* 34(1) : 101-105. Key & enumeration. The generic characters of *Loxostigma* is revised.

Lysionotus D. Don

GSN 55 Hara, H. 1973

New or noteworthy flowering plants from Eastern Himalaya (13) : *Journ. Jap. Bot.* 48 : 353-361. *Lysionotus atropurpureus* Hara.

Petrocosmea Oliver

GSN 56 Craib, W. G. 1919

Revision of *Petrocosmea*. *Notes Roy. Bot. Gard. Edinb.* 11 : 269-275.

GSN 57 Chatterjee, D. 1947

New records of plants from India and Burma. *Kew Bull.* 1946 : 49-50. *Petrocosmea wardii.*

Rhynchoglossum Bl.

GSN 58 Burtt, B. L. 1962

Studies in the Gesneriaceae of the Old World-23 : *Rhynchoglossum* and *Klugia*. *Notes Roy. Bot. Gard. Edinb.* 24 : 167-173. *Rhynchoglossum notonianum* (Wall.) Burtt comb. nov. = *Klugia notoniana* (Wall.) A. DC.

GSN 59 Rao, A. S. & Joseph, J. (1967) 1968

Rhynchoglossum lazulinum—a new species of Gesneriaceae. *Bull. Bot. Surv. India* 9 : 280-282. New species from Arunachal Pradesh.

Rhynchotechum Bl.

GSN 60 Burtt, B. L. 1962

Studies in the Gesneriaceae of the Old World-21. *Rhynchotechum* and *Isanthera*. *Notes Roy. Bot. Gard. Edinb.* 24 : 35-39. *Rhynchotechum permolle* (Nees) B. L. Burtt comb. nov. = *Isanthera permollis* Nees.

ADDITIONS : GENERAL

GSN 61 Clarke, C. B. 1884

Gesneriaceae *In* : Hooker, J. D., *ed., Fl. Brit. India* 4 : 336-375.

GSN 62 Jensen, S. R., Nielsen, B. J. & Dahlgren, R. 1975

Iridoid compounds, their occurrence and systematic importance in the angiosperms. *Bot. Notiser* 128 : 148-180.

GSN 63 Jong, K. & Burtt, B. L. 1975

The evolution of morphological novelty exemplified in the growth patterns of some Gesneriaceae. *New Phytol.* 75(2) : 297-311.

GONYSTYLACEAE-refer THYMELAEACEAE

GOODENIACEAE

The family Goodeniaceae is included in the order Campanales by Bentham & Hooker, in the order Campanulales by Cronquist, Dahlgren, Engler, Takhtajan and Thorne. However Hutchinson treated this family under a separate order Goodeniales. The family consists of about 14 genera and 300 species, occurring mainly in Australia and tropical coasts.

The Goodeniaceae is characterised by exstipulate leaves, 5-merous floral parts, free or syngenesious anthers, usually 2-lobed style with a terminal cup or indusium. The family is closely allied to the Brunoniaceae but differs in having irregular flowers borne singly or borne in axillary spikes racemes or cymes, 1-2 locular generally inferior ovary with two or more ovules and seeds with well developed endosperm whereas in the Brunoniaceae the flowers are regular borne in involucrate heads, unilocular superior ovary with a single basal ovule and seeds without endosperm (Cronquist, 1968). The family is allied to the Campanulaceae but differs in the absence of latex and in the presence of the pollen cup. The mechanism of pollination can be compared to that of Campanulaceae and Compositae. According to Carolin (1960), the flowers of Goodeniaceae resemble to those of Lobeliaceae.

The family is represented in India by the following genus : *Scaevola*.

For recent taxonomic revisions refer Fosberg (1961, 1962), Fosberg & Sachet (1956), Jeffrey (1980), Larsen (1975), Leenhout (1957), St. John (1960) ; for chromosome studies refer Kausik (1939) ; for pollination mechanism and phylogeny refer Carolin (1960).

Dahlgren (1983) appropriately revising his earlier views considered the family Goodeniaceae including the Brunoniaceae in a separate order Goodeniales in the super order Gentianiflorae, where the pro-

duction of seco-iridoids is a general feature. In the Campanulales where it was formerly placed by Dahlgren (1975), there is general lack of iridoid compounds (Jensen *et al.* 1975). The Goodeniaceae is the only secoiridoid producing family in the order Campanulales and hence its placement in a separate order Goodeniales.

On the other hand it is noted by Dunbar & Wallentinus (1976) that the Goodeniaceae and Sphenocleaceae are closely allied to the Campanulaceae palynologically

GENERAL

GOD 1 Brizicky, George K. 1966

The Goodeniaceae in the South Eastern United States *Journ. Arn. Arb.* 47(4) : 293-300.

GOD 2 Carolin, R. C. 1960

Floral structure and anatomy in the family Goodeniaceae. Dumort. *Proc. Linn. Soc. New S. Wales* 84 : 242-255.

GOD 3 Carolin, R. C. 1960

The structures involved in the presentation of pollen to visiting insects in the order Companuales. *Proc. Linn. Soc. New S. Wales* 85 : 197-207, pl. 2. The flowers of Goodeniaceae resemble to those of Lobeliaceae which is largely a result of convergence.

GOD 4 Krause, K. 1912

Goodeniaceae. *In* : Engler, *Pflanzenr.* 54(IV. 277) : 1-207, fig. 1-34.

GOD 5 Larsen, K. 1975

Goodeniaceae. *Flora of Thailand* 2(3) : 278-279.

GOD 6 Leenhouts, P. W. 1957-1972

Goodenovieae. Natuurk. Verh. Holl. Mij. Wet. Harlem 2e fig. 1-5. 1957 ; *Ibid.* I, 6 : 949-952. 1072. Add. & Corr.

GOD 7 Vriese, W. H. De 1854

Goodenovieae. Natuurk. Verh. Holl. Mij. Wel. Haarlem 2e *Verzam.* 10 : i-viii, 1-194, tab. 1-38. Monograph.

Scaevola Linn.

GOD 8 Fosberg, F. R. 1961

Scaevola sericea Vahl versus *S. taccada* (Gaertn.) Roxb. *Taxon* 10 : 225-226. Maintains *S. sericea* ; but refer St. John, H., 1960.

GOD 9 Fosberg, F. R. 1962

The Indo-Pacific strand *Scaevola* again. *Taxon* 11 : 181. Accepts *S. taccada* over *S. sericea* as per the International Code.

GOD 10 Fosberg, F. R. & Sachet, H. -M. 1956

The Indo-Pacific strand *Scaevola*. *Taxon* 5 : 7-10. A critical nomenclature discussion accepting *S. sericea* Vahl as the correct name.

GOD 11 Guppy, H. B. 1917

Plants, seeds and currants in the West Indies and Azores xi + 1-531, 3 maps. London. *S. plumieri* and *S. taccada*, 227-236.

GOD 12 Jeffrey, C. 1980

On the nomenclature of the strand *Scaveola* species (Goodeniaceae). *Kew Bull.* 34 : 537-545.

GOD 13 Kausik, S. B. 1939

A cytological study of *Scaevola lobelia* Linn. *Proc. Indian Acad. Sci.* B. 9 : 39-48. *S. plumieri,* 2n = 16.

GOD 14 Skottsberg, C. 1927

The genus *Scaevola*. *Bishop Mus. Bull.* 43 : 16-39.

GOD 15 St. John, H. 1960

The name of the Indo-Pacific *Scaevola*. *Taxon* 9 : 200-208. *S. taccada* (Gaertn.) Roxb., the correct name.

ADDITIONS : GENERAL

GOD 16 Bentham, G. 1869

Note on the stigmatic apparatus of Goodenovieae. *Journ. Linn. Soc. Bot.* 10 : 203-206.

GOD 17 Clarke, C. B. 1881

Goodenovieae. *In* : Hooker, J. D., *ed., Fl. Brit. India* 3 : 420-421.

GOD 18 Dunbar, A. & Wallentinus, H. G. 1976

On pollen of Campanulaceae III. A numerical taxonomic investigation. *Bot. Notiser* 129 : 69-72.

GOD 19 Jensen, S. R., Nielsen, B. J. & Dahlgren, R. 1975

Iridoid compounds, their occurrence and systematic importance in the angiosperms. *Bot. Notiser* 128 : 148-180.

GRAMINEAE-refer **POACEAE**

GROSSULARIACEAE

(Refer also Saxifragaceae)

The family Grossulariaceae is included in the order Saxifragales by Takhtajan, in the order Cunoniales by Hutchinson. Dahlgren however considered Ribesiaceae as a separate family in the order Saxifragales. Bentham & Hooker, Engler and Thorne considered Grossulariaceae as part of the family Saxifragaceae. Cronquist recognised the family Grossulariaceae and included it in the order Rosales.

The family is characterised by its shrubby habit, alternate exstipulate leaves, 4 or 5 floral parts, 5 stamens alternating with the petals, petals and stamens adnate to the calyx tube, inferior unilocular ovary with parietal or axile placentas, juicy berry with numerous seeds and endospermous seeds.

The family is represented in India by the genus *Ribes*.

GRS 1 Berger, A. 1924

A taxonomic review of currants and gooseberries. *Bull. New York State Exper. Station* 109 : 3-118.

GRS 2 Janczewski, E. de 1907

Monographie des grosseilliers. *Ribes* L. *Mem. Soc. Phys. Geneve* 35 : 199-517.

GRS 3 Pavolva, N. M. 1927

[A survey of the literature on the genus *Ribes*]. *Bull. Appl. Bot. Pl. Breed.* 17(4) : 463-513, fig. 1-7. In Russian ; bibliography comprehensive.

GRS 4 Pavolva, N. M. 1934

[Classification of the species of red currant on a genetical basis]. *Bull. Appl. Bot. & Pl. Bred.* VIII, 2 : 87-119, fig. 1-2. In Russian ; resume in English.

GRS 5 Pavolva, N. M. 1935

Kryzhovnik. [The gooseberry] 1-119. fig. 1-35.

GRS 6 Spach, E. 1835

Revisio Grossulariearum. *Ann. Sci. Nat. Ser.* 24 : 16-31.

GRS 7 Wakabayashi, M. 1970

On the affinity in Saxifragaceae s. lato with special reference to the pollen morphology. *Acta Phytotax. Geobot. Kyoto,* 24 : 128-145.

GUTTIFERAE (nom. alt. **Clusiaceae**)

(Refer also Hypericaceae)

The family Guttiferae is included in the order Guttiferales by Bentham & Hooker, Engler and Hutchinson, in the order Theales by Cronquist, Dahlgren, Takhtajan and Thorne. The family consists of about 40 genera and 1000 species of trees and shrubs.

The family is characterised by its exstipulate opposite leaves, presence of oil glands, numerous stamens which are free or united in bundles, outer ones usually staminodal, (1) 3-5 (-18) loculed superior ovary and free or united styles. The family is allied to the Hypericaceae. The Guttiferae is allied to Theaceae, but differs in having oil glands. In the family Dipterocarpaceae the leaves are stipulate and alternate whereas in the Guttiferae the leaves are opposite and exstipulate.

Engler (1925) distinguished the following five subfamilies : Kielmeyeroideae, Hypericoideae, Calophylloideae, Clusioideae and Morono-

beoideae. The subfamily Hypericoideae is considered as a separate family.

The Theales is an heterogenous order. It is seen that the family Guttiferae has no serological affinity with Guttiferae or Ochnaceae.

Some of the edible fruits of the tropics are : Mangosteen from the East Indias : (*Garcinia mangostana*) ; Mamey or St. Domingo apricot. (*Mammea americana*).

The Guttiferae is represented in India by the following genera : *Calophyllum, Cratoxylum, Garcinia, Kayea, Mammea, Mesua, Poeciloneuron.*

For recent taxonomic revisions, refer Kostermans (1980), Maheshwari (1960, 1964, 1975), Stevens (1976, 1980) ; for palynology refer Seetharam & Pocock (1978) ; for comparative & petiolar anatomy refer Bass (1970), Schofield (1968), Vestal (1937).

GENERAL

GUT 1 Baretta-Kuipers, T. 1976

Comparative wood anatomy of Bonnetiaceae, Theaceae and Guttiferae. *Leiden Bot. Ser.* 3 : 76-101.

GUT 2 Choisy, D. 1821

Prodromus d'une Monographie de la Famille des Hypericinees.

GUT 3 Choisy, D. 1851

Description des Guttiferes de l'Inde *Mem. Soc. Phys. Hist. Nat. Geneve* 12 : 381-440, tab. 1-4.

GUT 4 Engler, A. 1925

Guttiferae. *In* : Engler & Prantl, *Pflanzenf.* ed. 2. 21 : 54-237.

GUT 5 Lauterbach, C. 1922-23

Guttiferae. Engl., *Bot. Jahrb.* 58 : 1-49, 1922-23.

GUT 6 Kostermans, A. J. G. H. 1980

Guttiferae. *Revised Handb. Fl. Ceylon* ed. New Delhi 1 : 72-110.

GUT 7 Planchon, J. E. 1861

Sur la famille des Guttiferes. *Bull. Soc. Bot. Fr.* 8 : 26-29, 66-73, 96-100.

GUT 8 Planchon, J. E. & Triana, J. 1860-1862

Memoire sur la famille des Guttiferes. *Ann. Sci. Nat. IV. Bot.* 13 : 306-376, pl. 15, 16. 1860 ; 14 : 226-367, pl. 15-18. 1860 ; 15 : 240-319. 1861 ; 16 : 263-308. 1862.

GUT 9 Schofield, E. K. 1968

Petiolar anatomy of the Guttiferae and related families. *Mem. N. Y. Bot. Gard.* 18 : 1-55.

GUT 10 Vesque, Juliano 1893

Guttiferae. *In* : de Candolle, Monogr. Phaner. 8 : 1-669.

GUT 11 Vestal, P. A. 1937

The significance of comparative anatomy in establishing the relationship of the Hypericaceae to the Guttiferae and their allies. *Philippine Journ. Sci.* 64 : 199-256.

Calophyllum Linn.

GUT 12 Maheshwari, J. K. 1960

Taxonomic studies on Indian Guttiferae-1. The genus *Calophyllum*. *Bull. Bot. Surv. India* 2 : 139-148, fig. 4, tab. 2, map 1. Descr. of genus & spp., distr., key to 4 spp., phenology, local names, notes.

GUT 13 Stevens, P. F. 1976

The Old World species of *Calophyllum* (Guttiferae). 1. The Mascarene species. *Journ. Arn. Arb.* 57(2) : 167-184.

GUT 14 Stevens, P. F. 1980

The correct names for the three elements in the protologue of *Calophyllum calaba* L. *In* : *Manilal,* K. S. *ed., Botany & History of Hortus Malabaricus* 168-176.

GUT 15 Stevens, P. F. 1980

A revision of the Old World species of *Calophyllum*

(Guttiferae). *Journ. Arn. Arb.* 61 : 117-699, 46 fig., 50 maps. Monograph.

Cratoxylum Bl.

GUT 16 Bass, P. 1970

Anatomical contribution to Plant taxonomy 1. Floral and vegetative anatomy of *Eliaea* from Madagascar and *Cratoxylum* from Indo-Malesia. *Blumea* 18(2) : 369-391.

GUT 17 Gagnepain, F. 1909

Essai d'une Classification des *Cratoxylon* asiatiques. *Not. Syst. Lecomte* 1 : 27-32.

GUT 18 Gogelein, A. J. F. 1967

A revision of the genus *Cratoxylum* Bl. *Blumea* 15 :453-475, 8 fig. Considered that *Eliaea* from Madagascar may belong to *Cratoxylum*.

Garcinia Linn.

GUT 19 Hooker, J. D. 1875

Observations on some Indian species of *Garcinia*. *Journ. Linn. Soc.* (*Bot.*) 14 : 484-486.

GUT 20 Kostermans, A. J. G. H. 1977

Miscellaneous Botanical notes : *Ceylon Journ. Sci. (Biol.) Sci.* 12 : 125-138, pl. 1. *Garcinia rubrorchinata* Kostermans based on *Bourdillon* 611 from Tinnevelly and Ponmudl hills.

GUT 21 Maheshwari, J. K. (1964) 1965

Taxonomic studies on Indian Guttiferae-3. The genus *Garcinia* Linn. *s.l. Bull. Bot. Surv. India* 6 : 107-135, pl. 4. Synonymy, descr. of the genus, distr., ecol. & biol. notes, phenology, key to spp.

Kayea Wall.

GUT 22 Maheshwari, J. K. (1972) 1975

Morpho-taxonomic studies on Indian Guttiferae. The

genera *Mammea* Linn. *s.l.* and *Kayea* Wall. *In* : Murty, Y. S., Johri, B. M., Mohan Ram, H. Y. & Varghese, T. M., *eds., Advances in plant morphology* : 137-152. Key.

Mammea Linn.

GUT 23 Kostermans, A. J. G. H. 1961

A monograph of the Asiatic and Pacific species of *Mammea* Linn. (Gutt.). *Comm. For. Res. Inst. Indonesia* 72 : 1-63, pl. 29.

Mesua Linn.

GUT 24 Kostermans, A. J. G. H. 1969

Kayea Wall. and *Mesua* L. (Guttiferae). *Reinwardtia* 7 : 425-431.

GUT 25 Maheshwari, J. K. (1963) 1964

Taxonomic studies on Indian Guttiferae-2. The genus *Mesua* Linn. *Bull. Bot. Surv. India* 5 : 335-343. pl. 4. Synonymy & descr. of gen. & spp., distr., ecol., local names uses, phenology, key to spp. & var.

Poeciloneuron Bedd.

GUT 26 Beddome, R. H. 1865

On a new genus of *Ternstroemiaceae* : *Poeciloneuron* from *Nilgiris. Journ. Linn. Soc.* 8 : 267, t. 17.

GUT 27 Beddome, R. H. 1869-1871

Poeciloneuron in Flora Sylvatica, South India : xxiii-xiv, pl. 3. 1869 ; pl. 93. 1871.

GUT 28 Bourdillon, T. F. 1908

The Forest trees of Travancore. Travancore Govt. Press. *Poeciloneuron* pp. 21-32.

GUT 29 Kadambi, Krishnaswamy 1938

Observations on the growth of *Poeciloneuron indicum. Indian Forester* 64 : 212-223.

GUT 30 Seetharam, Y. N. & Pocock, S. A. J. 1978

Taxonomy and pollen morphology of *Poeciloneuron* (Guttiferae). *Bull. Jard. Bot. Nat. Belg.* 48 : 359-365. Differences between *P. indicum* and *P. pauciflorum* noted on the basis of exomorphic and palynological features.

GUT 31 Anderson, T 1874

Guttiferae. In : Hooker, J. D., *ed., Fl. Brit. India* 1 : 258-278.

GYROCARPACEAE

(Refer also Hernandiaceae)

The family Gyrocarpaceae is included in the order Laurales by Dahlgren and Takhtajan, in the order Annonales by Thorne. It is retained in the family Combretaceae by Bentham & Hooker ; while Cronquist, Engler and Hutchinson considered it under the family Hernandiaceae.

The leaves are alternate, exstipulate with cystoliths. The flowers are unisexual or bisexual and perianth 8-4 and anthers are 3-5 with lateral dehiscence through lateral valves. Ovary is inferior, 1-loculed and 1-ovulate.

Shutts (1960) proposed the splitting of the family Hernandiaceae into two : Hernandiaceae (*Hernandia* and *Illigera*) and Gyrocarpaceae (*Gyrocarpus* and *Sparattanthelium*), the latter being more specialized due to specialized ray tissue. Shutts (1960) suggested that the Hernandiaceae and Hortonoideae and Monimioideae of the Monimiaceae are closely allied due to the longitudinal dehiscence of anthers, while the Gyrocarpaceae, Lauraceae, Gomortegaceae and the Atherospermoideae and Siparunoideae of the Monimiaceae have valvular dehiscence of anthers. Sastri (1963) also notes embrylogical similarities of the Lauraceae and *Gyrocarpus* and *Atherosperma*.

The family is represented in India by the genus *Gyrocarpus*.

GENERAL

GYO 1 Sastri, R. L. N. 1963

Studies in the Lauraceae IV, Comparative embryology and phylogeny. *Ann. Bot.* (*N. S.*) 27 : 425-433.

GYO 2 Sastri, R. L. N. 1969

Comparative morphology and phylogeny of the Ranales. *Biol. Rev.* 44 : 291-319.

GYO 3 Shutts, C. F. 1960

Wood anatomy of Hernandiaceae and Gyrocarpaceae. *Trop. Woods* 113 : 85-123.

HALORAGIDACEAE

The family Haloragidaceae is included in the order Rosales by Bentham & Hooker, in the order Myrtiflorae by Engler, in the order Lythrales by Hutchinson, in the order Haloragales by Cronquist and Dahlgren, in the order Hippuridales by Takhtajan and in the order Cornales by Thorne. The family consists of about 6 genera and 120 species, usually marsh or aquatic plants.

The Haloragidaceae is distinguished by the monoecious plants, mainly with unisexual flowers, the calyx tube adnating to the ovary presence of eight or two to six stamens, inferior ovary with two to four fused carpels, the presence of single pendulous ovule in each locule, presence of one to four feathery stigmas and seeds with copious endosperm.

The family is represented in India by the following genera : *Haloragis, Laurembergia, Myriophyllum.*

For recent taxonomic revision refer Ghazanfar (1977), Meijden & Caspers (1971), Orchard (1975) ; for palynology refer Praglowski (1969, 1971) ; for cytological studies refer Nijalingappa (1973).

The Haloragales of Cronquist includes the families Haloragaceae, Gunneraceae, Hippuridaceae and Theligonaceae. Whereas Dahlgren (1983) considers Haloragaceae as representative of monofamilial order Haloragales kept under Myrtiflorae.

Dahlgren (1983) considers Haloragaceae has little connection with the Gunneraceae and Hippuridaceae though Cronquist keeps all the three families in the same taxonomic order Haloragales because of their similar wind pollinated flowers. Ehrendorfer (1977) considers wind pollinated flowers are rather ancestral though the current thinking is that the wind pollinated groups are derived in a polyphyletic way from insect pollinated groups in time and space due to the decline particular groups of insect vectors.

GENERAL

HAL 1 Ghazanfar, S. A. 1977

Haloragidaceae. *Fl. W. Pakistan* No. 113 : 1-4. fig. 1.

HAL 2 Khan, M. S. & Halim, M. 1978

Haloragaceae. *Fl. Bangladesh* No. 8 : 1-3. Agricultural Research Council, Dacca.

HAL 3 Meijden, R. van der & Caspers, N. 1971

Haloragaceae. *In* : van Steenis, *Fl. Males.* I, 7 : 239-263, 19 fig. Keys.

HAL 4 Petersen, O. G. 1889

Halorhagidaceae. *In* : Engler & Prantl, *Pflanzenf.* 226-237.

HAL 5 Praglowski, J. (1970) 1971

The pollen morphology of the Haloragaceae with reference to taxonomy. *Grana* 10(3) : 159-239.

HAL 6 Schindler, A. K. 1905

Haloragaceae. *In* : Engler, *Pflanzenr.* 23 (IV. 225) : 1-133, fig. 1-36.

HAL 7 Tardieu-Blot, M. L. 1965

Sur les Haloragacees d' Indochine. *Adansonia* 5 : 37-40, pl. 1.

Haloragis Forst

HAL 8 Orchard, A. E. 1975

Taxonomic revisions in the family Haloragaceae. 1. The genera *Haloragis, Haloragodendron, Glischorocaryon, Meziella* and *Gonocarpus. Bull. Auckland Inst. Mus.* No. 10 : i-vi, 1-299.

HAL 9 Praglowski, J. 1969

Pollen types in species of *Haloragis. Svensk. Bot. Tidskr.* 63 : 486-492.

HAL 10 Tuyama, Takashi 1940

On genus *Haloragis* and Micronesian species. *Journ. Jap. Bot.* 16 : 273-285, fig. 1-6.

Laurembergia Bergius

HAL 11 Henry, A. N. (1965) 1966

A new species of *Laurembergia* Berg. (Haloragaceae) from Madras State. *Journ. Bombay Nat. Hist. Soc.* 62 : 603-605, fig. 7. *L. agastyamalayana* descr. from Tamil Nadu ; reduced to *L. coccinea* (Bl.) Kan. var. *zeylanica* (Arn. ex Cl.) Meyden in *Fl. Males.* ser I, 7 : 248. 1971.

Myriophyllum L.

HAL 12 Meijden, R. van der 1969

An annotated key to the South West Asiatic, Malesian, Mascarene and African species of *Myriophyllum* (Haloragaceae). *Blumea* 17 : 303-311. 1 fig. 3 spp. distr., ecol., notes.

HAL 13 Patten, Jr. & Bernard, C. 1954

The status of some American species of *Myriophyllum* as revealed by the discovery of intergrade material between *M. exalbescens* Fern and *M. spicatum* L. in New Jersey. *Rhodora* 56 : 213-225 fig. 1. Data on Asiatic spp., distr., bibliography.

HAL 14 Nijalingappa, B. H. M. 1973

Cytological studies in *Myriophyllum oliganthum* (Haloragaceae). *Curr. Sci.* 42(22) : 802-803. Chrom. nos.

HAL 15 Sinclair. J. 1967

A note on *Myriophyllum. Gard. Bull. Singapore* 22 : 229-230.

ADDITION : GENERAL

HAL 16 Ehrendorfer, F. 1977

New ideas about the early differentiation of angiosperms. *Plant Syst. Evol. Suppl.* 1 : 227-234.

HAMAMELIDACEAE

(Refer also Altingiaceae)

The family Hamamelidaceae includes about 22 genera and 80 species which has discontinuous distribution.

The family Hamamelidaceae is included in the order Rosales by Bentham & Hooker and Engler, in the order Hamamelidales by Cronquist, Dahlgren, Hutchinson, Takhtajan and Thorne.

The Hamamelidaceae is characterised by the presence of stipulate leaves, 4-5 merous flowers. 2-14 stamens, 2-loculate ovary each locule with one or more ovules, loculicidal or septicidal capsule with hardy exocarp and stony endocarp and endospermous seeds.

Harms (1930) classified the family into the following subfamilies : Disanthoideae, Hamamelidoideae, Rhodoleioideae, Exbucklandioideae and Liquidambaroideae. The family Altingiaceae is based on the sub-family Liquidambaroideae.

Hamamelidaceae is allied to the Platanaceae and Myrothamnaceae. In Myrothamnaceae the leaves are opposite, flowers are without perianth, and filaments are united, while in the Hamamelidaceae the leaves are generally alternate flowers are provided with perianth and filaments are free. According to the present state of knowledge, it is considered that the Hamamelidaceae stock has given rise to Casuarinaceae, Fagaceae and Urticaceae.

Endress (1977) links Hamamelidales with Fagales and Betulales through families Myrothamnaceae and Platanaceae. Meeuse (1975) and Ehrendorfer (1977) have advocated reasons for considering wind pollinated flowers as relatively ancestral. Takhtajan and Cronquist combine Hamamelidales with the amentiferous orders, while Dahlgren and Thorne have indicated that the present day Hamamelididae are remnants of an ancestral order of dicotyledonous families and hence they are segregated into different sub-classes.

The family is represented by the following genera : *Corylopsis*, *Distylium*, *Exbucklandia*, *Loropetalum*, *Parrotiopis*, *Sycopsis*.

For recent taxonomic revision, refer Morley & Chao (1977), Makarova (1957) ; for phylogeny and evolution refer Horne (1914), Thorne (1974) ; for chromosome studies refer Goldblatt & Endress

(1977), Mehra & Khosla (1972) : for chemotaxonomy, refer Jha (1977), Shaw & Gibbs (1961) ; for palynology refer Chang (1964).

GENERAL

HAM 1 Anderson, E. & Sax, K. 1935

Chromosome numbers in the Hamamelidaceae and their phylogenetic significance. *Journ. Arn. Arb.* 16 : 210-215. Proposed the derivation of Hamamelidaceae from Rosalean stock.

HAM 2 Baillon, H. 1871

Nouvelles notes sur les Hamamelidées. *Adansonia* 10 : 120-137. Critical notes.

HAM 3 Berry, E. W. 1916

The lower Eocene floras of South-Eastern North America. *US Geol. Surv. Prof. Pap.* 91. 1-481. Hamamelidaceae in page 91. 92.

HAM 4 Bogle, A. L. (1967) 1968

Floral vascular anatomy and the nature of the hamamelidaceous flower. *Ph. D. Thesis, University of Minnesota.*

HAM 5 Candolle, A. P. de 1830

Hamamelideae. *In* : DC., *Prodr.* 4 : 267-270.

HAM 6 Chang, K. T. 1964

The pollen morphology of the families Hamamelidaceae and Altingiaceae. *Acta Inst. Bot. Acad. Sci. URSS.* 1. Fl. Syst. Pl. Vasc. 13 : 173-232, pl. 1-21.

HAM 7 Egger, K. & Reznik, H. 1961

Die Flavonolglykoside der Hamamelidaceen. *Planta* 57 : 239-249.

HAM 8 Endress, P. 1967

Systematische Studie uber die verwandtschaftlichen Beziehungen Zwischen den Hamamelidaceen und Betulaceen. *Bot. Jahrb.* 87 : 431-525, pls. 13-15.

HAM 9 Endress, P. K. 1977

New ideas about the early differentiation of angiosperms. *Pl. Syst. Evol. Suppl.* 1 : 321-347.

HAM 10 Ernst, W. R. 1963

The genera of Hamamelidaceae and Platanaceae in the South Eastern United States. *Journ. Arn. Arb.* 44 : 193-210.

HAM 11 Goldblatt, P. & Endress, P. K. 1977

Cytology and evolution in Hamamelidaceae. *Journ. Arn. Arb.* 58(1) : 67-71. Chrom. nos.

HAM 12 Griffith, W. 1836

Description of two genera of the family Hamamelidaceae, two species of *Podostemon* and one species of *Kaulfusia*. *Asiat. Res.* 19 : 94-114. tab. 13-19.

HAM 13 Harms, H. 1930

Hamamelidaceae. *In* : Engler & Prantl, *Pflanzenf.* ed. 2. 18a : 330-343.

HAM 14 Horne, A. S. 1914

A contribution to the study of the evolution of the flower with special reference to the Hamamelidaceae, Caprifoliaceae and Cornaceae. *Trans. Linn. Soc.* II *Bot.* 8 : 239-309, pls. 28-30. Hamamelidaceae in pp. 245-251.

HAM 15 Jay, M. 1968

Distribution des flavonoids Chez les Hamamelidacees et families affinis. *Taxon* 17 : 136-147.

HAM 16 Jha, U. N. 1977

Chemotaxonomy of the Hamamelidaceae. *Journ. Indian Bot. Soc.* 56(1) : 44-48.

HAM 17 Malmo, B. G. 1958

Hamamelidaceae. *Arb. Bull.* 21 : 3-6, 30, 31. Spp. in cultivation.

HAM 18 Mehra, P. N. & Khosla, P. K. 1972

Cytogenetical studies of East Himalayan Hamamelidaceae,

Combretaceae and Myrtaceae. *Silvae Genet.* 21(5) : 186-190. Chrom. nos.

HAM 19 Pizzolongo, P. 1958

Ricerche cario-tassonomiche su alcune Hamamelidales (English Summary). *Ann. Bot. Roma* 26 : 1-18. pls. 1, 2. Considers chromosome report of Anderson & Sax (1935) incorrect.

HAM 20 Reinsch, A. 1889

Uber die anatomischen Verhaltnisse der Hamamelidaceae mit Riicksicht auf ihre systematische Gruppierung. *Bot. Jahrb.* 11 : 347-395, pl. 8.

HAM 21 Shaw, E. & Gibbs, R. D. 1961

Comparative chemistry and the relationship of the Hamamelidaceae. *Nature* 190 : 463, 464.

HAM 22 Tang, Y. 1943 (1946)

Systematic anatomy of the woods of the Hamamelidaceae. *Bull. Fan. Memorial Inst. Biol.* II, 1 : 8-63. tables 1-3. Phylogeny, keys, bibliography.

HAM 23 Tardieu-Blot, M. L. 1965

Hamamelidaceae. *Fl. Camb., Laos & Vietnam Part* 4 : 75-116, 7 pl.

HAM 24 Thorne, R. F. (1973) 1974

The 'Amentiferae' or Hamamelidae as an artificial group : a summary statement. *Brittonia* 25(4) : 395-405.

HAM 25 Tong, Koe-Yang 1931

Studien uber die Famillie der Hamamelidaceae mit besonderer Beruicksichtigung der Systematik und Entwicklungsgeschichte von Corylopsis 1-72. fig. 1-32. Monographic.

HAM 26 Vink, W. 1957

Hamamelidaceae. *In* : van Steenis, *Fl. Males.* I, 5 : 363-379, 9 fig.

HAM 27 Weaver, R. E. 1976

The witch hazel family (Hamamelidaceae). *Arnoldia* 36(3) : 69-109. Keys.

Corylopsis S. & Z.

HAM 28 Morley, B. 1977

Corylopsis : Spring flowering shrubs. *Garden (London)* 102 (3) : 105-107. Key.

HAM 29 Morley, B. & Chao, J. -M. 1977

A review of *Corylopsis* (Hamamelidaceae). *Journ. Arn. Arb.* 58(4) : 382-415. Chrom. nos. *Corylopsis himalayana* Griffith var. *griffithii* (Hemsley) B. Morley & J. M. Chao. *Garden (London)* 102(3) : 106. 1977.

Distylium S. & Z.

HAM 30 Airy-Shaw, H. K. 1937

Distylium racemosus. Curtis's Bot. Mag. 160, pl. 9501.

HAM 31 Walker, E. H. 1944

A revision of *Distylium* and *Sycopsis* (Hamamelidaceae). *Journ. Arn. Arb.* 25 : 319-341. Revision with key.

Exbucklandia R. W. Br.

HAM 32 Brown, R. W. 1946

Alterations in some fossil and living floras. *Journ. Washington Acad. Sci.* 36 : 344-355. fig. 1-15. Proposal *Exbucklandia* for *Bucklandia* with *E. populnea* comb. nov.

HAM 33 Steenis, C. G. G. J. van 1954

Miscellaneous botanical notes-VI. *Blumea* 7 : 595-598. *Symingtonia* is placed as a synonym of *Exbucklandia.*

Hamamelis Linn.

HAM 34 Anonymous 1904

The witch hazels (*Hamamelis*). *Garden* 65 : 59-60.

HAM 35 Berry, E. W. 1920

The geological history of the sweet gum and witch hazel. *Pl. World* 22 : 345-354.

HAM 36 Mottet, S. 1912

Les Hamamelis. *Rev. Hort. (Paris)* 1912 : 320-321.

HAM 37 Oliver, D. 1962

Note on *Hamamelis* and *Loropetalum*, with a description of a new *Anisophyllea* from Malacca. *Trans. Linn. Soc.* 23 : 457-461. pl. 48, fig. 1-3. Notes with a key.

HAM 38 Ruemele, T. 1950

Hamamelis (Witch hazel) *Perfum. Essent. Oil Rec.* 41 : 323-325, 337.

HAM 39 Wyman, D. 1936

Early blooming shrubs at the arboretum. *Arn. Arb. Bull. Pop. Inf.* IV, 4 : 23-26. Cultivated spp. of *Hamamelis*.

Loropetalum R. Br.

HAM 40 Hemsley, W. B. 1904

Loropetalum chinense. *Curtis's Bot. Mag.* 130 : pl. 7979. Native of eastern India & southern China.

HAM 41 Koidzumi, Genichi 1933

[*Loropetalum* R. Br.]. *Acta Phytotax. Geobot.* 2 : 59. In Japanese, critical notes.

HAM 42 Wagner, R. 1907

Loropetalum chinense (R. Br.) Oliv. *Oestrr. Gart. Zeit.* 2 : 77-80. fig. 12.

Parrotiopsis (Nied.) Schneid.

HAM 43 Hooker, J. D. 1896

Parrotia jacquemontiana. *Curtis's Bot. Mag.* 122 : pl. 7501. The new comb. is *Parrotiopsis jacquemontiana* (Decne) Rehd. This species is restricted in the Himalayan mountains of N. Kashmir, W. Pakistan & Afghanistan.

Sycopsis Oliv.

HAM 44 Oliver, D. 1860

On *Sycopsis. Trans. Linn. Soc.* 23 : 83-89, pl. 8, 1 fig.

HAM 45 Walker, E. H. 1944

A revision of *Distylium* and *Sycopsis* (Hamamelidaceae). *Journ. Arn. Arb.* 25 : 319-341.

ADDITIONS : GENERAL

HAM 46 Barbac, D., Bergerson, Y. & Vincent, G. A. 1982

Etude quiantitative de la classification des Hamamelidae. *Taxon* 31(4) : 619-645. Generally supports Takhtajan's inclusion of families.

HAM 47 Ehrendorfer, F. 1977

New ideas about the early differentiation of angiosperms. *Plant Syst. Evol. Suppl.* 1 : 227-234.

HAM 48 Meeuse, A. D. J. 1975

Floral evolution of Hamamelidae III. Hamamelidales and associated groups including Urticales and final conclusions. *Acta Bot. Neerl.* 24 : 181-191.

HELWINGIACEAE

(Refer also Araliaceae)

The family Helwingiaceae is a monogeneric family with 4 species.

The family Helwingiaceae is included in the order Cornales by Takhtajan. While Cronquist, Dahlgren, Engler and Thorne considered the Helwingiaceae as part of the family Cornaceae, Bentham & Hooker and Hutchinson included the Helwingiaceae under the family Araliaceae. Dahlgren (1983) considered Helwingiaceae as a separate family in the order Cornales.

The Halwingiaceae, a monogeneric family based on the genus *Helwingia,* is characterised by stipulate leaves, flowers in epiphyllous umbels from the upperside of midrib, absence of calyx, 3-4(-5) petals, 3-4(-5) stamens, which are alternipetalous and inserted outside disk,

inferior 3-4 loculed ovary with one pendulous ovule in each locule. The family is considered as an intermediate family between Cornaceae and Araliaceae.

The family is represented in India by the genus *Helwingia*.

GENERAL

HLW 1 Candolle, A. de 1868

Helwingiaceae. *In* : DC., *Prodr.* 16(2) : 680-681.

Helwingia Willd.

HLW 2 Baillon, H. 1877

Sur les affinites des *Helwingia*. *Bull. Soc. Linn. Paris* 1 : 137-139.

HLW 3 Decaisne, J. 1836

Remarques sur les affinites du genre *Helwingia* et etablissement de la famille des Helwingiacees. *Ann. Sci. Nat.* II. *Bot.* 6 : 65-76, pl. 6, 7.

HLW 4 Fang. Wen-pei 1951

A study on *Helwingia* Willdenow. *Acta Phytotax. Sin.* 1 : 163-173, fig. 1. In Chinese with English abstract, 4 spp. & 7 subspp.

HERNANDIACEAE

(Refer also Gyrocarpaceae)

The family Hernandiaceae consists of two genera and 50 species.

The family Hernandiaceae is included in the order Laurales by Dahlgren, Hutchinson and Takhtajan, in the order Magnoliales by Cronquist and Engler, in the order Annonales by Thorne. The Hernandiaceae is not given the family status by Bentham & Hooker and hence considered as part of the family Lauraceae. The order Laurales belong to ancient stock and is derived from ancient vesseless magnoliales.

The Hernandiaceae is distinguished by exstipulate leaves with oil cells, 6-10 biseriate perianth lobes, 3-5 stamens, inferior 1-loculed

ovary with one pendulous ovule. The family is closely allied to Monimiaceae *sensu stricto*. The family Gyrocarpaceae is considered as a separate family (Dahlgren, Takhtajan & Thorne), while Cronquist, Engler and Hutchinson retained it in the Hernandiaceae. According to Takhtajan the evolution of Laurales result in the specialised families Lauraceae and Gyrocarpaceae.

The family is represented in India by the following genera : *Hernandia, Illigera*.

For recent taxonomic studies refer Kubitzki (1969, 1970).

GENERAL

HRN 1 Kubitzki, K. 1969

Monographie der Hernandiaceen I-II. *Bot. Jahrb.* 89 : 78-148. 34 Abb. ; 149-209. 17 Abb. Monograph.

HRN 2 Kubitzki, K. 1970

Hernandiaceae. In *Fl. Camb., Laos & Vietn.* 12 : 3-24.

HRN 3 Meissner, C. F. 1864

Hernandiaceae. *In :* DC., *Prodr.* 15(1) : 261-265. Monographic.

Illigera Bl.

HRN 4 Dunn, S. T. 1908

A revision of the genus *Illigera* Bl. *Journ. Linn. Soc. Bot.* 38 : 290-297. Key, revision.

HIPPOCASTANACEAE

(Refer also Sapindaceae)

The family Hippocastanaceae is included in the order Sapindales by Cronquist, Dahlgren, Engler, Hutchinson and Takhtajan. It is included in the order Rutales by Thorne and is retained in the family Sapindaceae by Bentham & Hooker.

The Hippocastanaceae is distinguished from the Sapindaceae by its palmately compound leaves, opposite leaves, tricarpellate fruit and 1-seeded capsule.

According to Bell (1981) that unsaturated and cyclopropyl amino acids isolated from the Sapindaceae, Aceraceae and Hippocastanaceae show close affinities of these families.

The family is represented in India by the genus *Aesculus*.

HCS 1 Mehra, P. N., Khosla. P. K. & Sareen, T. S. 1972

Cytogenetical studies of Himalayan Aceraceae, Hippocastanaceae, Sapindaceae and Staphylaceae. *Silvae Genet.* 21(3-4) : 96-102. Chrom. nos.

HCS 2 Nasir, Y. 1975

Hippocastanaceae. *Fl. W. Pakistan* No. 82 : 1-3.

HCS 3 Rehder, A. 1913

Hippocastanaceae. *In* : Sarg., *Pl. Wils.* 1 : 498-500.

Aesculus Linn.

HCS 4 Bush, B. F. 1930

Notes on *Aesculus* species. *Amer. Midl. Nat.* 12 : 19-26.

HCS 5 Das, C. R. & Mazumdar, N. C. (1961) 1962

The genus *Aesculus* L. in India. *Bull. Bot. Surv. India* 3 : 95-97.

HCS 6 Hoar, C. S. 1927

Chromosome studies in *Aesculus*. *Bot. Gaz.* 84 : 156-170.

HCS 7 Li, H. L. 1956

The story of the cultivated horse-chestnuts. *Morris Arb. Bull.* 7 : 35-39.

GENERAL

HCS 8 Bell, E. A. 1981

The non protein amino acids occurring in plants. *Progr. Phytochem.* 7 : 171-186.

HIPPOCRATEACEAE

(Refer also Celastraceae)

The family Hippocrateaceae is included in the order Celastrales by Cronquist, Engler, Hutchinson and Takhtajan. It is retained in the family Celastraceae by Bentham & Hooker, Dahlgren and Thorne.

The Hippocrateaceae is characterised by the predominantly climbing or twining habit, 5-merous floral parts, 3-5 stamens usually inserted within the disk, anther dehiscing transversely, superior 3-5 loculed ovary with axile placentation and seeds without endosperm. The family is distinguished from the Celastraceae in the position of disk in relation to androecium, dehiscence of anthers and in the nature of fruit and seed. In the Celastraceae the disk is intrastaminal, anthers dehisce longitudinally and the seeds possess fleshy endosperm and often seeds are arillate.

The family is represented in India by the following genera : *Loeseneriella, Reissantia, Salacia.*

For recent taxonomic studies refer Raju (1965), Smith (1940, 1941, 1945).

GENERAL

HPC 1 Brizicky, George K. 1964

The genera of Celastrales in the South-Eastern United States. *Journ. Arn. Arb.* 45(2) : 206-234. Hippocrateaceae 223-226 pp.

HPC 2 Candolle, A. P. de 1824

Hippocrateaceae. *In* : DC., *Prodr.* 1 : 567-572.

HPC 3 Halle, N. 1962

Monographie des Hippocrateacees d' Afrique Occidentale. *Mem. Inst. Franc. Afr. Noire* 64 : 1-245. 15 genera treated of which 2 Afro-asiatic and one pantropical.

HPC 4 Loesener, T. 1896

Hippocrateaceae. *In* : Engler & Prantl, *Pflanzenf.* 3(5) : 222-230. 1896 ; *Ibid.* ed. 2. 20b : 198-231. 1942.

HPC 5 Raju, D. C. S. 1965

Enumeration of the Indian species of Hippocrateaceae. *Journ. Biol. Sci.* 8 : 55-59.

HPC 6 Smith, A. C. 1940

The American species of Hippocrateaceae. *Brittonia* 3 : 341-555, fig. 1-12. Revision with notes on Old World genera.

HPC 7 Smith, A. C. 1941

Notes on Old World Hippocrateaceae. *Amer. Journ. Bot.* 28 : 438-443.

HPC 8 Smith, A. C. 1945

Notes on Hippocrateaceae in South Eastern Asia. *Journ. Arn. Arb.* 26 : 169-179, fig. 1-3.

ADDITIONS : GENERAL

HPC 9 Halle, N. 1983

Revision des Hippocrateae (Celastraceae) : 3. Fruits, graines et structures placentaires. *Bull. Mus. Natn. Hist. Nat.* B. *Adansonia* 5(1) : 11-25.

Reissantia Halle

HPC 10 Subramanian, K. N., Kalyani, K. B. & Mahadevan, N. P. 1982

A note on *Reissantia grahamii* (Wt.)Ding Hou (*Hippocratea grahamii* Wight). *Journ. Econ. Taxon. Bot.* 3(2) : 663-664.

HUGONIACEAE-refer **LINACEAE**

HYDRANGEACEAE

(Refer also Saxifragaceae)

The family Hydrangeaceae is included in the order Saxifragales by Takhtajan, in the order Rosales by Cronquist, in the order Cor-

nales by Dahlgren in the order Cunoniales by Hutchinson. It is retained in the family Saxifragaceae by Bentham & Hooker, Engler and Thorne.

The Hydrangeaceae is characterised by exstipulate opposite leaves, 4-10 merous floral parts, 5 to numerous stamen and loculicidal capsule. The Hydrangeaceae is closely related to Philadelphaceae and Escalloniaceae.

The family is represented in India by the following genera : *Dichroa, Hydrangea, Schizophragma.*

For recent taxonomic revision refer Haworth-Booth (1950), McClintock (1956, 1957, 1973) ; for palynology refer Agabalian (1961). Hideux & Ferguson (1976).

According to Hideux & Ferguson (1976) "the Hydrangeaceae form a rather homogenous group without any great palynological variation". On the other hand the Saxifragaceae *sensu stricto* are a somewhat less homogenous group in comparison with Hydrangeaceae.

Grund & Jensen (1981) as per serological studies indicated that the genera of Saxifragaceae *sensu stricto* show no relationships with the Cornalean families, (i.e.) Hydrangeaceae, Escalloniaceae and Montiniaceae, often included in the family Saxifragaceae *sensu lato.*

The presence of iridoid compounds are used as taxonomic markers. The iridoid bearing Cornales and Ericales are closely associated by Dahlgren (1983) in the super order Corniflorae. Hence Dahlgren (1983) has transferred the families Hydrangeaceae, Escalloniaceae from the vicinity of Saxifragaceae on the basis of iridoid chemistry.

The genus *Hydrangea* is an ornamental garden plant with about 80 species occurring chiefly in temperate Eastern Asia and Eastern North America. The garden variety of *Hydrangea macrophylla* (= *hortensis*) bears blue or pink heads with showy asexual flowers in the outside and inconspicuous sexual flowers on the inside. Other species of importance from China are *H. paniculata* with creamy white flowers and *H. serrata* with violet sexual flowers surrounded by pink or white asexual flowers.

GENERAL

HDR 1 Agabalian, V. Ch. 1961

Morphologie pollinique de la famille des Hydrangeaceae

dum (en ruse)—*Izvest. Akad. Nauk. Arn. S. S. R. Biol. Nauki* 14(11) : 17-26.

HDR 2 Chun, W. Y. 1954

A census and preliminary study of the Chinese Hydrangeoideae. *Acta Phytotax. Sin.* 3 : 101-206, pl. 2-26, fig. 1-4. A systematic treatment, new taxa in *Hydrangea* and *Schizophragma* and enumeration of Chinese spp.

Dichroa Linn.

HDR 3 Jang, C. S., Fui, F. Y., Wang, C. Y., Huang, K. C., Lu, G. & Chou, T. C. 1946

Ch'ang shan, a Chinese antimalarial herb. *Science* 103 : 59. Derivatives of *Dichroa febrifuga*.

Hydrangea Linn.

HDR 4 Haworth-Booth, M. 1950

The Hydrangeas. i-viii, 1-185. pl. 1-21. Botanical and horticultural review on the genus *Hydrangea*.

HDR 5 Hemsley, W. B. 1876

The Hydrangeas (with coloured figure of *H. paniculata, grandiflora*). *Garden* 10 : 264-266, pl. 37.

HDR 6 Maximowicz, C. J. 1867

Revisio Hydrangearum Asiae orientalis. *Mem. Acad. Sci. St. Petersb.* VII, 10(16) : 1-48, pl. 1-3. (Refer *Bull. Soc. Bot. France* 18 : *Rev. Bibl.* 50-52. 1871).

HDR 7 McClintock, E. 1956

The cultivated hydrangeas. *Baileya* 4 : 165-175, fig. 47, 48. Systematic review, key and discussion.

HDR 8 McClintock, E. 1956

New combinations in *Hydrangea*. *Journ. Arn. Arb.* 37 : 373-374.

HDR 9 McClintock, E. 1957

A monograph of the genus *Hydrangea*. *Proc. Calif. Acad.*

Sci. VI, 29 : 147-255, pl. 1-6, maps 1-10. Monographic, new taxa and transfers.

HDR 10 McClintock, E. 1957

Hydrangeas. *Nat. Hort. Mag.* 36 : 270-279, 3 fig. General notes.

HDR 11 McClintock, E. 1973

Climbing hydrangeas. *Calif. Hort. Journ.* 34(4) : 141-145.

HDR 12 Nevling, L. I. 1964

Climbing hydrangeas and their relatives. *Arnoldia* 24 : 17-39.

HDR 13 Rehder, A. 1911-1912

Hydrangea L. *In* : Sarg., *Pl. Wils.* 1 : 25-41, 150-151. Key & descr. of new spp. and a synoptic account of Chinese spp.

HDR 14 Wilson, E. H. 1923

The hortensias, *Hydrangea macrophylla* DC. and *Hydrangea serrata* DC. *Journ. Arn. Arb.* 4 : 233-246. Notes on spp. and their cultivation.

Schizophragma Sieb. & Zucc.

HDR 15 Naithani, H. B. & Bennet, S. S. R. 1979

Schizophragma Sieb. & Zucc.—A generic record to the Indian Hydrangeaceae. *Indian Journ. Forestry* 2(2) : 138-140.

HDR 16 Rehder, A. 1911

Schizophragma Sieb. & Zucc. *In* : Sarg., *Pl. Wils.* 1 : 41-43. Mainly Chinese spp.

ADDITIONS : GENERAL

HDR 17 Grund, C. & Jensen, U. 1981

Systematic relationships of the Saxifragales revealed by serological characteristics of seed proteins. *Plant Syst. Evol.* 137 : 1-22.

HDR 18 Hideux, M. J. & Ferguson, I. K. 1976

The stereostructure of the exine and its evolutionary significance in Saxifragaceae *sensu lato*. *Linn. Soc. Symp. Series No. 1. The Evolutionary significance of the exine* : 327-377. Academic Press, London.

HDR 19 Wakabayashi, M. 1976

On the affinity in Saxifragaceae *sensu lato* with special reference to the pollen morphology. *Actu Phytotax. Geobot. Kyoto* 24 : 128-145.

Hydrangea Linn.

HDR 20 Stern, W. L. 1978

Camparative anatomy and systematics of woody saxifragaceae : *Hydrangea*. *Journ. Linn. Soc. Bot.* 76 : 83-113.

HYDROCARYACEAE-*nom. alt.* TRAPACEAE

(Refer Trapaceae)

HYDROCHARITACEAE

The family Hydrocharitaceae consists of about 16 genera and 80 species of aquatic habitat.

The Hydrocharitaceae is included in the order Hydrocharitales by Cronquist, Dahlgren and Takhtajan, in the order Microspermae by Bentham & Hooker, in the order Butomales by Hutchinson, in the order Helobiae by Engler and in the order Alismales by Thorne.

The Hydrocharitaceae is characterised by 3-merous regular flowers, one to numerous stamens, inferior ovary with 2-15 united carpels, ovules on parietal placentation with the intrusive placentae appearing as laminar in the 1-loculed ovary. The Hydrocharitaceae differs from the Butomaceae and Limnocharitaceae in having epigynous flowers.

Dandy (1934-35) classified the family into three subfamilies : Hydrocharitoideae (Vallisnerioideae), Thalassoideae, Halophiloideae.

The family is represented in India by the following genera : *Blyxa, Enhalus, Halophila, Hydrilla, Hydrocharis, Nechamandra, Vallisneria*.

For recent taxonomic revisions refer Dandy (1934-1935), Hartog (1957, 1970), Subramanyam & Balakrishnan (1962) ; for biosystematic refer Fotedar & Roy (1975) ; for chromosome studies refer Harada (1957), Misra (1974), Sharma & Chatterjee (1967).

According to Dahlgren (1983) the families Butomaceae, Hydrocharitaceae and Aponogetonaceae form the order Hydrocharitales. The super order Alismatiflorae includes the orders Hydrocharitales, Alismatales and Zosterales. Huber (1977) and Dahlgren & Clifford's (1982) studies indicate that the Alismatiflorae are in no way connected with the monocotyledonous ancestors. Takhtajan (1969) suggested that the evolution of the monocotyledons began with apocarpous gynoecium having primitive carpels with many ovules as seen in the Butomaceae and Limnocharitaceae. While it is seen the family Cabombaceae resembles the families Butomaceae and Limnocharitaceae in the nature of their apocarpous gynoecia, Burger (1981) indicated that the angiosperm ancestors could have been small monocotyledonous plants. According to Dahlgren (1983) the lack of herbaceous forms in the fossil gymnosperms counters Burger's views. It is seen if the beginnings of botany are in the sea, there is some meaning in Burger's views. According to Corner (1964) "the ancient and extinct environment that brought plants to land had the plants which became the modern land plants ; with the passing of that environment those ancestors disappeared". Hence the loss of herbaceous gymnosperms which became extinct.

GENERAL

HDC 1 Ancibor, E. 1979

Systematic anatomy of vegetative organs of the Hydrocharitaceae. *Bot. Journ. Linn. Soc.* 78(4) : 237-266. Keys. illust.

HDC 2 Caspray, R. 1857

Conspectus systematicus Hydrillearum. Monatsber. Koenigl. Akad. (Berlin) 1-15.

HDC 3 Dandy, J. E. 1934-1935

Notes on Hydrocharitaceae I. *Journ. Bot. Brit. & For.* 72 : 132-139. 1934 ; II, 73 : 209-217. 1935. Critical study of genus *Ottelia*.

HDC 4 Fotedar, J. L. & Roy, S. K. 1975

Biosystematics of some Indian Hydrocharitaceae with notes on the evolutionary status of its members. *In* : Kachroo, P. (*ed.*). *Advancing frontiers in Cytogenetics in evolution and improvement of plants* 357-364.

HDC 5 Harada, I. 1956

Cytological studies in Helobiae. *Cytologia* 21 : 306-328.

HDC 6 Hartog, C. den 1957

Hydrocharitaceae. *In* : van Steenis, *Fl. Males.* I, 5 : 381-413, fig. 1-19.

HDC 7 Hartog, C. den 1970

The Sea-grasses of the World. North Holland Publishing Co. Amsterdam. Monograph.

HDC 8 Ostenfeld. C. H. 1915

On the geographical distribution of the sea grasses. A preliminary communication. *Proc. Roy. Soc. Victoria* 27 : 179-190.

HDC 9 Ostenfeld, C. H. 1927

Meeresgraser I. Marine Hydrocharitaceae. *Pflanzenar.* 1 : 35-38, maps 21-24. Distribution.

HDC 10 Sharma, A. K. & Chatterjee, T. 1967

Cytotaxonomy of Helobiae with special reference to mode of evolution. *Cytologia* 32 : 287-307.

Blyxa Noronha

HDC 11 Cook, C. D. K., Luond, R. & Nair, Bhadran 1981

Floral biology of *Blyxa octandra* (Roxb.) Planchon ex Thwaites (Hydrocharitaceae). *Aquatic Botany* 10 : 61-68. *Diptera* and *Odonta* carry pollen.

Elodea Michx.

HDC 12 St. John, H. 1965

Monograph of the genus *Elodea*. *Rhodora* 67 : 155-180.

Halophila Thou.

HDC 13 Dixit, S. C. 1932

Some sea grasses from the Presidency of Bombay. *Journ. Bombay Nat. Hist. Soc.* 36 : 284. *Halophila ovalis* Hook. & *H. decipiens* Hook. f.

HDC 14 Doty, M. S. & Stone, B. C. 1967

Typification for the generic name *Halophila* Thouars. *Taxon* 16 : 414-418, 2 fig.

HDC 15 Hartog, C. den 1959

A key to the species of *Halophila* (Hydrocharitaceae) with description of the American species. *Acta Bot. Neerl.* 8 : 484-489.

HDC 16 Sachet, M. -H. & Fosberg, F. R. 1973

Remarks on *Halophila*. *Taxon* 22 : 439-443. The name *H. minor* is re-established for *H. ovata*.

Nechamandra Planch.

(Refer also *Lagarosiphon*)

HDC 17 Ghosh, M. K. (1964) 1965

Observation on the pollination in *Nechamandra alternifolia* (Roxb.) Thw. *Bull. Bot. Surv. India* 6 : 185-187. Morphology, descr.

HDC 18 Subramanyam, K. & Balakrishnan, N. P. (1961) 1962

The genus *Nechamandra* in India. *Bull. Bot. Surv. India* 3(1) : 23-24. Key to *Lagarosiphon* & *Nechamandra*, synonymy, descr., distr. & notes on *N. alternifolia* (Roxb.) Thw.

Ottelia Pers.

HDC 19 Datta, S. C. & Biswas, K. K. 1967

Form variations in *Ottelia alismoides* (L.) Pers. *Broteria* 36 : 63-69, 2 fig.

HDC 20 Datta, S. C. & Biswas, K. K. (1976) 1978

Autecological studies on weeds of West Bengal 6 : *Ottelia alismoides* (L.) Pers. *Bull. Bot. Soc. Bengal* 30(1-2) : 1-9.

HDC 21 Hen, Li 1981

Classification, distribution and phylogeny of the genus *Ottelia*. *Acta Phytotax. Sinica* 19(1) : 28-42. 2 subgenera *Ottelia & Boottia* recognised, 25 spp. throughout palaeotropics and 1 species in Brazil.

HDC 22 Misra, M. P. 1974

Cytological studies in *Ottelia alismoides Pers. Cytologia* 39(3) : 419-427. Chrom. nos.

Vallisneria Linn.

HDC 23 Hansen, J. & Hansen, P. 1972

Vallisneria. Aquarist Pondkeeper 37(4) : 135-138. Key.

HDC 24 Hara, H. 1974

New or noteworthy flowering plants from Eastern Himalaya (14) : *Journ. Jap. Bot.* 49 : 129-136. *Vallisneria natans* (Lour.) Hara is based on *Physkium natans* (Lour.) sensu Hook. f. *Fl. Brit. India* 5 : 660. 1888. Den Hartog (1970) separated the Asiatic species from *V. spiralis* L. and hence the above new comb. is necessary.

HDC 25 Jorgensen, C. A. 1927

Chromosome and sex in *Vallisneria. Journ. Genet.* 18 : 64-75.

HDC 26 Winge, O. 1927

Chromosome behaviour in male and female individuals of *Vallisneria spiralis* and *Najas major. Journ. Genet.* 19 : 99-107.

ADDITIONS : GENERAL

HDC 27 Burger, W. C. 1981

Heresy reviewed : the monocot theory of angiosperm origin. *Evol. Theory* 5 : 189-225.

HDC 28 Corner, E. J. H. 1964

The Life of Plants. i-xii, 1-314. Weidenfeld & Nicolson, London.

HDC 29 Dahlgren, R. & Clifford, H. T. 1982

The Monocotyledons : a comparative study. Academic. London.

HDC 30 Hooker, J. D. 1888

Hydrocharideae. *In* : Hooker, J. D. *ed., Fl. Brit. India* 5 : 658-664.

HDC 31 Huber, H. 1977

The treatment of the monocotyledons in an evolutionary system of classification. *Plant Syst. Evol. Suppl.* 1 : 285-298.

HDC 32 Takhtajan, A. 1969

Flowering Plants, Origin and dispersal. i-x, 1-310. Oliver & Boyd, Edinburgh.

Blyxa Noronha

HDC 33 Cook, C. D. K. & Luond, R. 1983

A revision of the genus *Blyxa* (Hydrocharitaceae). *Aquatic Bot.* 15(1) : 1-51. Maps. chrom. nos., key.

Hydrilla Rich.

HDC 34 Pietersa, A. H. 1983

Hydrilla verticillota (L.f.) Royle. *Aquatic Bot.* 16(3) : 313.

HYDROCOTYLACEAE-refer UMBELLIFERAE

HYDROPHYLLACEAE

The family Hydrophyllaceae includes 18 genera and 250 species.

The Hydrophyllaceae is considered in the order Polemoniales by Bentham & Hooker, Cronquist, Hutchinson and Takhtajan, in the order

Tubiflorae by Engler, in the order Lamiales by Thorne and in the order Solanales by Dahlgren. In 1983 Dahlgren reviewed it and considered in the order Boraginales.

The Hydrophyllaceae is distinguished by its exstipulate leaves, 5-merous flowers, staminal filaments at the base provided with an appendage, superior ovary with parietal placenta in unilocular ovary and with axile placenta in bilocular ovary, loculicidal capsule and endospermous seeds. The Hydrophyllaceae is allied to Polemoniaceae.

The family is represented in India by the following genus : *Hydrolea*.

For recent taxonomic studies refer Backer (1952) ; for chromosome studies refer Cave & Constance (1942-1959).

GENERAL

HYD 1 Backer, C. A. 1952

Hydrophyllaceae. *In* : van Steenis, *Fl. Males.* I, 4 : 207-209, 1 fig.

HYD 2 Bentham, G. 1835

Review of the order of Hydrophylleae. *Trans. Linn. Soc.* 17 : 267-282. Description of genera & spp.

HYD 3 Brand, A. 1930

Hydrophyllaceae. *In* : Engler, *Pflanzenr.* 59(IV. 251) : 1-210.

HYD 4 Cave, M. S. & Constance, L. 1942-1959

Chromosome numbers in the Hydrophyllaceae. *Univ. Calif. Publ. Bot.* 18 : 205-216. 1942 ; II. 18 : 293-298. 1944 ; III. 18 : 449-465. IV. 23 : 363-382. 1950 ; V. 30 : 233-258. 1959.

HYD 5 Choisy, J. 1933

Description des Hydroleacees. *Mem. Soc. Phys. & Hist. Nat. Geneve* 6 : 95-122, tab. 1-3. Revision, descr., no key.

HYD 6 Choisy, J. D. 1846

Hydroleaceae. *In* : DC., *Prodr.* 10 : 179-185.

HYD 7 Constance, L. 1939
The genera of the tribe Hydrophylleae of the Hydrophyllaceae. *Madrono* 5 : 28-33. Key to genera.

HYD 8 Khan, M. S. & Huq, A. M. 1975
Casuarinaceae, Phytolaccaceae, Hydrophyllaceae, Martyniaceae and Caricaceae. *Fl. Bangladesh* 1 : 1-13. Bangladesh Agricultural Research Council.

HYD 9 Peter, A. 1897
Hydrophyllaceae. *In* : Engler & Prantl, *Pflanzenf.* IV, 3a : 54-71.

HYD 10 Wilson, K. A. 1960
The genera of Hydrophyllaceae and Polemoniaceae. *Journ. Arn. Arb.* 41 : 197-212. Key to genera.

ADDITION : GENERAL

HYD 11 Clarke, C. B. 1883
Hydrophyllaceae. In : Hooker, J. D., *ed., Fl. Brit. India* 4 : 133-134.

HYMENOCARDIACEAE-refer **EUPHORBIACEAE**

HYPECOACEAE

(Refer also Fumariaceae & Papaveraceae)

The family Hypecoaceae is included in the order Papaverales by Dahlgren and Takhtajan. It is retained in the family Papaveraceae by Bentham & Hooker. Engler and Thorne. While Cronquist and Hutchinson treated it as part of the family Fumariaceae.

The Hypecoaceae. a monogeneric family based on the genus *Hypecoum,* is characterised by herbaceous habit, plants without latex juice, exstipulate leaves, calyx with 2-lobes and 2 + 2, petals, 4 stamens, superior 1-loculed ovary with many ovules on parietal placentation and a siliquiform capsule, a nodose lomentum breaking up into 1-seeded portions. SEM studies on seed morphology by Debnath & Nayar (1984) support and justify the separation of the family Hypecoaceae.

The Hypecoaceae is allied to Fumariaceae and Papaveraceae. The family is represented in India by the genus *Hypecoum*.

GENERAL

HYC 1 Fedde, F. 1909

Papaveraceae, Hypecoideae & Papaveroideae. *In* : Engler, *Pflanzenr.* 40 : (IV. 104) : 1-430. fig. 1-43.

Hypecoum Linn.

HYC 2 Cullen, J. 1965

Hypecoum L. *In :* Davis P. H., *ed., Fl. Turkey* 1 : 236-238.

HYC 3 Sharma, M. (1976) 1977

Hypecoum procumbens, new record for India. *Journ. Bombay Nat. Hist. Soc.* 73(2) : 422-423.

HYC 4 Singh, G. 1975

Hypecoum pendulum, a new record for India. *Geobios* (Jodhpur) 2(2-3) : 91.

ADDITION : GENERAL

HYC 5 Debnath, H. S. & Nayar, M. P. 1984

Hypecoaceae. *Fasc. Fl. India* 17 :42-46.

HYPERICACEAE

(Refer also Guttiferae)

The family Hypericaceae is included in the order Theales by Takhtajan, in the order Guttiferales by Bentham & Hooker and Hutchinson. However it is retained in the family Guttiferae by Cronquist, Dahlgren, Engler and Thorne.

The Hypericaceae is distinguished by the presence of pellucid black-dotted opposite leaves, fascicled stamens, the outer whorl remaining sterile or absent, 3-5 loculed superior ovary, capsular or baccate fruit and non-endospermous seed. Vestal (1937) noted that anatomically Hypericaceae is more advanced than the Guttiferae.

The family is represented in India by the genus *Hypericum*.

For recent taxonomic revision, refer Robson (1972, 1974, 1977) ; for pollen morphology refer Khan (1969).

GENERAL

HYP 1 Khan, H. A. 1969

Pollen morphology of Indian Hypericaceae. *Journ. Palynol. Lucknow* 5 : 97-99.

HYP 2 Robson, N. K. B. 1972

Evolutionary recall in *Hypericum* (Guttiferae) ? *Trans. Bot. Soc. Edinb.* 41 : 365-383.

HYP 3 Robson, N. K. B. 1974

Hypericaceae. *In* : van Steenis, *Fl. Males.* I, 8 : 1-29, 21 fig.

HYP 4 Robson, N. K. B. 1977

Notes on some Nepalese and Indian *Hypericum*. *Journ. Jap. Bot.* 52(9) : 276-288. Keys, map.

HYP 5 Vestal, P. A. 1937

The significance of comparative anatomy in establishing the relationship of the Hypericaceae to the Guttiferae and their allies. *Philippine Journ. Sci.* 64 : 199-256.

Hypericum Linn.

HYP 6 Biswas, S. N. 1971

Hypericum assamicum S. N. Biswas (Hypericaceae), a new species from eastern Himalaya. *Webbia* 25(2) : 671-674.

HYP 7 Biswas, S. N. (1971) 1973

Hypericum griffithii Hook. f. et Thoms. ex Dyer emend S. N. Biswas—a noteworthy flowering plant. *Bull. Bot. Surv. India* 13 : 160-161.

HYP 8 Clarke, G. C. S. (1975) 1976

Irregular pollen grains in some *Hypericum* species. *Grana* 15(1-3) : 117-125.

HYP 9 Hemsley, W. B. 1877

The St. John's worts with a coloured figure of *Hypericum patulum*. *Garden* 12 : 280-281, pl. 92.

HYP 10 Keller, R. 1904

Beitrage zur Kenntnis der ostasiatischen *Hyperica*. *Engler Bot. Jahrb.* 33 : 547-554. A synopsis of the species of *Hypericum*.

HYP 11 Keller, R. 1908

Zur kenntnis der Sectio Brathys des Genus *Hypericum*. *Bull. Herb. Boiss.* II, 8 : 175-191.

HYP 12 Keller, R. 1909

Hyperica Asiae orientalis-Engler. *Bot. Jahrb.* 44 : 48-50. A systematic enumeration.

HYP 13 Laplace, F. 1931

Les Hypericum. *Rev. Hort.* (*Paris*) 1931 : 454-456, fig. 183. Enum. in notes.

HYP 14 Leveille, H. 1907

Les Hypericum de la Chine. *Bull. Soc. Bot. France* 54 : 587-596. Enum., 41 spp., key.

HYP 15 Lott, H. J. 1938

Nomenclatural notes on *Hypericum*. *Journ. Arn. Arb.* 19 : 149-152, 279-290, 1938.

HYP 16 Robson, N. K. B. 1958

The genus *Hypericum* in Africa, south of the Sahara, Madagascar and the Mascarenes. *Kew Bull.* 12 : 433-446.

HYP 17 Robson, N. K. B. & Adans, P. 1968

Chromosome numbers in *Hypericum* and related genera. *Brittonia* 20 : 95-106.

HYP 18 Robson, N. K. B. 1972

Notes on Malesian species of *Hypericum* (Guttiferae).

Florae Malesianae Praecursores LII. *Blumea* 20 : 251-274, fig. 5.

HYP 19 Robson. N. K. B. 1977

Studies in the genus *Hypericum* L. (Guttiferae) 1. Infrageneric classification. *Bull. Brit. Mus. (Nat. Hist.)* 5(6) : 293-355. A review of systematic work on *Hypericum* L., followed by a discussion of evolutionary and nomenclatural problem ; supports the status of a sub-family Hypericoideae under the family Guttiferae.

HYP 20 Robson, N. K. B. 1977

Notes on some Nepalese and Indian *Hypericum*. *Journ. Jap. Bot.* 52 : 276-288, 4 fig. Keys, 2 new spp.

HYP 21 Rodriquez-Jimenez, C. 1973

Distribution geographique du genre *Hypericum* L. section *Brathys* (Mutis) sous section *Spachium* Keller. *Compte R. Seances Soc. Biogeogr. nos.* 425-433. 87-96.

HYP 22 Rodriquez-Jimenez, C. 1973

Recherches sur *Hypericum* L. section *Brathys* (Mutis ex L. f.) Choisy sous section *Spachium* Keller (*Guttiferae*). *Mem. Soc. Cienc. Nat. La Salle* 33 : 5-151, 15 fig., 3 pl., 3 tab. 2 cartes. Key to 24 spp.

HYP 23 Thomas, J. L. 1970

Haploid and diploid pollen in *Hypericum patulum*. *Journ. Arn. Arb.* 51(2) : 247-250. Native to Japan & China, but cultivated frequently.

ADDITIONS : GENERAL

HYP 24 Raynaud, C. 1980

Contribution a' l'etude cytotaxinomique du genre *Hypericum* L. en Greece. *Bull. Soc. Bot. France* 127 : 345-353.

HYP 25 Thiselton-Dyer, W. T. 1874

Hypericineae. *In* : Hooker, J. D., *ed., Fl. Brit. India* 1 : 252-258.

HYPOXIDACEAE

The family Hypoxidaceae includes about 7 genera and 120 species. The Hypoxidaceae is included in the order Liliales by Takhtajan, in the order Asparagales by Dahlgren, in the order Haemodorales by Hutchinson, in the order Liliflorae by Engler. However, Bentham & Hooker considered it as part of the family Amaryllidaceae ; while Cronquist and Thorne retained it in the family Liliaceae.

The Hypoxidaceae is characterised in having tuberous rhizome, 6-merous perianth, 6 or 3 stamens, inferior ovary, ovules on axile placenta and seeds with copious endosperm. The Hypoxidaceae is related to Haemodoraceae.

The family is represented in India by the following genera : *Curculigo, Hypoxis, Molineria.*

According to Dahlgren (1983) the family Hypoxidaceae has stomata with subsidiary cells, but otherwise has asparagalean characteristics.

GENERAL

HPX 1 Baker, J. G. 1878

A synopsis of Hypoxidaceae. *Journ. Linn. Soc. Bot.* 17 : 93-126. Description & keys.

HPX 2 Geerinck, D. 1968

Considerations taxonomiques an suject des Haemodoraceae et des Hypoxidaceae (Monocotyledones). *Bull. Soc. Roy. Bot. Belg.* 101 : 265-278.

HPX 3 Thompson, M. F. 1973

Anatomical and cytological studies in the Hypoxidaceae. *Forum Bot.* 11(7) : 47.

Curculigo Gaertn.

HPX 4 Chen, Sing-Chi 1966

The genus *Curculigo* in China. *Acta Phytotax. Sin.* 11 : 136-138.

Hypoxis Linn.

HPX 5 Brackett, A. 1923

Revision of the American species of *Hypoxis. Contr. Gray Herb.* 69 : 120-155.

HPX 6 Brackett, A. 1923

Some genera closely allied to *Hypoxis. Contr. Gray Herb.* 69 : 155-163.

Molineria Colla

HPX 7 Deb, D. B. (1964) 1965

An undescribed species of Hypoxidaceae. *Bull. Bot. Surv. India* 6 : 77-79. *Molineria praineana* Deb from Arunachal Pradesh.

ICACINACEAE

The family Icacinaceae consists of about 58 genera and 400 species. The family is included in the order Celastrales by Cronquist, Engler, Hutchinson and Takhtajan, in the order Cornales by Dahlgren, in the order Santalales by Thorne. It is retained in the family Olacaceae by Bentham & Hooker.

The Icacinaceae is distinguished by its usually woody lianous habit, exstipulate usually alternate leaves, 4 or 5-merous floral parts, stamens alternipetalous, 3-5 carpellate, 3-loculed becoming 1-loculed ovary by abortion with usually 2-pendulous ovules.

The Icacinaceae is allied to the Aquifoliaceae but differs in having 1-loculed ovary (usually the other 2-locules become aborted) valvate petals and trinucleate pollen. In the Aquifoliaceae the ovary is usually 4-6 loculed, the petals are imbricate and the pollen is binucleate.

The family is represented in India by the following genera : *Apodytes, Codiocarpus, Iodes, Miquelia, Natsiatum, Nothapodytes, Platea, Pyrenacantha, Sarcostigma, Stemonurus.*

For recent taxonmomic revisions refer Howard (1940, 1942). Sleumer (1969, 1970, 1971) ; for pollen morphology refer Dahl (1952), Lobreau-Callen (1973).

The presence or absence of iridoid compounds has become a factor in the circumscription of higher taxonomical categories like orders and families. Iridoid compounds are present in the Icacinaceae. According to Baas (1975) that embryological characters between Icacinaceae and Aquifoliaceae are similar though iridoids are not discovered in the latter. Dahlgren (1975) noted that the occurrence of iridoids is correlated with embryological characters such as unitegumic tenuinucellate ovules, cellular endosperm and endosperm haustoria.

GENERAL

ICC 1 Baillon, A. E. 1872-79

Deuxieme etude sur les Mappiees. *Adansonia* 10 : 261-282. 1872 ; 11 : 239-273, 292-312. 366-373. 1875 ; 12 : 220-254, 282-296. 1876-79.

ICC 2 Chuang, Hsuan 1981

Icacinaceae. *Fl. Reipubl. Pop. Sinicae* 46 : ii-iv, 37-65. 13 genera, 25 spp.

1CC 3 Dahl, A. O. 1952

The comparative morphology of the Icacinaceae-VI. The pollen. *Journ. Arn. Arb.* 33 : 252-286.

ICC 4 Howard, R. A. 1940

Studies of the Icacinaceae. Preliminary taxonomic notes. *Journ. Arn. Arb.* 21 : 461-488. Key to genera.

ICC 5 Howard, R. A. 1942

Studies of the Icacinaceae-II. *Journ. Arn. Arb.* 23 : 55-78. Mostly extra Mal. genera.

ICC 6 Lobreau-Callen, D. (1972) 1973

Pollen des Icacinaceae-I. Atlas I. *Pollen et Spores* 14 : 345-388.

ICC 7 Lobreau-Callen, D. (1972) 1973

Les caracteres du pollen et la repartition geographique des Icacinaceae. *Compte R. Seances Soc. Biogeogr.* nos. : 425-433, 4-17.

ICC 8 Sleumer, H. O. 1940

Beitrage zur Kenntnis der Icacinaceen und Peripterygiaceen. *Notizbl. Berl. Dahlem* 15 : 228-257.

ICC 9 Sleumer, H. 1969

Materials towards the knowledge of the Icacinaceae of Asia, Malesia and adjacent areas. *Blumea* 17 : 179-264. Nomencl. notes on *Apodytes, Gomphandra, Natsiatum, Sarcostigma, Nothapodytes, Stemonurus, Codiocarpus, Gonocaryum, Iodes, Mappianthus & Platea.*

ICC 10 Sleumer, H. 1970

Icacinaceae. *In* : *Fl. Thailand* 2 : 75-92.

ICC 11 Sleumer, H. 1971

Icacinaceae. *In* : van Steenis, *Fl. Males.* I, 7 : 1-87, 42 fig.

ICC 12 Staversen, M. G. C. van 1973

Epidermal leaf characters of the Malesian Icacinaceae. *Acta Bot. Neerl.* 22(4) : 329-359. A synoptical key to the genera on the basis of cuticular characters.

Lasianthera Beauv.

ICC 13 Thothathri, K. & Banerjee, S. P. 1977

Lasianthera secundiflora Miq. (Icac.), a new record from Great Nicobar Island. *Indian Forester* 103 : 708-709.

ADDITIONS : GENERAL

ICC 14 Bass, P. 1975

Vegetative anatomy and the affinities of Aquifoliaceae : *Sphenostemon, Phelline* and *Oncotheca. Blumea* 22 : 311-407.

ICC 15 Dahlgren, R. 1975

A system of classification of the angiosperms to be used to demonstrate the distribution of characters. *Bot. Notiser* 128 : 119-147.

ICC 16 Lobreau-Callen, D. 1973

Le pollen des Icacinaceae II. Observations en microscopic electronique correlations conclusions. *Pollen et Spores* 15(1) : 47-89.

ICC 17 Sleumer, H. O. 1942

Icacinaceae, Peripterygiaceae, Erythropalaceae. *In* : Engler & Prantl. *Pflanzenf.* ed. 2, 20b : 232-239, 322-403.

ILLECEBRACEAE-refer **CARYOPHYLLACEAE**

ILLICIACEAE

The family Illiciaceae is monogeneric (*Illicium*) with about 42 species. The family is included in the order Magnoliales by Cronquist, Engler and Hutchinson, in the order Illiciales by Dahlgren and Takhtajan and in the order Annonales by Thorne.

Smith (1947) established the family Illiciaceae. The Illiciaceae is characterised by its arborescent habit, exstipulate leaves, bisexual flowers, 7 to many perianth arranged in series, 4 to many stamens in one or several series, superior 5-20 carpelled gynoecium with one sub-basal ovule in each carpel, fruit consisting of a ring of follicles and seeds with copious endosperm. The family is allied to Schisandraceae. The Schisandraceae is characterised by its lianous habit, unisexual flowers, carpels spirally arranged and becoming fleshy in fruit. According to Cronquist, the Schisandraceae and Illiciaceae form a closely knit group which differs from the magnoliaceous group in having unilacunar nodes and triaperturate or more advance type of pollen.

The family is represented in India by the genus *Illicium* Linn.

For recent taxonomic revision refer Smith (1947) ; for phylogeny refer Carlquist.

The order Illiciales of Dahlgren and Takhtajan consists of families Illiciaceae and Schisandraceae. This order shows lauralean evolution, an intermediate stage, a transition from Magnolian to Lauralean characters from tri to unilacunar nodes, transition from scalariform to vessel perforations. While in the nature of ovary and endosperm used as a storage tissue this order has magnolian affinities,

GENERAL

ILC 1 Keng, H. 1972

Illiciaceae. *In* : Smitinand, T., Larsen, K. & Hansen, B. *eds., Fl. Thailand* 2(2) : 115-116.

ILC 2 Smith, A. C. 1947

The families Illiciaceae and Schisandraceae. *Sargentia* 7 : 1-224, fig. 1-41. Revision.

ILC 3 Tschudy, R. H. 1970

Two new pollen genera (late Cretaceous and Paleocene) with possible affinity to the Illiciaceae. *Geol. Surv. Prof. Paper* 643-F. : 1-13.

Illicium Linn.

ILC 4 Carlquist, S. 1982

Wood anatomy of *Illicium* (Illiciaceae) : phylogenetic ecological and functional interpretations. *Amer. Journ. Bot.* 69 : (10) : 1587-1598.

ILC 5 Hoh, Hin-Cheung 1940

The star anise tree in Kwangsi. *Sunyatsenia* 4 : 272-289, pl. 45-48. The economic importance of *Illicium verum* ; in India *I. griffithii* occurs in Khasi hills and Bhutan.

ILC 6 Hopkins, H. 1972

Illicium : an old plant with new promise. *Journ. Roy. Hort. Soc.* 97(12) : 525-530.

ILC 7 Subba Rao, G. V. & Kumari, G. R. (1964) 1965

Illicium cambodianum Hance : a new record for India. *Bull. Bot. Surv. India* 6 : 105-106.

IRIDACEAE

The family Iridaceae consists of about 60 genera and 800 species mainly occurring in tropical America and S. Africa as two major centres.

The family is included in the Liliales by Cronquist, Dahlgren and Thorne, in the order Lilliflorae by Engler, in the order Iridales by Hutchinson and Takhtajan and in the order Epigynae by Bentham & Hooker.

The family Iridaceae is characterised by its rhizomatous or cormous habit, leaves usually arranged in two ranks, bisexual flower with 3 + 3 perianth segments, 3 stamens. The ovary is usually inferior, very rarely superior comprising three carpels and usually with three locules ; ovules are arranged on axile placentas or ovary is rarely one loculed with ovules on parietal placentas.

The Iridaceae mainly differs from the Liliaceae in having 3 stamens and inferior ovary ; whereas in the Liliaceae the stamens are mostly 6 or more, sometime 4 and ovary is superior, rarely inferior.

The family is represented in India by the following genera : *Belamcanda, Crocus, Iris.*

Several species of the following genera are cultivated in India : *Cipura, Gladiolus, Freesia, Ixia, Tigridia.*

For recent taxonomic studies refer Lawrence (1937, 1953), Lewis (1954) ; for cytotaxonomy and chromosome studies refer Banerjee & Sharma (1973), Sharma & Sharma (1961), Sharma & Talukdar (1959) ; for palynology refer Schulze (1971).

The family Iridaceae is of ornamental importance. Several species of Crocus are cultivated in gardens : *C. aureus* with yellow flowers ; Naked autumn Crocus (*C. nudiflorus*) ; Purple Crocus (*C. purpureus*) ; *C. chrysanthus* with orange coloured flowers ; Pale violet Crocus (*C. specious*) ; Saffron (*C. sativus*), the source of yellow dye which is prepared from the stigmas.

Some of the Iris species cultivated in gardens are : Yellow flag (*Iris pseudocorus*) ; Dark blue Iris (*I. germanica*) ; Yellow Iris (*I. flavescens*) ; *I. variegata.*

Gladiolus includes large number of cultivars which are cultivated in temperate and hill gardens : *Gladiolus gandavensis, G. cardinalis, G. communis.*

GENERAL

IRI 1 Arber, A. 1921

The leaf structure of the Iridaceae considered in rela-

tion to the phyllode theory. *Amer. Bot.* (*London*) 35 : 301-336.

IRI 2 Baker, J. G. 1877

System a Iridiacearum. *Journ. Linn. Soc. Bot.* 16 : 61-180. A table showing the distribution of genera, a key to tribes and genera and an enumeration of species.

IRI 3 Baker, J. G. 1892

Handbook of the Irideae i-xii, 1-247. London. Key and descr. of all known spp.

IRI 4 Banerjee, M. & Sharma, A. K. (1971) 1973

A cytotaxonomical analysis of several genera of the family Iridaceae. *Plant. Sci.* (*Lucknow*) 3 : 14-29.

IRI 5 Foster, R. C. 1936

Notes on nomenclature in Iridaceae. *Contr. Gray Herb.* 114 : 37-50. Includes critical notes and nomenclatural changes.

IRI 6 Geesink, D. J. L. 1977

Iridaceae. *In* : van Steenis, *Fl. Males.* I, 8 : 77-84, 6 fig.

IRI 7 Klatt, F. W. 1863-66

Revisio Iridearum. Linnaea 32 : 689-784. 1863 ; 537-539. 1865-1866.

IRI 8 Lewis, G. J. 1954

Some aspects of the morphology, phylogeny and taxonomy of the South African Iridaceae. *Ann. S. African Mus.* 40 : 15-113.

IRI 9 Schulze, W. 1970

Beitrage zur Pollenmorphologie der Iridaceae-Ixioideae. *Wiss. Ztschr. Friedrich-Schiller Univ. Jena, Math. nat.* 19 : 437-445.

IRI 10 Schulze, W. 1971

Beitrage Zur Pollenmorphologie der Iridaceae and ihre

Bedeutung für die Taxonomie. *Feddes Repert* 82(2) : 101-124.

Belamcanda Adans.

IRI 11 Chimphamba, B. B. 1973

Intergeneric hybridization between *Iris dichotoma* Pall. and *Belamcanda chinensis* Leman. *Cytologia* 38(3) : 539-547. Chrom. nos.

IRI 12 Schulze, W. 1971

Die Systematische Stellung der Iridaceen-Gattung *Belamcanda* Adans. *Feddes Repert* 81 : 519-526. Chrom. nos. & pollen studies.

IRI 13 Sharma, A. K. & Talukdar, C. 1959

Cytotaxonomical studies on some members of the Iridaceae with special reference to the structural heterozygosity. *Nucleus* 2 : 63-84.

Crocus Linn.

IRI 14 Bowles, E. A. 1924-1952

A Handbook of Crocus and Colchicum for gardens. i-iii, 1-185. London 1924 ; Edition 2, 1-222. 1952.

IRI 15 Brighton, C. A. & Mathew, B. F. & Marchant, C. J. 1973

Chromosome counts in the genus *Crocus. Kew Bull.* 28 : 451-464.

IRI 16 Feinbrun, N. 1958

Chromosome number in *Crocus. Genetica* 29 : 172-192.

IRI 17 Feinbrun, N. & Shmida, A. 1977

A new review of the genus *Crocus* in Israel and neighbouring countries. *Israel Journ. Bot.* 26(4) : 172-189. Chrom. nos. & Keys.

IRI 18 Herbert, W. 1847

History of the species of *Crocus. Journ. Hort. Soc. London* 2 : 249.

IRI 19 Karasawa, K. 1950

Note on the cytology of *Crocus*. *Genetica* 25 : 118-192.

IRI 20 Lawrence, G. H. M. 1954

Key to cultivated plants 4. The Spring-flowering Crocuses. *Baileya* 3 : 127-137.

IRI 21 Maw, G. 1886

A monograph of the genus Crocus, i-xx, 1-326, pl. 1-67. London.

Iris Linn.

IRI 22 Alefeld, F. 1863

Uber die Gattung *Iris* L. *Bot. Zeit.* 21 : 289-291, 296-298.

IRI 23 Anderson, E. 1936

The species problem in *Iris*. *Ann. Missouri Bot. Gard.* 23 : 457-509.

IRI 24 Baker, J. G. 1876

A synopsis of the known species of *Iris*. *Gard. Chron.* n. ser. 5 : 526-527, 559, 623-624, 692, 723, 787-788 ; 6 : 36-38, 143-144, 226, 323-324, 517-518, 583-584, 614-615, 647-648, 708-710, 740-741, 774. Described 92 spp.

IRI 25 Baker, J. G. 1892

Handbook of Irideae. 1-47. London.

IRI 26 Bunyard, G. N. 1953

A preliminary note on *Iris* pollen. *The Iris Year Book* 145-148.

IRI 27 Chuma, C. 1970

Palynological notes on the Asiatic species of the genus *Iris*. *Journ. Jap. Bot.* 275-288. pl. xvii-xxiv.

IRI 28 Daumann, E. 1933

Die Systematische Bedeutung des Blutennektariums der

Gattung *Iris*. *Bericht. Deutsch. Bot. Ges.* 51 : 157-164. Reassignment of the sections with a list of species.

IRI 29 Dykes, W. R. 1913

The genus Iris 1-245, pl. 1-48, fig. 1-30. Cambridge. Folio size book with description and col. illust. of spp.

IRI 30 Ghio, J. J. 1972

The world of *Iris*. *Horticulture* 50(5) : 26-27, 50-51.

IRI 31 Gustafsson, M. & Wendelbo, P. 1975

Karyotype analysis and taxonomic comments on Irises from SW. and C. Asia. *Bot. Notiser* 128(2) : 208-226. Chrom. nos.

IRI 32 Hara, H. 1974

New or noteworthy plants from eastern Himalaya 15. *Journ. Jap. Bot.* 49 : 193-205. *Iris staintonii* Hara from C. Nepal.

IRI 33 Lawrence, G. H. M. 1937

Cytotaxonomic survey of the North American species of *Iris*. *Contr. Gray Herb.* 119 : 3-80.

IRI 34 Lawrence, G. H. M. 1953

Major groups within the genus *Iris*. *Baileya* 1 : 31-36, fig. 16-32.

IRI 35 Lawrence, G. H. M. 1953

A reclassification of the genus *Iris*. *Gentes Herb.* 8 : 346-371. Subgeneric categories reclassified with a list of spp.

IRI 36 Lynch, R. I. 1904

The book of the Iris, i-xii, 1-214, 36 pl. Detailed notes and identification of spp.

IRI 37 Mathew, B. & Marchant, A. 1974

An alphabetical table and cultivation guide to the species of the genus Iris. 1-32. *British Iris Society*.

IRI 38 Meunissier, A. 1937

Origine et histoire des *Iris*. *Rev. Hort.* (Paris) 109 : 520-524, fig. 373-383.

IRI 39 Rodionenko, G. I. 1956

Le pollen d' *Iris* et quelques regularites de son evolution. *Dokl. Akad. Nauk. S.S.S.R.* 110 : 699-702.

IRI 40 Schulze, W. 1964

Beitrage zur taxonomischen Anwendung der Pollen morphologie I. Die Gattung *Iris* L. *Grana. Palynologica* 5(1) : 40-79.

IRI 41 Schulze, W. 1971

Beitrage zur Pollen morphologie der Gattungen um *Iris* L. *Feddes Repert* 81(8-9) : 507-517.

IRI 42 Sealy, J. R. 1937

Iris wattii. Gard. Chron. III, 102 : 413-414 ; 432-433. A review.

IRI 43 Sealy, J. R. 1940

Iris wattii. Curtis's Bot. Mag. 162 : pl. 9590. Native of Assam & Yunnan.

IRI 44 Sharma, A. K. & Sharma, A. 1961

Cytology of some members of the family Iridaceae. *Cytologia* 26 : 234.

IRI 45 Spach, E. 1846

Revisio generis *Iris*. *Ann. Sci. Nat.* III. Bot. 5 : 89-111.

IRI 46 Tesnier, F. 1923

Distribution geographique du genre *Iris*. *Rev. Hort.* (Paris) 1923 : 296-297.

IRI 47 Zhao, Y. -T. 1982

The geographical distribution of *Iris* in China. *Iris Year Book* 47-51.

ITEACEAE

(Refer also Saxifragaceae)

The family Iteaceae is included in the order Saxifragales by Dahlgren and Takhtajan. It is considered as part of the family Grossulariaceae by Cronquist ; while Bentham & Hooker, Engler and Throne retained it in the family Saxifragaceae. However Hutchinson considered it in the family Escalloniaceae.

The family Iteaceae represented by the genera *Itea* and *Choristylis* are arborescent in habit and have elongate racemiform inflorescence, bisexual or polygamous flowers, 5-merous floral parts, annular disk, 2-carpelled semi inferior ovary and septicidal capsule.

The Iteaceae is allied to the Escalloniaceae. The family is represented in India by the genus *Itea*.

GENERAL

ITE 1 Klopper, K. 1973

Florale Morphogenese und Taxonomie der Saxifragaceae *sensu lato*. *Fedde Repert* 84 : 475-516. Subfamilial delimitation.

Itea Linn.

ITE 2 Chang, Hung-ta 1953

Chinese species of *Itea*. *Acta Phytotax. Sin.* 2 : 115-132, pl. 17, 18. A taxonomic revision in Chinese.

ITE 3 Rheder, A. 1911

Itea L. *In* : Sarg., *Pl. Wils.* 1 : 44.

ITE 4 Watson, W. 1903

Itea ilicifolia. *Gard. Chron.* III, 34 : 375, fig. 152.

IXONANTHACEAE

(Refer also Linaceae)

The family Ixonanthaceae is included in the order Geraniales by Dahlgren and Takhtajan, in the order Malpighiales by Hutchin-

son. It is retained in the family Linaceae by Bentham & Hooker, Cronquist, Engler and Thorne. Kool (1980) in a taxonomic revision retained Ixonanthoideae under the family Linaceae.

The Ixonanthaceae is characterised by its stipulate leaves, 4-5 merous floral parts, 5 to 20 stamens, often sigmoid in bud, annular or cupular disk, superior usually 4-5 carpelled rarely 2-carpelled ovary. Fruit a large drupe or samara or septicidal capsule with arillate seeds.

The family is represented in India by the genus *Ixonanthes*. Nooteboom (1967) appropriately transferred the genera *Irvingia* and *Allantospermum* to the subfamily Irvingioideae under Simaroubaceae.

IXO 1 Forman, L. L. 1965

A new genus of Ixonanthaceae with notes on the family. *Kew Bull.* 19 : 517-526.

IXO 2 Hazra, P. K. 1983

Ixonanthaceae. *Fasc. Fl. India* 13 : 13-16. *Ixonanthes khasiana* Hook. f. described.

IXO 3 Hutchinson, J. 1967

Ixonanthaceae. *The genera of Flowering Plants* 2 : 592-594.

IXO 4 Kool, R. 1980

A taxonomic revision of the genus *Ixonanthes* (Linaceae). *Blumea* 26 : 191-204.

IXO 5 Oltmann, O. 1971

Pollen morphologisch—systematisch Untersuchungen innerhalb der Geraniales. Lehre, J. Cramer 1-163. Ixonanthaceae p. 45-51.

ADDITION

IXO 6 Nooteboom, H. P. 1967

The taxonomic position of Irvingioideae *Allantospermum* Forman and *Cyrillopsis* Kuhlm. *Adansonia ser.* 2, 7 : 161-168.

JUGLANDACEAE

The family Juglandaceae consists of about 7 genera and 50 species occurring in temperate regions. The family is placed in the order Juglandales by Cronquist, Dahlgren, Engler, Hutchinson and Takhtajan, in the order Rutales by Thorne and in the order Unisexuales by Bentham & Hooker.

The Juglandaceae is characterised by its alternate pinnate exstipulate leaves, unisexual flowers with male and female flowers in the same plant, male flowers in catkins with 3 to 4 stamens and female flowers with epigynous 4 segmented perianth enclosed in cupule, inferior 2 carpellate ovary which is one loculed with one erect ovule.

The family is allied to Picrodendraceae but differs in having solitary basal ovule in a inferior unilocular ovary and having leaves which are pinnately compound and exstipulate. In the Picrodendraceae the superior ovary has 4-2 ovules in each locule and leaves are trifoliolate and stipulate. The family Juglandaceae is closely allied to Anacardiaceae regarding anatomical and palynological features.

Following sub-families are recognised : Juglandoideae, Oreomunneoideae.

The family is represented in India by the following genera : *Carya, Engelhardtia, Juglans*.

For recent taxonomic revisions refer Koidzumi (1937), Manning (1979) ; for palynology refer Ikuse (1954), Stachurska (1961), Whitehead (1963, 1965) ; for phylogeny refer Abbe (1974), Hjelmqvist (1948).

Dahlgren (1983) included the families Rhoipteleaceae and Juglandaceae in the order Juglandales. The family Myricaceae to which the Juglandaceae is anatomically related is given as separate unifamilial order Myricales. Thorne however assigned the Juglandaceae to the Rutales near Anacardiaceae. The flavonoid chemistry in having the presence of 5-methoxylated flavonoids favours Juglandaceae a position in relation to the super order Hamamelidae (Gornall *et al.* 1979). According to Petersen & Fairbrothers (1979) serological evidence supports the placing of Myricales and Juglandales with Fagales.

Meeuse (1975) considered that the wind-pollinated flowers as relatively ancestral. It is generally considered now that amentifers are a derived group with polyphyletic ancestry from insect-pollinated groups. However Ehrendorfer (1983) indicates that its position is near Hamamelididae than Rosidae and Dilleniidae. According to Ehrendorfer (1983) "they tend towards anemophily and reduction of polymerous to oligomerous monochlamydous flowers, but there are also trends towards the formation of petals from stamens and towards the secondary multiplication of stamens". This view compromises the diverging views of Meeuse and Thorne and favours their joint classification as Hamamelididae to be placed in between Magnolidae *s.l.* and Rosidae & Dilleniidae.

GENERAL

JUG 1 Abbe, E. C. 1974

Flower and inflorescences of the "Amentiferae". *Bot. Rev.* 40(2) : 159-261.

JUG 2 Candolle, C. de 1864

Juglandaceae. *In* : DC., *Prodr.* 16(2) : 134-146.

JUG 3 Heimsch, C. Jr. & Wetmore, R. W. 1939

The significance of wood anatomy in the taxonomy of the Juglandaceae. *Amer. Journ. Bot.* 26 : 651-660.

JUG 4 Hjelmqvist, H. 1948

Studies on the floral morphology and phylogeny of the Amentiferae. *Bot. Not. Suppl.* 2 : 5-171.

JUG 5 Ikuse, M. 1954

On the pollen grains of some genera of *Juglandaceae*. *Journ. Jap. Bot.* 29 : 333-335, 2 fig. In Japanese.

JUG 6 Koidzumi, G. 1937

On the classification of the Juglandaceae. *Acta Phytotax. Geobot.* 6 : 1-17. In Japanese, latin treatment for new subfamilies, tribes, species and varieties.

JUG 7 Kribs, D. A. 1927

Comparative anatomy of the woods of the Juglandaceae.

Trop. Woods 12 : 16-21. Key to genera based on wood anatomy.

JUG 8 Kuprianova, L. A. 1965

The palynology of the Amentiferae. *Komarov Bot. Inst. Acad. Sci. URSS.* 1 : 1-214.

JUG 9 Leroy, J. F. 1955

Etude sur les Juglandaceae. *Mem. Mus. Paris* II B.(*Bot.*) 6 : 1-246.

JUG 10 Manning, W. E. (1978) 1979

The classification within the Juglandaceae. *Ann. Missouri Bot. Gard.* 65(4) : 1058-1087. Key, chrom. nos.

JUG 11 Miki, Shigeru 1955

Nut remains of Juglandaceae in Japan. *Journ. Inst. Polytech. Osaka & City Univ. Ser.* D. 6 : 131-144, pl. 1-3, fig. 1-4. Living and fossil remains mentioned.

JUG 12 Nagel, K. 1914

Studien uber die Familie der Juglandaceen. *Engler Bot. Jahrb.* 50 : 459-530, pl. 4, fig. 1.

JUG 13 Nagel, K. 1914

Kartographische Darstellung der Verbreitung der Juglandaceen. *Engler Bot. Jahrb.* 50 : 531, pl. 5, 6.

JUG 14 Nekrassova, V. L. 1930

Review of the Juglandaceae in the U.S.S.R. *Journ. Arn. Arb.* 11 : 1-7, pl. 19, 20.

JUG 15 Rehder, A. & Wilson, E. H. 1916

Juglandaceae. *In* : Sarg., *Pl. Wils.* 3 : 180-188.

JUG 16 Scott, R. A. 1953

Status of an Asiatic member of the Juglandaceae regarded as a living fossil. *Amer. Journ. Bot.* 40 : 666-669. Proposed *Juglandiearya integrifoliolata* (Kuang) Hu as congeneric with fossil *Juglandicarya* is rejected.

JUG 17 Stachurska, A. 1961

Morphology of pollen grains of the Juglandaceae. *Monographiae Botanicae* 12 : 121-143.

JUG 18 Stone, D. E. & Broome, C. R. 1971

Pollen ultrastructure : evidence for relationship of the Juglandaceae and the Rhoipteleaceae. *Pollen et Spores* 13(1) : 5-14.

JUG 19 Whitehead, D. R. 1963

Pollen morphology in the Juglandaceae I. Pollen size and pore number variations. *Journ. Arn. Arb.* 44(1) : 101-110.

JUG 20 Whitehead, D. R. 1965

Pollen morphology in the Juglandaceae II. Survey of the family. *Journ. Arn. Arb.* 46(4) : 369-410.

Carya Nutt.

JUG 21 Manning, W. E. & Hjelmqvist, H. 1951

Annamocarya, Rhamphocarya and *Carya sinensis. Bot. Not.* 1951 : 319-330, fig. 1, 2. Considered under the genus *Carya* ; *Rhamphocarya* sect. nov.

JUG 22 Stone, D. E. 1962

Affinities of a Mexican endemic, *Carya palmeri,* with American and Asian hickories. *Amer. Journ. Bot.* 49 : 199-212.

JUG 23 Stone, D. E. 1963

Pollen size in Hickories (Carya). *Brittonia* 15(3) : 208-214.

JUG 24 Stone, D. E. 1964

Fine structure of the walls of *Juglans* and *Carya* pollen. *Pollen et Spores* 6(2) : 379-392.

Engelhardtia Leschen ex Bl.

JUG 25 Manning, W. E. 1966

New combinations and notes on *Engelhardtia* (Juglandaceae) of the Old World. *Bull. Torrey Bot. Club* 93 : 34-52.

Juglans Linn.

JUG 26 Bean, W. J. 1901

The walnuts. *Gard. Chron.* III, 30 : 320-322.

JUG 27 Carniel, K. 1964

Beitrage zur Morphologie der Pollen Korner von *Juglans regia* und *J. nigra*. *Osterr. Bot. Z.* III, (5) : 554-560.

JUG 28 Dode, L. A. 1906-1909

Contribution a l'etude du genre *Juglans*. *Bull. Soc. Dendr. France* 1906 : 67-98, illustr. 1906 ; 1909 : 22-50, illustr. 165-215, illustr. 1909. 44 spp. described.

ADDITIONS : GENERAL

JUG 29 Ehrendorfer, F. 1983

Summary statement. *Nord. Journ. Bot.* 3 : 151-155.

JUG 30 Gornall, R. J., Bohm, B. A. & Dahlgren, R. 1979

The distribution of flavonoids in the angiosperms. *Bot. Notiser* 132 : 1-30.

JUG 31 Meeuse, A. D. J. 1975

Floral evolution in the Hamamelidae I, General assessment of the probable phylogeny and taxonomic position of the group. *Acta Bot. Neerl.* 24 : 155-164.

JUG 32 Peterson, F. P. & Fairbrothers, D. E. 1979

Serological investigations of selected amentiferous taxa. *Syst. Bot.* 4 : 230-241.

Juglans Linn.

JUG 33 Knees, S. 1983

Exotic hickories and wingnuts. *Living Countryside* 11(128) : 2551-2553.

JUG 34 Manchester, S. R. & Dilcher, D. L. 1982

Pterocaryoid fruits (Juglandaceae) in the Paleogene of North America and their evolutionary significance. *Amer. Journ. Bot.* 69 : 275-286,

JUNCACEAE

The family Juncaceae consists of about 9 genera and 400 species. The family is included in the order Juncales by Cronquist, Dahlgren, Engler, Hutchinson and Takhtajan, in the order Commelinales by Thorne and in the order Calycinae by Bentham & Hooker.

The Juncaceae is characterised by regular flowers, 3 + 3 perianth lobes in two whorls, 3+3 stamens which are usually opposite to the perianth segments, superior ovary of 3 fused carpels, one or three loculed, ovules on axile or parietal placentas and fruit a dry capsule which dehisces longitudinally and seeds endospermous.

The family is allied to the Liliaceae and is considered as a derivation from the liliaceous stocks.

According to Dahlgren & Clifford (1982) the Juncales and Cyperales are related on the basis of the presence of mostly tristichous phyllotaxis, the occurrence of pollen tetrads, the presence of anatropous ovules, broad-capitate (not lateral) embryos. In all these features they differ from Poales.

The family is represented in India by the following genera : *Luzula, Juncus.*

For recent taxonomic revisions refer Backer (1951), Stace (1971).

GENERAL

JUN 1 Backer, C. A. 1951

Juncaceae. *In* : van Steenis, *Fl. Males.* I, 4 : 210-215, fig. 1-2.

JUN 2 Buchenau, F. G. Ph. 1885

Die Juncaceen aus Indien insbescondere die aus dem Himalaya. *Engler, Bot. Jahrb.* 6 : 187-232, t. 1-11. Revision of the Himalayan spp., keys.

JUN 3 Buchenau, F. G. Ph. 1890

Monographia Juncacearum. *Bot. Jahrb.* 12 : 1-495, tab. 1-3, fig. 1-9. Monograph, keys.

JUN 4 Buchenau, F. G. Ph. 1906

Juncaceae. *In* : Engler, *Pflanzenr.* 25 (IV. 36) : 1-284, fig. 1-121. Monographie.

JUN 5 Hamann, U. 1961

Merkmalsbestand und Verwandtschafts bezeichungen der Farinosae. *Willdenowia* 2 : 639-768.

JUN 6 Larsen, K. 1972

Juncaceae. *In* : Smitinand, T., Larsen, K. & Hansen B., *eds., Fl. Thailand* 2(2) : 167-169.

JUN 7 Steudel, E. G. 1855

Enumeratio plantarum Glumacearum pars II. Stuttgart 290-314.

JUN 8 Vierhapper, F. 1930

Juncaceae. *In* : Engler & Prantl, *Pflanzenf.* 15a : 192-224.

JUN 9 Williams, C. A. & Harborne, J. B. 1975

Luteolin and daphnetin derivatives in the Juncaceae and their systematic significance. *Biochem. Syst. Ecol.* 3(3) : 181-190.

Juncus Linn.

JUN 10 Hara, H. 1974

New or noteworthy flowering plants from eastern Himalaya (15). *Journ. Jap. Bot.* 49 : 193-205. *Juncus biglumoides* Hara from C. Nepal allied to *J. biglumis.*

JUN 11 Laharpe, J. de 1827

Essai du'une monographie des vraies joncees comprenant le genres *Juncus, Luzula* et *Abama. Mem. Soc. Hist. Nat. Paris* 3 : 89-181.

JUN 12 Rostkovius, F. W. G. 1801

Dissertatio botanico de Junco. Halae 1801 ed. 2. *Monographia generis junci* 1-58. Berolini.

JUN 13 Shah, C. K. (1970) 1971

A note on the toad rush. *Juncus bufonius* L. from western India (Juncae). *Journ. Bombay Nat. Hist. Soc.* 67 : 608-609, 1 pl.

JUN 14 Stace, C. A. (1970) 1971

Anatomy and taxonomy in *Juncus* subgenus *Genuini*. *Bot. Journ. Linn. Soc.* 63 : Suppl. 1 : 75-81.

ADDITIONS : GENERAL

JUN 15 Dahlgren, R. & Clifford, H. T. 1982

The Monocotyledons : a comparative study. Academic, London.

JUN 16 Hooker, J. D. 1892

Juncaceae. *In* : Hooker, J. D., *ed., Fl. Brit. India* 6 : 392-402.

JUNCAGINACEAE

The family Juncaginaceae is included in the order Najadales by Cronquist and Takhtajan, in the order Zosterales by Dahlgren, in the order Helobiae by Engler, in the order Juncaginales by Hutchinson. It is retained in the family Najadaceae by Bentham & Hooker. However Thorne treated the Juncaginaceae as part of the family Scheuchzeriaceae.

The Juncaginaceae is characterised by its scapigerous herbaceous habit with linear sheathing leaves and the flowers are in racemes or spikes. The regular flowers are bisexual or unisexual, with 3+3 perianth segments in two series, stamens are six or four in number wth subsessile anthers. Ovary is superior, with four or six free or partly united carpels, each carpel having a single basal anatropous ovule or rarely the ovule is apical and orthotropous. The fruit is follicular and seeds are without endosperm.

The Juncaginaceae is allied to the family Najadaceae. In the Najadaceae, the plants are submerged aquatics with branching stems, the flowers are solitary in the axils of leaves, the gynoecium is one carpellate and the androecium consists of one stamen.

The family is represented in India by the genus *Triglochin*.

GENERAL

JCG 1 Buchenau, F. 1866

Index critcus juncaginacearum hucusque descriptarum. *Abh. Naturw. ver Bremen.* 1 : 213-224.

JCG 2 Jafri, S. M. M. 1973

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