



# BSI NEWSLETTER

The monthly electronic newsletter of Botanical Survey of India

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## Director's Column

During this month our scientists discovered two new Sino - Himalayan genera named as *Shivaparvattia* and *Himgiria* belonging to the family Caryophyllaceae and four new species of wild mushrooms, *Lactarius* from Himalayas viz., *L. olivaceoglutinus*, *L. pyriodorus*, *L. yumthangensis* and *L. indo-chryso-rheus*. The ITS data suggests that these new wild mushrooms are closely related to certain European and American species.

A rare and endemic variety of *Trigonostemon viridissimus* is recollected by the scientists of BSI after 70 years from South Garo Hills district of Meghalaya. The field assessment ascertained that the area of occupancy and population status of this endemic taxon is on continuous decline. The bryophyte member, *Bazzania hainanensis* (Hepaticae), collected from Mizoram, forms the new record for India.

The scientists of various units and centres of BSI conducted field exploration tours to various phytogeographical regions and collected nearly 650 field numbers of vascular plant samples for floristic studies. Besides, 90 algal samples were collected from the various localities of the Hazaribagh and Khunti districts of Jharkhand.

An interesting research note has been published by our scientist on *Valeriana jatamansi* and *Selinum vaginatum* used as substitute for *Nardostachys jatamansi* in preparation of neuroprotective drugs.

Happy browsing!

**Paramjit Singh**

Director, Botanical Survey of India



# HEAD QUARTERS, KOLKATA

Dr. R.K. Gupta, Scientist 'D' conducted field tour to Hazaribagh and Khunti districts of Jharkhand from 30.03.2015 to 10.04.2015 and collected 90 algal samples from various localities including thermophilic algae from the thermal spring.

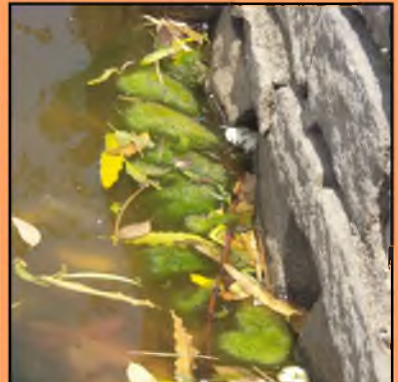
In connection with the 'Studies on wild mushrooms of Sikkim', 'Revision of the family Metzgeriaceae in India' (Bryophyte) and 'Wood rotting fungi of Rajmahal hills' identifications, descriptions and illustrations are being made by the Scientists and Scientific staff of Cryptogamic unit.



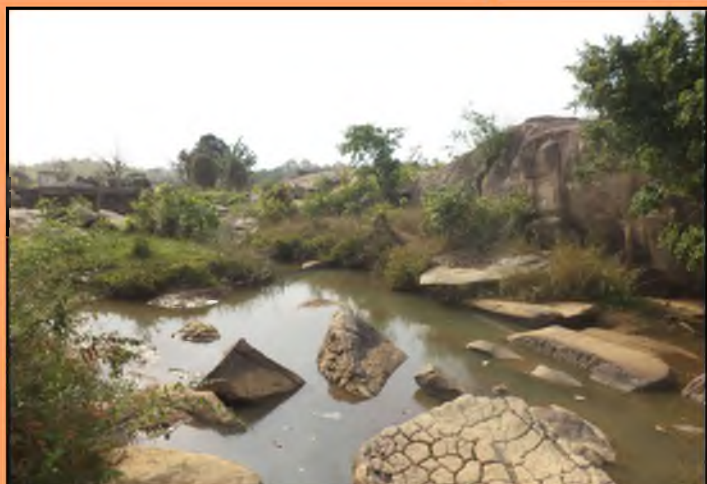
Sita kund thermal spring at Hazaribagh district



Lake inside the Hazaribagh Wild Life Sanctuary



Spirogyra in Angrabadi pond (Khunti district)



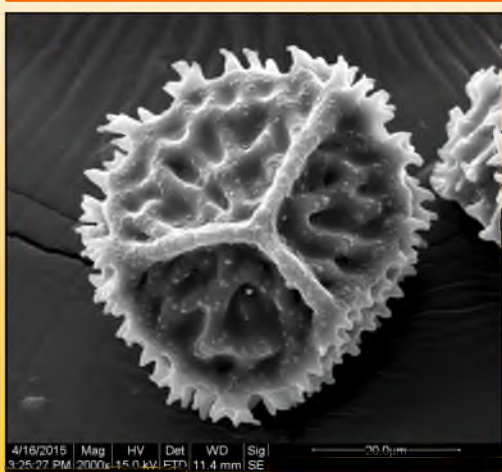
Dried canal in Cycao (Khunti district)



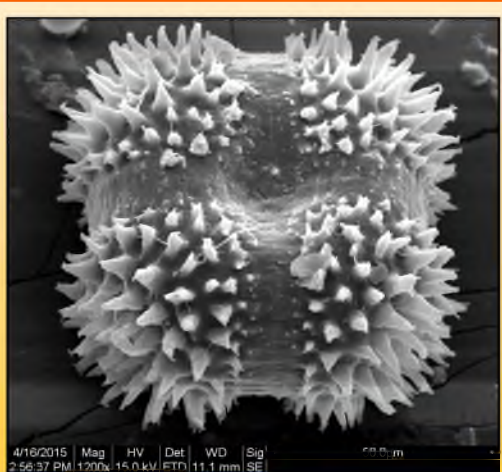
Collection of planktonic bloom from Rani pond (Khunti district)

**Scanning Electron Microscopy**

Dr. Devendra Singh, Scientist 'C', Cryptogamic unit micrographed thalli and spores of 14 species of liverworts and hornworts by using SEM installed at CNH.



Spore of *Anthoceros crispulus*



Spore of *Riccia personii*



Algal consortium in a sewage drain at Bacutta, Hazaribagh district of Jharkhand

### Public service rendered

Dr. R.K. Gupta acted as an external examiner for 3rd semester practical exam of M. Sc. Botany students at P.G. Department of Botany, Berhampur University, Berhampur, Odisha on 15th April 2015.

Dr. A.B.D. Selvam, Scientist 'D' studied and authenticated pharmacognostically leaf powder of *Cannabis sativa* (Cannabinaceae) received from the Officer-In-charge, Purulia G.R.P.S., West Bengal and from the Office-In-Charge, Adra G.R.P.S., Purulia District, West Bengal. Dr. Selvam also studied and authenticated pharmacognostically 16 wood samples as the heartwood of *Pterocarpus santalinus* (Leguminosae: Papilionoideae), which were received from Regional Deputy Director, Wildlife Crime Control Bureau, Eastern Region, Kolkata. Further, Dr. Selvam evaluated a Ph.D. Thesis entitled, "Pharmacognostical, Phytochemical and Pharmacological studies on *Monstera adansonii* Schott. and *Diffenbachia picta* Schott. (Araceae)" received from University of Madras.

Dr. Kanad Das, reviewed a manuscript for the journal *Phytotaxa*. Dr. Das also delivered a lecture on "Identification of Wild Mushrooms" at Bodoland University, Assam on 22nd April 2015.

### Visitors/students

Dr. Brijesh Kumar, Bot. Asst. and Dr. Pushpesh Joshi, AJCBPDF, Northern Regional Centre, Botanical Survey of India visited Cryptogamic unit for herbarium consultation of the genus *Lepisorus* and family Ophioglossaceae.

### Publications

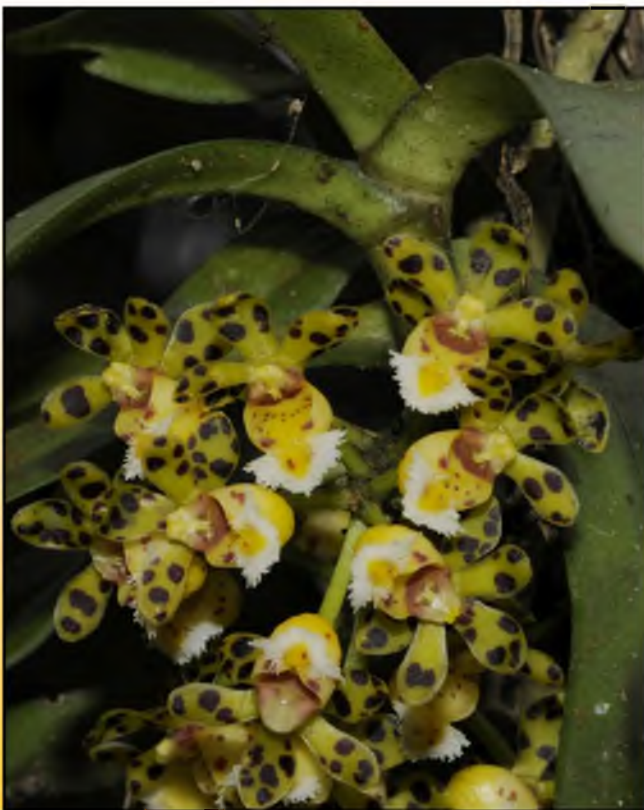
Das, K., Verbeken, A. and Nuytinck, J. 2014. Morphology and phylogeny of four new *Lactarius* species from Himalayan India. *Mycotaxon* 130 (1): 105–130.

Seal, T. 2015. Nutritional evaluation of some wild edible plants of Meghalaya State in India and their ethnobotanical importance. *J. Chem. Pharm. Res.* 7(3): 2296–2301.

## AJC BOSE INDIAN BOTANICAL GARDEN, HOWRAH

Dr. M.U. Sharief, Scientist 'E' and Dr. B.K. Singh, Sr. Pres. Asst. collected orchid plants from Sikkim Himalaya for *ex-situ* conservation in the garden. They were introduced in the Mist Chamber and few of them flowered in the controlled conditions.

Dr. Pushpa Kumari introduced *Gigantochloa andamanica*, *Schizostachyum andamanicum* and *S. kurzii*, which were collected from Andaman and Nicobar Islands and seeds/propagules of *Mangifera griffithii*, *Musa sp.*, *Diospyros kurzii* collected from Andaman and Nicobar are kept in Nursery I of AJCBIBG for germination. Seeds of *Amhrestia nobilis*, *Strychnos nux-vomica*, *Bauhinia acuminata* were collected from the garden for germination.



***Gastrochilus calceolaris* introduced in AJCBIBG from Sikkim Himalaya**



***Dendrobium nobile* introduced in AJCBIBG from Sikkim Himalaya**



**Bamboo saplings collected from Andaman & Nicobar Island at AJCBIBG**

**Visitors/students**

Students from different schools and academic institutions visited the botanic garden.

**Publication**

Pramanik, A., Das Das, M. and Maity, D. 2015. Typification of the name *Memecylon talbotianum* Brandis (Melastomataceae), *Phytotaxa* 203 (2): 210–212.

**CENTRAL NATIONAL HERBARIUM, HOWRAH**

Sri Anant Kumar and Sri Gopal Krishna, Sr. Pres. Assts. are presently conducting field tour from 23.04.2015 to Aurangabad, Nawada and Banka districts of Bihar .

For the ongoing projects, 'Flora of Buxa Wildlife Sanctuary', 'Flora of Jaldapara Wildlife Sanctuary', 'Flora of Vikramshila Gangetic Dolphin Wildlife Sanctuary' and 'Flora of Gautam Buddha Wildlife Sanctuary', the specimens collected from earlier tours are being identified and the descriptions are also being made by the Scientists and scientific staff.



Flowers, fruits and seeds of *Canavalia gladiata*



Vegetation around Kakolat water falls



Vegetation at Sultanghati, Bihar



A view of Mandar hill, Banka



Flowers of *Diospyros sylvatica*

### Public service rendered

Sent 4 scanned images of the type of *Mezoneuron andamanicum* (Leguminosae-Caesalpinioideae) to Ms. Ruth Clark, Research Fellow, Royal Botanic Gardens, Kew, England; 38 scanned images of 18 species of *Artabotrys* to Dr. Pankaj Kumar, Conservation Officer, Orchid Conservation Section, Kadoorie Farm and Botanic Garden (KFBG) Corporation, Hong Kong; 06 scanned images of authentic specimens of *Ligularia yakla* and *Ligularia amplexicaulis* to Sri Long Wang, postgraduate Student, South China Botanical Garden, Chinese Academy of Science, Beijing; and scanned image of Holotype of *Jatropha nana* var. *benghalense* to Mr. Ashish Narlekar, PG student, Department of Biodiversity, Babasaheb Garware College, Pune.

Dr. Lakshminarasimhan, Scientist 'E' & HoO reviewed a manuscript on Melastomataceae received from *Bangladesh Journal of Plant Taxonomy*. Dr. Subir Bandyopadhyay, Scientist 'B' provided PDF/ images of 24 pages from various publications of M. Chandrabose and V. Chandrasekaran to Dr. K.N. Gandhi, Harvard University herbaria, USA. Dr. Bandyopadhyay also provided information regarding authors of 4 plant names [Sri Lalawmkima Darlong, Dr. Debjyoti Bhattacharyya, Dr. Deepa Mishra and Dr. Pratibha Jalmi] for incorporation in the Author Query database of IPNI.

Sri Anand Kumar prepared "List of Threatened and Rare Plants of Bihar and Jharkhand" in connection with the introduction in Botanic Garden, T.M. Bhagalpur University, Bhagalpur.

Identified total 76 plant samples, which were from the excise department and other institutes and organization for identification / authentication.

### Training imparted

Sri P.P. Ghoshal, Botanist and Sri Anand Kumar, Bot. Asst. provided training to Dr. Swarnalatha, Bot. Asst. DRC, Hyderabad. Hand on training was given to deal with the digitization protocols and editing of scanned images in Photoshop.

### Type specimens received

Received the Holotype (*L. Darlong 10397*) of *Phanera jampuiensis* along with 10 other herbarium sheets (*L. Darlong 10398*, *L. Darlong 10443*, *L. Darlong 10353*, *10380*, *L. Darlong 10375*, *L. Darlong 10474*) and their publications from Dr. Debjyoti Bhattacharyya, Asst. Professor, Dept. of Life Science & Bioinformatics, Assam University, Silchar, Assam.

### Visitors/students

Dr. A.N. Chandore, Dept. of Botany, Babasaheb Marathe College, Rajapur, Dist. Ratnagiri, Maharashtra; Rahara Ramakrishna Mission, 24-Parganas (8 M.Sc. students); Barasat Govt. College., North 24-Parganas (30 M.Sc. & B.Sc. students); Shibpur Dinabandhu College, Howrah (31 B. Sc. students).

## CENTRAL BOTANICAL LABORATORY, HOWRAH

Ms. Sagari Chaudhury, JRF working on the project 'Ethnobotanical study of Lodha (A primitive tribal Group) of West Bengal and nutraceutical analysis of selected plant species' conducted a field tour to Paschim Medinipur district, West Bengal on 2<sup>nd</sup> April to 4<sup>th</sup> April, 2015. During this tour, 30 nos. of ethnobotanically important species were collected with the help of medicine man (Baidya or elder village people, priest, local Lodha people and Lodha women) from Talaberia, Dhorkholi, 'Tapoban' temple and 'Chanda bila' forest areas. Total 35 ethnobotanical uses were recorded, of which 20 are medicinal, 4 are food, 2 magico-religious, 1 poison and 8 are used for other purposes.



Lodha man providing information on ethno-medicinal uses of *Abrus precatorius*



Tribal woman selling Rice beer 'Handia'

During this month, district wise final project reports on ethnobotanical study of Deogarh, Koraput, Ganjam and Jajpur were finalized and submitted by team leaders, Dr. Harish Singh, Scientist 'D' & HoO, Dr. (Ms.) K.A. Sujana, Scientist 'C', Sri A.C. Halder, Botanist and Sri P.K. Baske, Botanist respectively. Dr. (Ms.) Sujana and her team re-numbered 278 ethnobotanical museum materials and arranged scientifically. Ms. Sagari Chaudhury, JRF prepared a database of 75 herbarium sheets of family Vitaceae in CNH, Howrah.

### Rajbhasha meeting

Dr. Harish Singh organized a Quarterly *Rajbhasha Karyawan Samiti* meeting with 9 members at CBL office. Mrs. Monika Mishra presented minutes of last *Rajbhasha Karyawan Samiti* meeting and quarterly report.



Hindi *Rajbhasha Karyawan Samiti* meeting at CBL



Ethnobotanical presentation to visitors at CBL

## INDUSTRIAL SECTION INDIAN MUSEUM, KOLKATA

In connection with the database updating, herbarium specimens (68 no. dicots, 27 no. monocots) and specimens collected by I. H. Burkill (1000 nos.) were documented with relevant field notes and nomenclatural updates were made for the specimens with barcode nos. BSIS00033- BSIS00060.

In connection with the ongoing project on 'Revision of Family Gesneriaceae of NE India', 'Flora of the Phawngpui Blue Mountain Peak, Mizoram' and 'Interpretation of Family Compositae in Icones Roxburghianae' identification and interpretations were made by the scientific staff and a research scholar.

Photographic images from field tours of Jharkhand state were processed for display as value addition in Botanical Gallery [*Abroma augusta* (Sterculiaceae), *Cassia occidentalis* (Caesalpiniaceae)]

### Publication

Talukdar, D., Barbhuiya, H.A., Roy, D.K., Dutta Choudhury, M.D. and Sinha, B.K. 2015. Recollection of *Trigonostemon viridissimus* var. *chatterjii* (Deb & G.K. Deka) N.P. Balakr. & Chakrab. (Euphorbiaceae) from Meghalaya, India and its conservation status. *Sci. Res. Report.* 5(1): 9-13.

## ANDAMAN AND NICOBAR REGIONAL CENTRE, PORT BLAIR

For 'Flora of Trinket Island' and 'Morphological and Molecular characterization of *Memecylon* L.', 5 species of Angiosperms were identified. Besides, chemistry of 320 specimens of Lichens of Nicobar Islands were studied and phenological survey of Dhanikhari Experimental Garden cum Arboretum (DEGA) was continued.

### Ex-situ Conservation

Ex-situ conservation of *Artocarpus chaplasha*, *Calamus andamanicus*, *Calamus palustris*, *Cerbera manghas*, *Cycas zeylanica*, *Dicranopteris linearis*, *Diplazium esculentum*, *Dipterocarpus griffithi*, *Dipterocarpus turbinatus*, *Eria andamanica*, *Eulophia andamanensis*, *Ganophyllum falcatum*, *Hedygium coronarium*, *Mimusops andamanensis*, *Myristica andamanica*, *Myristica elliptica*, *Terminalia manii*, *Musa indandamanensis*, *Tectaria polymorpha* var. *polymorpha* etc. were carried out.

### Meetings/ events attended

Dr. Lal Ji Singh, Scientist 'D' & HoO participated in inaugural function of Island Kisan Mela at CIARI, Port Blair on 09.04.2015 and in Farm Innovators Meet at CIARI, Port Blair on 10.04.2015

Dr. Lal Ji Singh attended research advisory committee meeting at Office of the Chief Conservator of Forests, Research & Working Plan, Haddo, Port Blair on 13.04.2015.

Dr. Sanjay Mishra, Scientist 'B' attended the meeting of central government employees welfare coordination committee held on 28.04.2015.

### Public service rendered

Dr. Lal Ji Singh reviewed 2 research papers for *The Botanical Journal of the Linnean Society* and *African Journal of Biotechnology*.

### Visitors/ students/trainees

Smt. Aparna Singh, Asst. Professor of JNRM College, Port Blair along with 2 faculty members and 84 students visited Dhanikhari Experimental Garden cum Arboretum (DEGA) on 09.04.2015. Dr. Lal Ji Singh, Scientist 'D' & HoO delivered lecture on Plant Diversity of Andaman and Nicobar Islands for the students.

Two instructors along with 48 forest guard trainees of Forest Training Institute, Wimberligunj, South Andaman visited to Dhanikhari Experimental Garden cum Arboretum (DEGA) on 18.04.2015.



**Dr. Lal Ji Singh talking to students of JNRM, Port Blair during their visit to DEGA, Nayasahar**



**Sri Vivek interacting with students of JNRM, Port Blair during their visit to DEGA, Nayasahar**

## ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Dr. P. Satyanarayana, Scientist 'D' and Sri B.B.T. Tham, Botanist identified specimens of 13 field numbers for Flora of Pakke Tiger Reserve and Wild Life sanctuary; Dr. Vineet Kumar Rawat, Scientist 'C' identified specimens of 5 field numbers for the family Polypodiaceae of North East India; Dr. Manish K. Kandwal, Scientist 'C' identified 7 field numbers for Grass flora of Arunachal Pradesh and Dr. Souravjyoti Borah, Botanist identified specimens of 15 field numbers for Flora of Lohit District and Kamlang Wildlife Sanctuary.



***Primula calderiana***

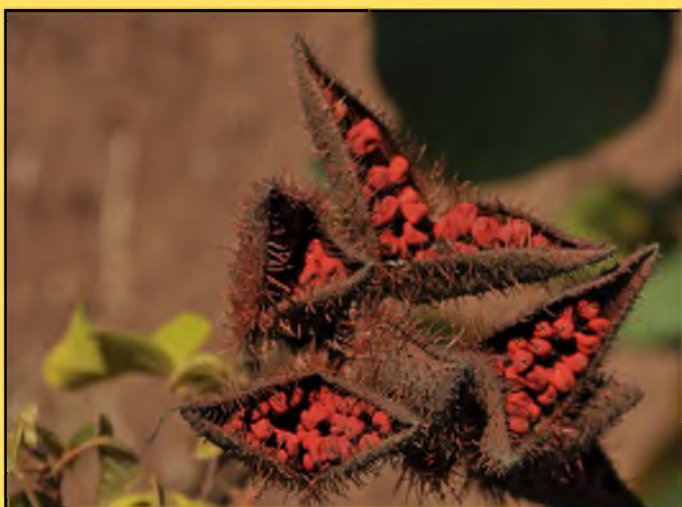


**Tropical forests of Namdapha Tiger Reserve**

## ARID ZONE REGIONAL CENTRE, JODHPUR

Sri Vinod Maina, Scientist 'D' and Sri Ravi Prasad, Bot. Asst. identified 15 plant species from their previous tour materials in connection with Ethnobotany of Dang District, Gujarat.

Dr. S. L. Meena and Dr. Harikrishna Peddi also identified 25 plant species from their tour materials of Schoolpaneshwar Wildlife Sanctuary.



Dehisced fruits of *Bixa orellana* (Annatto)



Dr. S.L. Meena, delivering talk to the Forest Officials of Narmada District, Gujarat

### Ex-situ conservation

In connection with *ex-situ* conservation several species namely *Acmella oleracea*, *Bixa orellana*, *Haldina cordifolia*, *Mitragyna parvifolia*, *Piper nigrum*, *Punica granatum*, *Sapindus laurifolius*, *Schleichera oleosa* and *Solanum indicum* were introduced in the Botanic garden. Apart from the *ex-situ* conservation, seeds of *Acacia chundra*, *Bauhinia racemosa*, *Diospyros melanoxylon*, *Pterocarpus marsupium* var. *acuminata*, *Sesbania grandiflora* were sown for germination.

### Public services rendered

Dr. S.L. Meena, Scientist 'D' attended the training programme of Forest Rangers at Saghai, Narmada District, Gujarat and delivered lectures on "BSI at a Glance", "Biodiversity of Shoolpaneshwar WLS" and "Herbarium methodology". Besides, 121 plant specimens were identified for the students and researchers from various institutions.



Dr. S.L. Meena providing lecture to the Forest Rangers of Narmada District, Gujarat



*Gmelina arborea* in bloom at Shoolpaneshwar WLS, Gujarat



## CENTRAL REGIONAL CENTRE, ALLAHABAD

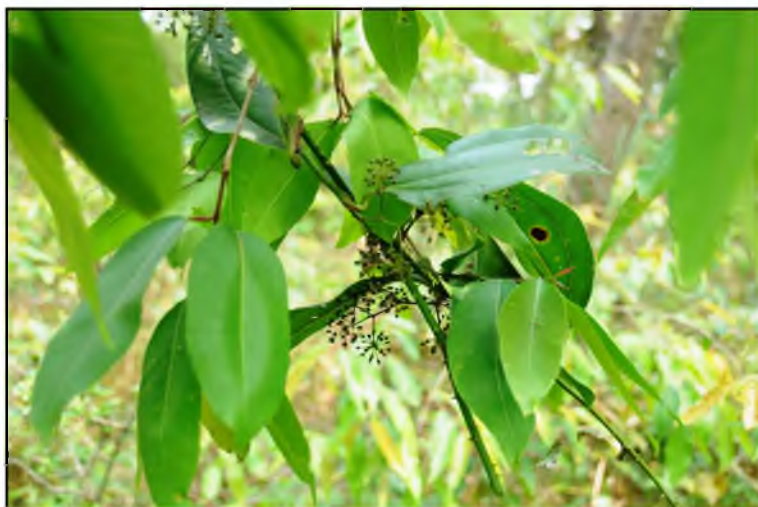
In connection with flora of India project, 'Revisionary studies on family Roccellaceae (Lichens)' a field cum study tour was undertaken by Sri Siljo Joseph, SRF to Kerala and Tamil Nadu from 15th March to 17th April 2015. Fifteen field packets were collected along with collection of literature from the library of Bharathiar University, Coimbatore.

For 'Flora of Chhattisgarh', a herbarium cum library consultation tour was undertaken separately to Central National Herbarium, Howrah by Dr. A.P. Tiwari, Pres. Asst. from 29th March to 10th April 2015 and Sri R.K. Singh, Botanist from 6th March to 17th April 2015. In total, species under 31 field numbers were identified. Besides, details of 290 specimens of CAL pertaining to 180 species of Chhattisgarh were noted for incorporation in Chhattisgarh flora.

In connection with the ongoing projects on 'Floral diversity of Upper Ganga Ramsar site, Uttar Pradesh', 'Floristic diversity of Parvati Aranga Wildlife Sanctuary and adjoining Tikri forest area, Gonda, Uttar Pradesh' and 'Lichens of Rajasthan, Kutch, Gujarat', a total of 48 species with different field numbers were identified. Similarly, for the taxonomic studies on lichenised non thelotremoid Indian Graphidaceae, and lichens of Terai region, Uttar Pradesh 31 species were identified. In addition, a total of 111 earlier collected specimens housed at BSA were also identified.



*Bauhinia vahlii* in Tikri Reserve Forest, Gonda



*Smilax zeylanica* flowering in Tikri Reserve Forest, Gonda

### Ex-situ conservation

One sapling each of *Elaeocarpus serratus* (Panchmukhi Rudraksh) and *Platanus orientalis* (Chinar) brought from a nursery of Dehradun, Uttarakhand were introduced in the garden.

### Symposia/ Seminar attended

Sri Jeetendra Kumar Vaishya, SRF attended a national seminar on "GM Crops: Challenge to Environment and Health" organised by Dept. of Botany, University of Allahabad and *Swadeshi Jagran Manch*, Allahabad on 11.04.2015.

### Meeting attended

Dr. Achuta Nand Shukla, Scientist 'B' and Sri Bholanath, Sr. Lib. & Inform. Asst. attended TOLIC meeting at AG office on 28.04.2015.

### Public service rendered

Identified 4 lichen specimens received from Dr. A. Tinabaye, Associate Prof. Kanchi Mamunivar Centre for P.G. Studies, Puducherry.

### Visitors/students

Ms. Surabhi Ranavat, Ms. Sumayya Hassan and Sri R. Harikrishnan, Research scholars of IISER, Bhopal, Madhya Pradesh consulted herbarium on 01.04.2015.

Ms. Jaswinder Kaur, Research Scholar, Dept. of Botany, University of Allahabad, Allahabad consulted BSA herbarium from 7th April to 13th April 2015.

### Publication

Singh, V. and Singh, R.K. 2015. Is *Valeriana jatamansi* and *Selinum vaginatum* can be used as substitute for *Nardostachys jatamansi* in preparation of neuroprotective drugs? *Indian Forest*. 141(4): 469–470.

Ms. Annamma, JRF and Sri S. Nagaraju, Bot. Asst. conducted one day field tour to Mahavir Harina Vanasthali National Park on 15.04.2015.

Dr. P.V. Prasanna, Scientist 'F' documented 21 species from Seshachalam Biosphere Reserve. Dr. L. Rasingam, Scientist 'C' documented 12 species collected from Nagarjuna Sagar—Srisailem Tiger Reserve Wild Life Sanctuary. Dr. M. Ahmedullah, Scientist 'E' and Dr. M. Sankara Rao, Pres. Asst. compiled data collected from 3 sacred groves of East Godavari District. Under the Flora of India Project, Sri Alok Chorghge, SRF prepared descriptions and photo plates for 9 grasses, Mr. K. Chandra Mohan, JRF identified 43 species from Satkosia Tiger Reserve, Miss. P. Annamma, JRF identified 16 species from Kawal Tiger Reserve. Dr. G. Swarnalatha, Bot. Asst. visited Central National Herbarium, Howrah from 18<sup>th</sup> April to 26<sup>th</sup> April 2015 to learn the herbarium digitisation techniques.

#### Public service rendered

Dr. P. Venu, Scientist 'F' reviewed one manuscript for the journal *Rheedea* and one for *Phytotaxa*. Dr. P.V. Prasanna and

Sri Alok Chorge communicated a write-up on 'Grasses of Odisha' to Odisha Biodiversity Board.

#### Publication

Venu, P. 2015. Book Review: Flowering Plants of Western Ghats by T.S. Nayar *et al.*, from TBGRI, Trivandrum. *Checklist* 11(3): 1638–1639.



Dr. M. Sankara Rao collecting information on Sacred grove from the local people

## EASTERN REGIONAL CENTRE, SHILLONG

Identified 69 and documented 12 species from Flora of Eastern Nagaland (Mon, Tuensang, Kiphire & Longleng ) by Dr. N. Odyuo, Scientist 'D' and Dr. R. Daimary, Bot. Asst.; Amchang WLS (Assam) by Mrs. Nandita Sarma, Sr. Presv. Asst.; Yangoupokpi Lokchao WLS (Manipur) by Sri L.R. Meitei, Bot. Asst. Final report of Murlen National Park, Mizoram was prepared and submitted to the Director, BSI.

#### Conservation of Threatened taxa

In connection with the *ex-situ* conservation of Endemic, Threatened and Economically important plants of the region and recording phenological data on flowering and fruiting of species growing in the Garden, planted 54 live plant species collected by Sri L.R. Meitei from Yangoupokpi Lokchao WLS, Manipur in the garden which belongs to species of *Acampe*, *Aerides*, *Ardisia*, *Artabotrys*, *Begonia*, *Boesenbergia*, *Bulbophyllum*, *Calanthe*, *Calamus*, *Clerodendrum*, *Coelogyne*, *Costus*, *Curcuma*, *Cycas*, *Cymbidium*, *Dendrobium*, *Dioscorea*, *Dipterocarpus*, *Eria*, *Geodorum*, *Gnetum*, *Hedychium*, *Leea*, *Liparis*, *Micropera*, *Musa*, *Pholidota*, *Oberonia*, *Phalaenopsis*, *Pholidota*, *Platyterium*, *Pteroceres*, *Sterculia*, *Tainia*, *Thunia*, *Vanda* and *Zingiber*.

For the ongoing project on various species conservation, for *Cymbidium tigrinum* MS Medium prepared and regular

subculturing was done; for *Armadorum senapatianum* subculture is being done at regular intervals; for *Rhododendron coxianum* subculture was done and data recorded for micro-propagation of Rare, Endemic & Threatened plants of N.E. India. In connection with the Phytochemical Screening of Medicinal Plants and Molecular Characterization of selected species of NE India, DNA fingerprinting is continued with the extracted DNA of *Paphiopedilum venustum* (Meghalaya and Arunachal Pradesh) using RAPD primers. Besides, DNA extraction is completed for leaf samples of some selected species of *Rhododendron*.

Further, regular subculturing and maintenance of *in vitro* raised seedlings of *Pyrenaria khasiana* and callus induction studies are being continued with *in vitro* raised leaf explants of *Pyrenaria khasiana*. Regular maintenance of initiated cultures of *Paris polyphylla* in MS medium was also done.

#### Public service rendered

Identified 11 samples of specimens received from various institutions.

#### Visitors/students

Five Professors, Eleven Research Scholars and Twenty three Students visited the Centre from various Institutions, Colleges and Universities.

### Publications

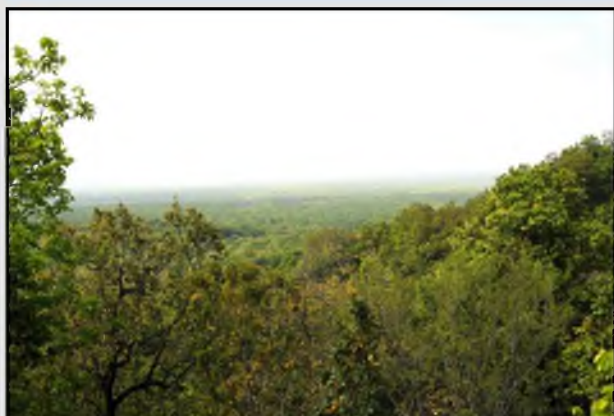
Meitei, L.R., Verma, D. and Atanu, B. 2015. *Tainia angustifolia* (Orchidaceae): An Addition to the flora of Meghalaya, India. *McAllen Int. Orchid Soc. J.* 16 (3): 2–6.

Roy, D. K. and Verma, D. 2015. *Ormosia fordiana* (Fabaceae), an Addition to the Flora of India. *J. Jap. Bot.* 90: 126–130.

Singh S.K. and Majumdar, S. 2015. Contributions to the Hepaticae and Anthocerotae of Mizoram VIII *Bazzania hainanensis* (Lepidoziaceae, Marchantiophyta), new record for India. *Acta Bot. Hungarica* 57 (1–2): 219–223.

### NORTHERN REGIONAL CENTRE, DEHRADUN

Dr. K. Ambrish, Scientist 'D' conducted one tour to Nandhour Wildlife Sanctuary from 13th to 22nd April 2015 and collected specimens of 210 field nos. (ca 470 specimens). Dr. M.R. Debta, Bot. Asst. conducted one tour to the Col. Sher Jung (Simbalbara) National Park, Himachal Pradesh from 10th to 18th April 2015 and collected specimens of 107 field nos. (ca 330 specimens). Identified 46 species and described 46 species in connection with the 'Flora of Uttarakhand', 'Flora of Kalesar National Park', 'Floristic Diversity and Phytosociological study of Simbalbara National Park', 'Flora of Nandhour Wildlife Sanctuary', 'Flora of Sonanadi Wildlife Sanctuary', 'Revisionary study Bignoniaceae' and 'Tree ferns of India and genus *Lepisorus* (Sm.) Ching in India'. Digitization and scanning of 215 Herbarium specimens of the family Papeveraceae, Fumariaceae and Poaceae were done during this month.



A view of Nandhour Wildlife Sanctuary



*Crotalaria spectabilis*



*Phlogacanthus thyrsiformis*



*Hiptage benghalensis* - a rare species from Simbalbara National Park, H.P.



*Abrus precatorius* at Simbalbara NP

### Public services rendered

Identified *Cupressus sempervirens* for Sri Amit Kumar Singh, M. Sc Biochemistry, Dolphin PG Institute, Dehradun; *Tephrosia purpurea* for Sri Ravi Prakash, M. Sc. Biochemistry, Dolphin PG Institute, Dehradun; *Oxalis corniculata* for Ms. Sriparna Dutta, M. Sc. Biochemistry, DIBNS, Dehradun; *Cupressus cashmeriana* for Sri. Shashank Mishra, M.Sc. Biochemistry, DIBNS Dehradun; *Ficus auriculata* for Ms. Nishat Anjum, Research. Scholar, Chemistry Division, FRI, Dehradun.

### Visitors/students

Dr. Adil Yousuf and 40 students, Aligarh Muslim University, Aligarh visited herbarium, museum and experimental garden and Ms. Chandni Gupta, JRF, CNH, Howrah consulted the herbarium for revisionary study of *Rubus*.



**Sri Virendra Kumar explaining digitization of herbarium to M.Sc. students from Aligarh Muslim University**



**Dr. Debta and Dr. Duttapramanick explaining students at fernery**

### Publications

Pusalkar, P.K. and Singh. D.K. 2015. Taxonomic rearrangement of *Arenaria* (Caryophyllaceae) in Indian Western Himalaya. *J. Jap. Bot.* 90: 77–91.

Panwar, G.S. and Guru, S.K. 2015. Stimulation of reserpine production in the whole plant culture of *Rauwolfia serpentina* L. by elicitors and precursor feeding. *J. Plant Biochem. & Biotech.* 24 (1):49–55.

Lawkush and Debta, M.R. 2014. Notes on a rare species of the genus *Androcorys* (Orchidaceae) – *A. josephi* (Rchb.f.) Agrawala & H.J. Chowdhery in India. *Ind. J. Forest.* 37(4): 473–476.



**Shivparvattia - A newly described genus of Caryophyllaceae**

## SIKKIM HIMALAYAN REGIONAL CENTRE, GANGTOK

Dr. M. Gangopadhyay, Scientist 'D' & HoO has prepared 10 drawings of Rubiaceae members for the project, 'Family Rubiaceae for Flora of India (Amplification of the description of ca 65 poorly known species supplemented with illustration and possible photographs)'. Dr. Gangopadhyay also conducted tour to Ministry of Environment Forests & Climate Change, New Delhi and Headquarter, BSI, Kolkata from 18<sup>th</sup> March to 26<sup>th</sup> March, 2015 in connection with the inspection with the visit of Parliamentary Committee (3<sup>rd</sup> sub-committee) on Official Language.

Dr. D.K. Agrawala, Scientist 'C' studied 10 orchid specimens and finalized their identity, assigned geo-coordinates and entered the data in excel sheet for the project, 'Red listing of Orchids of Eastern Himalaya as per IUCN criteria'. Dr. Agrawala identified 7 species and illustrated 4 Orchid species.



**Coelogyne pempahisheyana - an endemic orchid of Eastern Himalaya**



**Zeuxine flava - an uncommon terrestrial orchid growing in Gangtok**

**Parliamentary Committee for official language**

Dr. M.M. Kutti, Joint Secretary, MoEF & CC, New Delhi; Sri S.P Choubey, Ex-Director, Official Language, MoEF & CC and Dr. P. Singh, Director, BSI, Kolkata visited this center in connection with the inspection of Parliamentary Committee for official language during 9<sup>th</sup> to 12<sup>th</sup> April 2015.

**Visitors/students**

46 M.Sc. students from Sikkim University visited, to whom Dr. Agrawala demonstrated herbarium techniques, ex-situ conservation practices and delivered a lecture on "Collection, preservation and identification of Orchids".

**Miscellaneous**

The scientific audit team from Kolkata visited this centre for audit from 15<sup>th</sup> to 28<sup>th</sup> April 2015.



**Photograph taken during the inspection of Parliamentary Committee on Official Language**

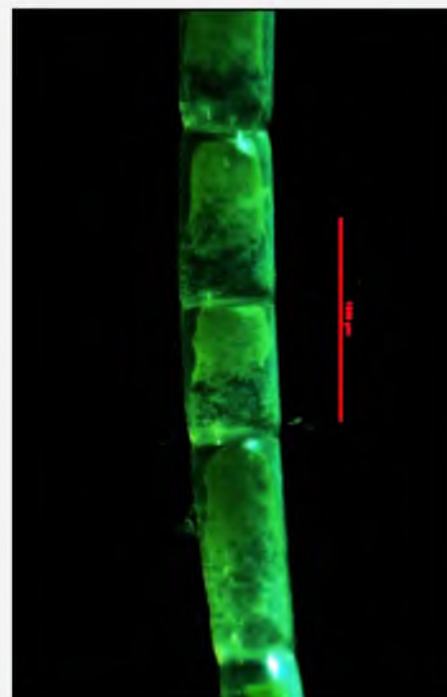
**SOUTHERN REGIONAL CENTRE, COIMBATORE**

For the ongoing project, Point Calimere Wildlife Sanctuaries, Tamil Nadu; Flora of Srivilliputhur Grizzled Giant Squirrel Wildlife Sanctuary, Tamil Nadu; Flora of Malabar Wildlife Sanctuary, Kozhikode, Kerala identification and writing of descriptions are being carried out by the scientists and scientific staff.

Dr. M. Palanisamy, Scientist 'D' and Sri S.K. Yadav, Bot. Asst. carried out microscopic studies of seaweeds, taken 40 microscopic images and completed description for 10 species of seaweeds in connection with the 'Seaweed Flora of Karnataka

*Cladophora vagabunda*  
(Chlorophyta)(Left)

*Chaetomorpha antennina*  
(Chlorophyta) - filament cells (Right)



Dr. S. Kaliamoorthy, Scientist 'D' and his team multiplied a total of 107 plants (including 55 samples of ornamental orchids, 2 samples of endemic orchid, *Flickingeria nodosa* and 50 samples of other plants), developed 64 seedlings, 30 cuttings, and recorded the phenology of 25 species including 14 orchids and 11 species of angiosperms under the project, 'Ex-situ conservation of endangered and threatened plants' at National Orchidarium and Experimental Garden (NO & EG), Yercaud. The team also collected seeds of *Geodorum densiflorum* and carried out tissue culture study for its asymbiotic seed germination and initiated an experimental setup for the study the effect of NPK on *Cymbidium bicolor*.

#### Scanning Electron Microscopy

Dr. G.V.S. Murthy, Scientist 'F' & HoO studied the pollinia of the species of *Dendrobium*, *Coelogyne* and *Eria* under SEM. Dr. K.A.A. Kabeer, Scientist 'D' studied 6 species of *Sporobolus* specimens under SEM. Sri G. Gnanasekaran, Bot. Asst. examined the seeds of *Andrographis rotundifolia* by using SEM. Dr. J.V. Sudhakar, Bot. Asst. micrographed 20 SEM images of achenes of 8 taxa of the genus *Ficus*.

#### Public service rendered

A total of 37 plant samples were identified for research scholars and students of various institutions.

Dr. M. Palanisamy, evaluated the Ph. D. thesis, "Potential of seaweed Liquid Fertilizer on growth and yield of *Vigna mungo* L. and Antibacterial properties of Silver nanoparticles from seaweeds" received from Annamalai University, Tamil Nadu.

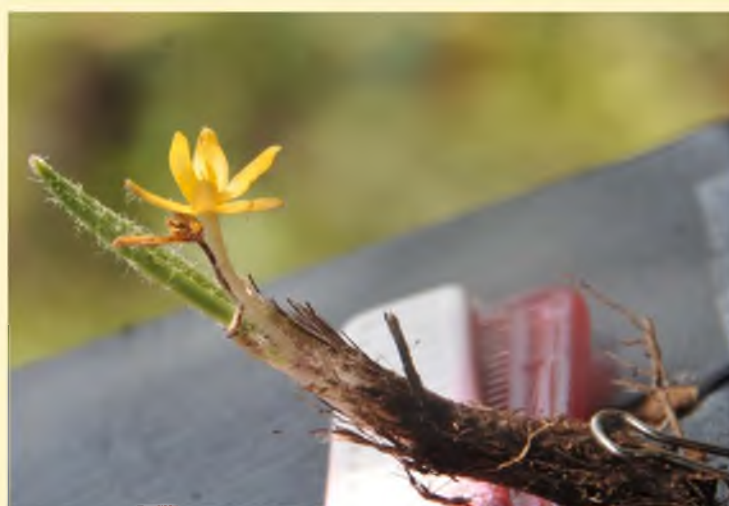
Dr. J.V. Sudhakar was deputed as a resource person to the team of Bharathidasan University, Trichy to accompany in a field tour to Palani hills from 25<sup>th</sup> to 28<sup>th</sup> March 2015.

#### Visitors/students

Total 27 students, research scholars, lectures, scientists visited the herbarium and library of SRC, Coimbatore, whereas 702 persons in 121 parties visited NO & EG, Yercaud.



*Biophytum intermedium* var. *pulneyense* (Oxalidaceae)  
in Palani hills

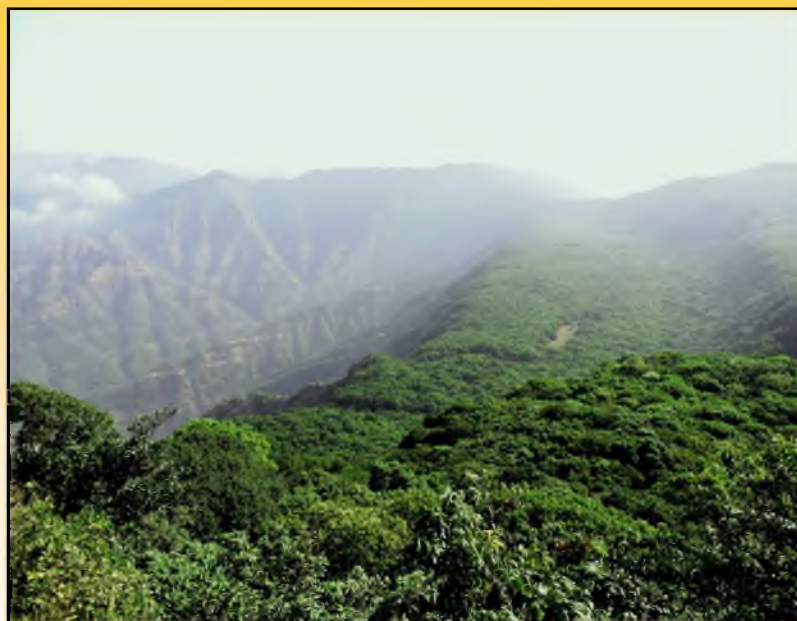


*Curculigo orchioides* (Hypoxidaceae)  
In Palani hills

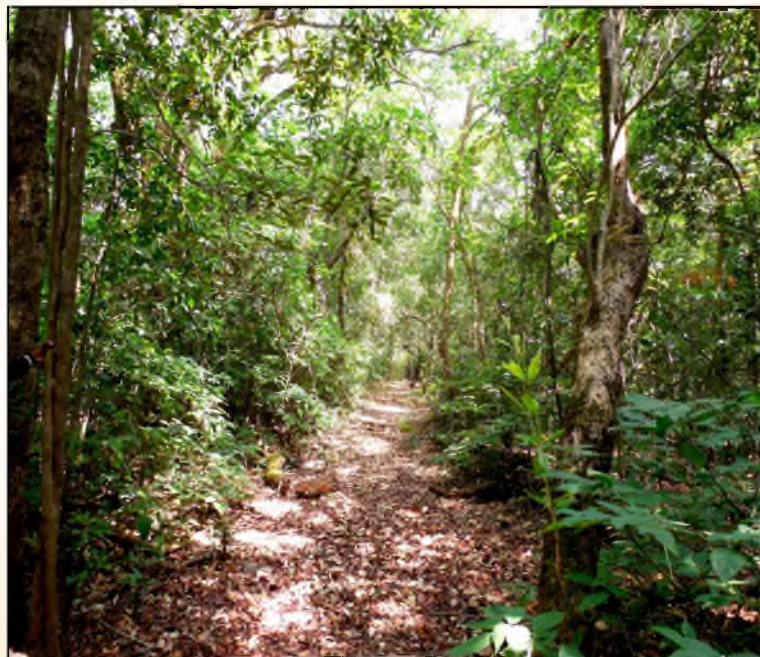
## WESTERN REGIONAL CENTRE, PUNE

Ms. Prajakta S. Pathare, SRF undertook one field tour to Koyna Wildlife Sanctuary, Maharashtra from 20.04.2015 to 01.05.2015. Different forest beats in the core zone such as Shirshingi and Dicholi were surveyed by covering an area of about 65 sq.km. A total of 25 field numbers were vouched during this field tour.

During this month, about 140 angiosperm specimens were identified from Sharavathy Valley Wildlife Sanctuary and Biligiri Rangaswamy Temple Wildlife Sanctuary in Karnataka. About 20 pteridophyte specimens were identified from different parts of Maharashtra and Karnataka. Isolation of fungi from 21 host plants was carried out in culture medium (Potato Dextrose Agar). Identification of 31 fungal species and making descriptions for 14 fungal species were completed.



**Dense semi-evergreen forests in Koyna WLS**



**View of transect line in Shirshingi forest of Koyna WLS**



***Elaeocarpus tuberculatus* in Biligiri Rangaswamy Temple WLS**

### Public service rendered

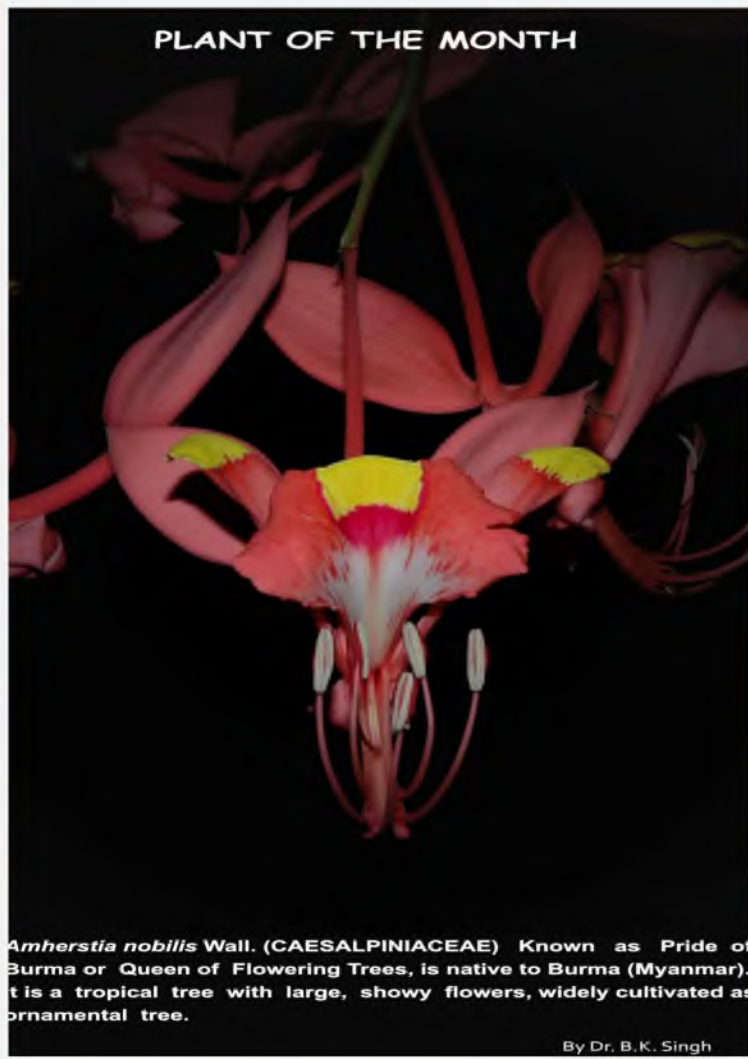
Identified and authentication certificates were issued for 14 students from B. Pharm., M. Pharm., Ph.D. and P.G. students from different institutions.

### Visitors/students

For consultation of herbarium and library, scientists and research students from Department of Life Sciences, Natural History Museum London, UK; Savithribhai Phule University, Pune; Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, Maharashtra visited the centre during this month.

### Publication

Jayanthi, J. and Jalal, J.S. 2015. Angiosperm diversity of the Great Indian Bustard Wildlife Sanctuary: a semi-arid grassland, Maharashtra, India. *Check List* 11(2): 1602. doi: <http://dx.doi.org/10.15560/11.2.1602>.



Habit of *Canavalia gladiata*

### NEW RECRUITMENT

- ◆ Dr. Avishek Bhattacharjee joined CNH, Howrah as Scientist 'B' on 17.04.2015.
- ◆ Dr. Monalisa Dey joined Hqrs., Kolkata as Scientist 'B' on 17.04.2015.
- ◆ Dr. Krishna Chowlu joined APRC, Itanagar as Scientist 'B' on 20.04.2015.
- ◆ Dr. Sanjay Mishra Joined ANRC, Port Blair as Scientist 'B' on 21.04.2015.
- ◆ Dr. Achuta Nand Shukla joined CRC, Allahabad as Scientist 'B' on 27.04.2015.
- ◆ Dr. Chandan Singh Purohit joined AZRC, Jodhpur as Scientist 'B' on 27.04.2015.

### TRANSFER

Dr. Nitisha Srivastava, Bot. Asst. transferred to CRC, Allahabad from Hqrs., Kolkata and reported to duty at CRC on 01.04.2015.

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