



BSI NEWSLETTER

The monthly electronic newsletter of Botanical Survey of India

Volume 2
Number 12

December 2015



Director's column

One of our scientists, Dr. Devendra Singh is presently participating in the XXXV Indian Scientific Expedition for Antarctica. During his 3 months stay at East Antarctica, Dr. Singh will study the Bryophytes of Larsemann hills. Dr. Singh is the 7th BSI scientist to visit Antarctica and on earlier occasions the scientists of BSI have collected Algae, Bryophytes and Fungi from the Schirmacher Oasis and Algae from Larsemann hills.

During this month, Scientists of BSI published 4 new species namely *Impatiens ashioi* (Balsaminaceae) from Dibang Valley of Arunachal Pradesh, *Boletus lakhanpalii* and *B. recapitulatus* (Boletaceae - Wild Mushroom) from Sikkim and *Cyathus thindii* (Agaricaceae - bird's nest fungus) from AJC Bose Indian Botanical Garden, Howrah. Apart from this, Scientists of BSI for the first time reported *Saurauia sinohirsuta* (Actinidiaceae) from India, *Tragia praetervisa* (Euphorbiaceae) from Odisha and *Senna alata* (Caesalpiniaceae) from Uttarakhand, indeed the later forms a new record for Northern India. Besides, the species *Eulophia flava* is reported from Kumaon Himalaya after a gap of more than 150 years.

As a part of the training programme, officials from different organisations visited BSI, which include 14 IFS officers, Forest guards and trainees from Indian School of mines.

BSI and ZSI have taken initiative to make joint collaborative research projects and in this connection a meeting was held at Central National Herbarium by inviting Director I/c and Scientists of ZSI, Kolkata.

Happy browsing!

Paramjit Singh

Director, Botanical Survey of India, Kolkata



HEAD QUARTERS, KOLKATA

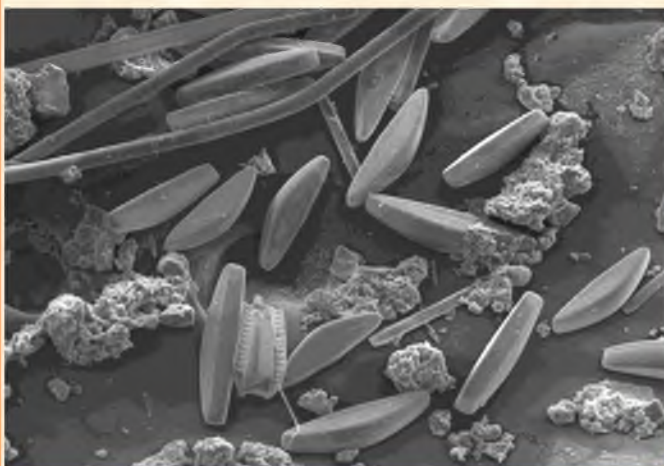
Dr. Devendra Singh, Scientist 'C' is presently participating in the XXXV Indian Scientific Expedition to Antarctica, organized by ESSO-NCAOR, Goa. Dr. Singh left from Goa to Antarctica via South Africa on 20.12.2015. Dr. Singh would be engaged in studying the diversity of Bryophytes of Larsemann Hills, East Antarctica till February 2016.

For the project, Pharmacognostic studies on Medicinal Aconites of India' Dr. A.B.D. Selvam, Scientist 'D' completed SEM studies on the mother roots of 8 species of *Aconitum*, viz., *A. ferox*, *A. chasmanthum*, *A. heterophylloides*, *A. falconeri*, *A. arunii*, *A. laeve*, *A. nagarum* and *A. rotundifolium*.

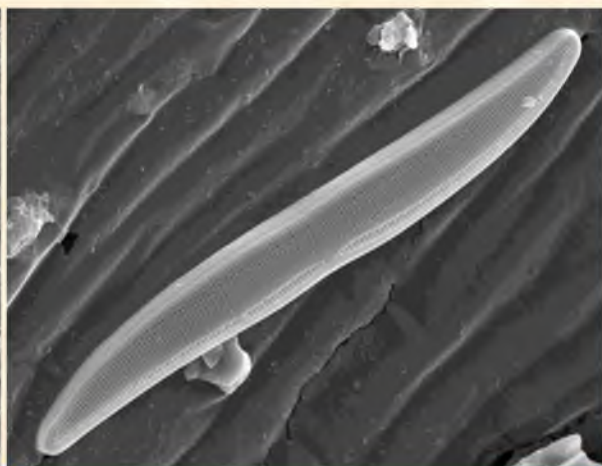
For the project, 'Algal Flora of Jharkhand' Dr. R.K. Gupta, Scientist 'D' made 65 photomicrographs under Light microscope as well as SEM.

In connection with 'Studies on wild mushrooms of Sikkim', 'Studies on the macrofungi of AJCBIBG' and 'Studies on the macrofungi of AJCBIBG' identification were done and descriptions were made by the scientists, scientific staff and research scholars.

Dr. Monalisa Dey, Scientist 'B' studied and photographed the isotype specimen *Rhaphidolejeunea yunnanensis* P.C. Chen (JE04002962) obtained on loan from Friedrich-Schiller-Universität Jena, Germany (JE).



A community of *Cymbella tumida* (Diatom)



Nitzschia sigma (Diatom)

Public service rendered

Dr. M.N. Aziz, Scientist 'E' confirmed identity of two mosses received from Dr. Mousumi Poddar Sarkar, University of Calcutta, collected from Darjeeling district.

Dr. Kanad Das, Scientist 'D' reviewed a manuscript for *Current Science*.

Dr. A.B.D. Selvam evaluated a Ph.D. thesis received from University of Madras entitled, "Comparative studies on the Anatomy, Phytochemistry and Biological activity of the leaf and flower of five species of Cassia", submitted by Ms. V. Selvi.

Dr. Selvam has studied a representative wood sample, which was received from Ausgram Police Station, Burdwan District, West Bengal. The preliminary study partly matched with the characteristic features of White sandalwood (*Santalum album*).

Meetings attended

During the month, Director, BSI attended the CBD's Capacity Building Workshop for South, Central and West Asia on achieving Aichi Targets 11 and 12 held in the MoEF & CC, New Delhi from 7th to 10th December, 2015.

Visitors/students

5 students and 1 teacher from Higher Secondary College Panskura, Purbi Medinipore, West Bengal;

75 students and 4 teachers from B.K. Girl's College, Howrah, West Bengal;

60 students and 5 teachers from Fakir Chand College, Diamond Harbour, South 24 Parganas, West Bengal and 8 students and 2 teachers from Chaurchandra College, Kolkata visited to various sections of Cryptogamic unit.

Two Research Scholars from B.I.T. Mishra, Ranchi visited for identifying Pteridophyte specimen, which was identified as *Adiantum philippense*.

Publications

Das, K., Chakraborty, D., Baghela, A., Singh, S.K. and Dentinger, B.T.M. 2015. *Boletus lakhanpalii*, a new species in Boletaceae from Sikkim (India) with uncertain phylogenetic placement. *Sydowia* 67: 11–19.

Chakraborty, D., Das, K., Baghela, A., Singh, S.K. and Dentinger, B.T.M. 2015. *Boletus recapitulatus* (Boletaceae), a new species from India with peculiar mushroom-shaped cells. *Phytotaxa* 236(2): 150–160.

Das, K., Hembrom, M.E., Parihar, A. and Zhao, R.L. 2015. A new species of *Cyathus* (Agaricaceae) from India. *Turk. J. Bot* 40: 97–103.

Seal, T. and Chaudhuri, K. 2015. Antioxidant activities of some selected wild edible plants of Arunachal Pradesh state in India and effect of solvent extraction system. *Amer. J. Pharm. Tech. Res.* 5(6): 506–517.

Selvam, A.B.D. 2015. Indian Aconites: Boon or Bane? *J. Pharmacogn. Nat. Prod.* 1(1): 104.

AJC BOSE INDIAN BOTANIC GARDEN, HOWRAH

5 saplings each of *Lassiococca comberi*, *Hypericum gaitii*, *Cordia macleoidii*, *Symplocos racemosa*, *Cycas sphaerica*, *Eucactus* sp., *Ferrocactus* sp. and *Mammillaria* sp. were planted in Nursery II under the supervision of Dr. S.P. Panda, Scientist 'B'.

Plant saplings/seeds of *Azadirachta indica*, *Bentinckia nicobarica*, *Brownea hybrida*, *Butea monosperma*, *Chrysophyllum cainito*, *Cinnamomum* sp., *Dalbergia latifolia*, *Diospyros* sp., *Diospyros melanoxylon*, *Gardenia gummifera*, *Gustavia chrysantha*, *Heritiera macrophylla*, *Madhuca indica*, *Mesua ferrea*, *Michelia champaca*, *Parynarium* sp., *Pterygota alata* var. *irregularis*, *Saraca asoca*, *Swietenia mahagoni*, *Syzygium cumini*, *Tabebuia* sp., *Terminalia arjuna*, *T. bellirica* are collected from the garden and introduced in nursery for hardening.

Routine maintenance was carried out of the plant saplings and orchids housed in the Garden Nurseries and Mist Chamber.

The Great Banyan tree produced 5 new roots. 11 encaged roots were repaired with new bamboo caging. 16 aerial roots were encaged in bamboo cages to train them as prop roots.

Participation in Exhibition

Along with a team of BSI officials from various units of BSI at Kolkata, Dr. Basant Kumar Singh, Sr. Pres. Asst. of AJCBIBG participated in an exhibition organized by Maharaja Manindra Chandra College, Kolkata to commemorate the Platinum Jubilee from 9th to 11th December 2015.



BSI exhibits stall during the Platinum Jubilee celebration of MMC College, Kolkata



Dr. B.K. Singh demonstrating about exhibits to the Chief Guest at MMC College, Kolkata

Public service rendered

Dr. M.U. Sharief, Scientist 'D' delivered two lectures at the Indian School of Mines, Rajarhat, Kolkata on 02.12.2015.

Dr. A. Pramanik, Scientist E' & HoO delivered a lecture at Moulana Azad College, Kolkata in connection with celebration of 30th Anniversary of DBT held on 17.12.2015.

Dr. M.U. Sharief evaluated a Ph.D. thesis received from the University of Mysore on *Phomopsis vexans* infection on Brinjal', submitted by Sri K.M. Jayarammiah.



Dr. M.U. Sharief attending trainees from Indian School of Mines, Rajarhat, Kolkata



Hon'ble Minister Sri Sudarsan Ghosh Dastidar addressing students in Bio-tour

Awareness programme

West Bengal Bio-diversity Board organised a one day Bio-tour for School students on 15.12.2015 in the Garden. Hon'ble Minister for Environmental affairs, Govt. of West Bengal, Sri Sudarshan Ghosh was present in the programme as a Chief Guest. Dr. A. Pramanik delivered a lecture to the student participants on the History and development of the garden. Later Dr. B.K. Singh took the students on a field trail in the garden.

Visitors/students

14 IFS officers visited botanical garden under Eco-PMB Training programme and 32 Forest Guards visited the garden under 57th Session of Forest Guard Trainees of Forestry Training Centre, Rajabhatkhowa, Alipurduar, West Bengal.

13 Trainees of the Indian School of Mines, Rajarhat, Kolkata visited the botanical garden on 04.12.2015.

Sri N.K. Agarwal, Justice, Armed Tribunal Kolkata along with his family member visited the botanical garden on 17.12.2015.

More than 500 students from different schools and colleges in various groups visited the botanic garden as part of their study tour.



Dr. M.U. Sharief addressing IFS officers during Eco-PMB Training programme



Sri N.K. Agarwal, Justice, Armed Tribunal, Kolkata at Large palm house, AJCBIBG

Publications

Rout, S., Panda, S.P. and Patra, H.K. 2015. Plants used as medicine by Juang Tribes of Keonjhar district, Odisha, India. *Intl. Jour. Bioassays* 4 (11): 4511–4514.

Panda, S.P., Sharief, M.U., Hameed, S.S. and Pramanik, A. 2015. Traditional phytotherapeutic record of orchids of Odisha and their conservation strategies. *Ann. Pl. Sci.* 4 (11): 1204–1207.

CENTRAL NATIONAL HERBARIUM, HOWRAH

Sri Anand Kumar, Bot. Asst. and Sri Gopal Krishna, Sr. Pres. Asst. conducted a field tour to Kaimur, Nalanda and Rohtas districts of Bihar from 16th December 2015 to 2nd January 2016 and collected specimens of about 222 field numbers.

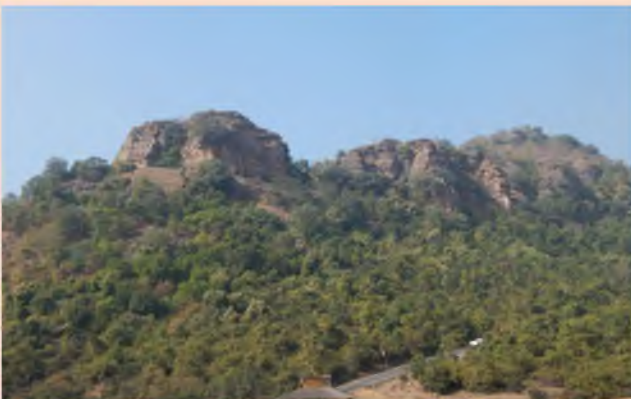
Dr. Pushpa Kumari, Scientist 'C' identified 14 samples of bamboos collected from 24 Parganas district in connection with Survey and Assessment of growing stock of economic bamboos of West Bengal. Sri P.P. Ghoshal, Botanist identified 10 specimens for Flora of Betla National park, Latehar, Jharkhand.

Dr. Karthigeyan, Scientist 'D' identified *Tropidia curculigoides* specimen and one specimen of *Peliosanthes griffithii* which was earlier misidentified as *Iris spp.*

Dr. Avishek Bhattacharjee, Scientist 'B' identified specimens of *Echinochloa colona* collected from Department of Botany, University of Gour Banga, Malda, West Bengal.

Sri V.K. Masatkar, Sr. Pres. Asst. identified 2 herbarium specimens as *Tadehagi triquetrum* and *Dendrolobium triangulare* subsp. *cephalotoides* from Manipur.

Sri Gopal Krishna, identified 50 field numbers belonging to 40 species, which were earlier collected from Aurangabad, Nawada and Banka districts of Bihar.



Forest near Hanumanghat, Bhabua, Kaimur



Degraded forest at Matiyon, Rohtas range



Convolvulus prostratus Forssk.



Echinops echinatus Roxb.

Scanning Electron Microscopy

Total 44 plant samples of pollens, spores, nutlets, roots, leaf of different plant groups (Pteridophytes, Fungi, Angiosperms) were studied under Scanning Electron Microscope by Scientists, scientific staff and research scholars of BSI.

Digitization of Herbarium Specimens

Scanned about 50 herbarium specimens belonging to the family Caprifoliaceae.

Public Service rendered

Dr. Vinay Ranjan, Scientist 'D' attended as an external Examiner for M. Sc. (Practical) examination of Vishwa Bharti University on 01.12.2015.

Dr. Avishek Bhattacharjee delivered a presentation on 'An introduction to orchids' at Muralidhar Girls' College, Kolkata on 02.12.2015.

Dr. K. Karthigeyan, identified about 20 images of Herbarium specimens of Helfer's collections received from Dr. Susanne Renner, Chair, Systematic Botany and Mycology, University of Munich, Director, Munich herbaria (M & MSB), Germany.

Identified 35 plant samples, which were received from different institutions and organizations.

Dr. Karthigeyan and Dr. A. Bhattacharjee reviewed one manuscript each for the journal *Rheedea*.

Dr. S. Bandyopadhyay, Scientist 'B' edited one manuscript for the journal *Annales Botanici Fennici*.

Lectures organized

A lecture was organized at CNH committee room on 'Red listing of Indian plants', which was delivered by Dr. Avishek Bhattacharjee on 18.12.2015.

A lecture was organized at CNH committee room on 22.12.2015, in which Scientists of Zoological Survey of India (ZSI), Drs. Basudev Tripathy and Gopinathan Maheswaran explained about the usage of 'GPS and GIS' in various fields of life science. On this occasion, Dr. C.M. Sabapathy, Botanist also made a presentation about 'Phyto-GIS mapping of trees and shrubs in AJCBIBG, Howrah'. Dr. Sabapathy also made demonstration on Android version of the same to the Scientific officials of ZSI in Botanical Garden.



Dr. Avishek Bhattacharjee delivering lecture



Scientists of BSI and ZSI at Committee Room, CNH



Dr. Basudev Tripathy from ZSI explaining about the usage of 'GPS and GIS' at CNH



Dr. C.M. Sabapathy presenting about 'Phyto-GIS mapping of trees and shrubs in AJCBIBG

Meeting/programme attended

Dr. Kumar Avinash Bharti, Scientist 'B' attended a meeting with delegates of IIT, Guwahati regarding publication of type specimens on web on 14.12.2015.

Dr. Mahua Pal, Bot. Asst. attended exhibition from 9th to 11th December 2015 in Maharaja Manindra Chandra College, Kolkata and displayed different posters regarding Economic importance of Plants, curious plants, floristic diversity of West Bengal on the occasion of Platinum Jubilee celebration of that College.

Visitors/students

115 students of Midnapore College, Midnapore on 03.12.2015.

37 students of B.Sc. (2nd year) from Seth Anandram Jaipuria College visited on 04.12.2015.

20 students of B.Sc. (2nd year) from Garhbeta College visited on 08.12.2015.

65 students of Vijaygarh Jyotish Ray College, Kolkata on 14.12.2015.

23 students of B.Sc., Department of Botany, Don Bosco College, Maram, Manipur.

Ms. Zorinpuii Khiangte and Ms. Grace Saito, Ph.D students of Mizoram University.

Ms. Marine Bellago from EHESS, Paris from 14th to 18th December 2015 for consultation of library and archival materilas in connection with her Ph.D work on History of AJCB Indian Botanic Garden.

Ms. P.B. Yadav, Dept. of Botany, Shivaji University, Kolhapur, Maharashtra for consulting Liliaceae from 14th to 18th December 2015.

Mr. Anna Winterbottom from Sussex, UK for the consultation of archival and herbarium on 21.12.2015.

Publications

Gogoi, R. and Borah, S. 2015. *Impatiens ashihoi*, a new species of Balsaminaceae from Dibang Valley of Arunachal Pradesh, India. *Phytotaxa* 238 (3): 278–282.

Ranjan, V. and Kumar, A. 2015. Conspectus of family Rubiaceae in West Bengal, India. *Geophytology* 45 (2): 161–174.

CENTRAL BOTANICAL LABORATORY, HOWRAH

An ethnobotanical field tour was conducted to Naupada district of Odisha from of 8th to 19th December 2015 by Sri R. Saravanan, Bot. Asst. and Dr. Dhole Pankaj Arvind, Bot. Asst. The tour party visited the tribal hamlets in Satasmal, Komna, Nuapada, Patora, Golaband, Mesupalli, Cherichua, Dugripali and Baruamunda forest ranges and interacted with different tribal communities like *Bonda*, *Paroja*, *Koya*, *Kondh*, *Gond*, *Desiya* and *Kandha*. A total of 178 field numbers of specimens were collected with 215 ethnobotanical information. Dr. K. A. Sujana, Scientist 'C' identified 122 plant species from Malkangiri and Sri A. C. Halder, Botanist and Sri P. K. Baske, Botanist identified 25 plants collected from Nayagargh district of Odisha. Dr. Sujana and Sri Saravanan made descriptions for 98 plants collected from Kuldiha Wildlife Sanctuary, Balasore district and field data of 120 plants were documented. Dr. A.K. Verma, Scientist 'B' engaged in cytological studies on *Abrus precatorius* growing in AJCBIBG, Howrah and computerized data provided in labels of cytological herbarium specimens (250 nos.) available at this unit.



Dr. D.P. Arvind gathering data from tribal informer



Sri R. Saravanan processing plant specimens

Rajbhasha meeting

A quarterly *Rajbhasha Karyanawan Samiti* meeting was organized at CBL on 21.12.2015.

Exhibition attended

Dr. K.A. Sujana, Sri A.C. Halder and Dr. Liza Mallick, RA co-ordinated, displayed and demonstrated ethnobotanical exhibits (Poters-3, Bottled specimens-52, Museum specimens-23 and wooden blocks-06) to the visitors during the exhibition in connection with the platinum jubilee celebration of Maharaja Manindra Chandra College Kolkata from 9th to 11th December 2015.

Visitors/ Students

Information service was rendered on Ethnobotany to the 96 students and 05 teachers from Garbeta College, Paschim Medinipur and 43 students and 5 teachers from A.P.C. college, New Barrackpur, 24-Paraganas (North).

Publication

Dhole P.A., Baske, P.K., Halder, A.C. and Sujana, K.A. 2015. *Tragia praetervisa* Chakrab. & N.P. Balakr. (Euphorbiaceae)—an addition to the flora of Odisha from Nayagarh, *Zoo's Print* 30(12): 13–14.



Visitors viewing ethnobotanical exhibits displayed at Maharaja Manindra Chandra College, Kolkata



Sri. P.K. Baske delivering talk on ethnobotany to the student visitors at CBL

INDUSTRIAL SECTION INDIAN MUSEUM, KOLKATA

One field tour was undertaken to Bilaspur and its surrounding areas in Chhatisgarh and Amarkantak region, Madhya Pradesh from 30th November to 10th December 2015 and 46 varieties of rice (*Oryza sativa*), one variety of Guava (*Psidium guajava*), 15 samples of medicinal plant parts and 5 samples of Pulses were collected for displaying at the botanical gallery.

For the project, Interpretation of Botanical paintings by Roxburgh, three species of *Eugenia* (Myrtaceae), four species of family Moraceae, and four species of family Cucurbitaceae were interpreted with updated nomenclature and description.

As a part of making a digital database of BSIS, 81 specimens of Monocot and 173 specimens of dicot were listed and nomenclature is updated.

Arrangements were made for the visit of Sri Hem Pande, IAS, Special Secretary, MoEF & CC at the site of project work undertaken by the NBCC in respect of "Restoration of BSI building in Indian Museum campus at Kolkata". The site visit was followed by a meeting, in which Special Secretary; Director, BSI; Director(I/C), ZSI; Chief Engineer, CCU, MoEF; NBCC officials and BSI officials of Monitoring Committee associated with the of Project were attended on 21.12.2015.



Sri Hem Pande, IAS, Special Secretary, MoEF & CC with Directors of BSI and ZSI at the site of project work undertaken by the NBCC in respect of "Restoration of BSI building in Indian Museum campus at Kolkata

Awareness programme attended

Officials of ISIM participated in Damodar Mela-2015 held at Amta, Howrah from 7th to 14th December 2015 to generate mass awareness regarding plant wealth.

Publication

Bhaumik, M. and Pagag, K. 2015. *Saurauia sinohirsuta* J.Q. Li & Soejarto (Actinidiaceae), a new distributional record from India. *Indian J. Forest.* 38(3): 259–262.

ANDAMAN & NICOBAR REGIONAL CENTRE, PORT BLAIR

Dr. T.A.M. Jagadeesh Ram, Scientist 'D' collected the seeds and seedlings of 12 species belonging to RET categories from Campbell Bay during 17th to 21st December 2015.

Dr. Lal Ji Singh, Scientist 'D' & HoO collected three plant species (RET) and introduced in the Dhanikhari Experimental Garden cum Arboretum (DEGA) as a part of *ex-situ* conservation. Dr. Singh also recorded Phenology of 18 Tree species of DEGA.

Dr. Jagadeesh Ram identified 94 specimens of Graphidaceae (Lichens) into 12 species.

Dr. Sanjay Mishra, Scientist 'B' identified three specimens as *Cyperus flavidus* (Cyperaceae) at PBL. Dr. C.P. Vivek, Bot. Asst. Identified different field numbers of herbarium specimens of the family Poaceae at PBL into 5 species viz., *Axonopus compressus* – F. no. 753; *Centotheca lappacea* – F. no. 88; *Paspalum scrobiculatum* – F. no. 1006; *Saccharum spontaneum* – F. no. 71; *Sporobolus diandrus* – F. no. 159.

Meetings/Programmes conducted/attended

Dr. Singh and Dr. Jagadeesh Ram attended the synopsis presentation of the Ph.D. thesis entitled, 'Studies on Nicobar Crab-eating macaque (*Macaca fascicularis umbrosa*) in Great Nicobar Island' on 11.12.2015 at Zoological Survey of India, Port Blair.

Dr. Singh participated Opening Ceremony as well as Closing Ceremony of XIX State School Games and IV State Level Competition for Children with Special needs at Netaji Stadium, PortBlair on 17.12.2015 and 21.12.2015 respectively.

The centre organised Official Hindi Council meeting on 21.12.2015. The centre also organized two-day Hindi workshop on 28th and 29th December 2015.



Dr. Lal Ji Singh delivers speech in Hindi workshop

अण्डमान निकोबार द्वीप समाचार

संख्या 347

पोर्ट ब्लेयर,

दुबई,

30 दिसम्बर 2015

web: www.aa

वनस्पति सर्वेक्षण में हिन्दी कार्यशाला

पोर्ट ब्लेयर, 29 दिसम्बर।

भारतीय वनस्पति सर्वेक्षण के पोर्ट ब्लेयर स्थित अण्डमान एवं निकोबार क्षेत्रीय केन्द्र के मुख्य कार्यालय के समागार में 28 एवं 29 दिसम्बर, 2015 को द्वितीय वार्षिक दो दिवसीय 'हिन्दी कार्यशाला' का आयोजन किया गया। कार्यशाला का उद्घाटन करते हुए उप निदेशक एवं कार्यालयाध्यक्ष डॉ. लाल जी सिंह ने अधिकारियों और कर्मचारियों से दैनिक कार्यों में हिन्दी का अधिकाधिक प्रयोग करने का आग्रह किया।

इस अवसर पर वैज्ञानिक 'बी' तथा राजभाषा अधिकारी डॉ. संजय मिश्रा ने प्रशिक्षण का संचालन किया। उन्होंने राजभाषा में अवकाश पत्र लेखन के बारे में कर्मचारियों को प्रशिक्षित किया। कार्यशाला का शुभारम्भ डॉ. जगदीश राम टेम के स्वागत भाषण के साथ हुआ। कार्यक्रम के अन्त में डॉ. पी. सी. विवेक ने धन्यवाद ज्ञापन किया।

Visitors/students

Sri Omkar Singh, PCCF & Principal Secretary, Department of Environment, Forest and Climate Change; Sri Rajesh Kumar CCF, Sri Agni Mitra, DFO Silviculture division visited Dhanikhari Experimental Garden cum Arboretum (DEGA) on 12.12.2015.

Dr. Souravjyoti Borah, Botanist, APRC, BSI, Itanagar along with three members visited DEGA on 16.12.2015.

Dr. C.S. Nautiyal, Director, National Botanical Research Institute, Lucknow visited DEGA on 19.12.2015.



Sri Omkar Singh, PCCF & Principal Secretary at Dhanikhari Experimental Garden cum Arboretum



Dr. C.S. Nautiyal, Director, NBRI, Lucknow at Dhanikhari Experimental Garden cum Arboretum

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Dr P. Satyanarayana, Scientist 'D' & HoO and Shri B.B.T. Tham, Botanist have written descriptions for 25 species collected from Flora of Pakke Tiger Reserve and Wild Life sanctuary.

Dr. Vineet Kumar Rawat, Scientist 'C' prepared descriptions for 10 species of the family Polypodiaceae of North East India. Dr. Vineet Kumar Rawat is presently on Herbarium consultation tour to CRC, Allahabad from 22.12.2015 and will also consult the specimens at CNH, Howrah and ERC, Shillong in January 2016.

Dr. Manish K. Kandwal, Scientist 'C' identified 17 field numbers for Grass flora of Arunachal Pradesh.

Dr. Krishna Chowlu, Scientist 'B' entered data sheets for 5 specimens, finalized in respect of their identity, geo-coordinates in connection with the study of Orchids of Arunachal Pradesh (Red Listing).

Dr. Umeshkumar L. Tiwari, Scientist 'B', identified 33 species collected from Manipur state and 19 species collected from Gerukamukh, Assam.

Dr. Souravjyoti Borah, Botanist, identified 6 field numbers and prepared descriptions for 11 species for Flora of Lohit District and Kamlang WLS.



A view of high altitude alpine meadow in Kurung Kumay district, Arunachal Pradesh



Microstegium vimineum

Public service rendered

Umeshkumar L. Tiwari provided technical inputs/expertise to State Biodiversity Board of Arunachal Pradesh on “Status and distribution of *Cordyceps sinensis* in Arunachal Pradesh state” and one page short notes was also given for their further reference.

A total of 33 medicinal plant species collected from Manipur were identified which were brought by Dr. Rung Surf, Scientist-2 (Bot.), Ayurveda Regional Research Institute, Itanagar.

ARID ZONE REGIONAL CENTRE, JODHPUR

In connection with the project, Ethnobotany of Dang District, Gujarat, Sri Vinod Maina, Scientist ‘D’ & HoO and Sri Ravi Prasad, Bot. Asst. identified specimens of 9 field numbers. For Flora of Shoolpaneshwar WLS, Narmada District, Gujarat Dr. S.L. Meena, Scientist ‘D’ and Dr. Harikrishana Peddi, Bot. Asst. identified specimens of 15 field numbers. For Flora of Navsari District, Gujarat Dr. Ramesh Kumar, Scientist ‘C’ identified specimens 40 field numbers.

Public service rendered

Dr. C.S. Purohit, Scientist ‘B’ identified 80 plant species brought by Ms. Navjot Kaur, Research Scholar, Department of Botany, Punjabi University, Patiala.

Meetings/programmes attended

Sri Vinod Maina and Dr. Ramesh Kumar attended TOLIC meeting at Railway DRM office , Jodhpur on 18.12.2015.

Visitors

Ms. Navjot Kaur, Ph.D. Scholar, Punjabi University, Patiala visited this office for herbarium consultation on 02.12.2015.

Mr. Salim Yahata and Sri Nuhu A. Mukhtar, Research Scholar, Jodhpur National University, Jodhpur visited this office for herbarium consultation on 07.12.2015.

Publication

Sudhakar Reddy, C., Jha, C.S., Dadhwal, V.K., Hari Krishna, P., Vazeed Pasha, S., Satish, K.V., Dutta, K., Saranya, K.R.L., Rakesh, F., Rajashekar, G. and Diwakar, P.G. 2015. Quantification and monitoring of deforestation in India over eight decades (1930-2013). *Biodiv. and Conserv.* 25(1): 93–116.

CENTRAL REGIONAL CENTRE, ALLAHABAD

In connection with the ongoing project, "Lichens of Rajasthan, Kutch and Gujarat", a field tour to Jaipur, Sikar, Jodhpur, Barmer and Jaisalmer is being conducted from 28.12.2015.

Specimen identification

In connection with ongoing projects, "Floristic diversity of Parvati Aranga Wildlife Sanctuary and adjoining Tikri forest area, Gonda" and "Flora of Chandra Prabha Wildlife Sanctuary, Chandauli, U.P.", a total of 29 species with different field numbers were identified.

In connection with the flora of India project, "Taxonomic studies on lichenised non-Thelotremoid Indian Graphidaceae" and "Lichens of Terai regions of Uttar Pradesh", a total of 29 species under 56 specimens were identified.

In addition, a total of 134 earlier collected specimens housed at BSA were also identified.

Phenological Data collection

Recorded phenological data of eight species from experimental Botanic Garden, CRC, Allahabad.

Scanning Electron Microscopy

Scanning of leaves and bracts of *Musa balbisiana* var. *andamanica* were done by using SEM.

Public service rendered

Identified six lichen specimens received from Prof. Nripendranath Mandal, Division of Molecular Medicine, Bose Institute, Kolkata.

Seminar/workshop attended

Dr. A.N. Shukla, Scientist 'B' attended a two-day workshop (17th and 18th December 2015) on Photography at Nirala Art Gallery, University of Allahabad, sponsored by Fotofare studio, Allahabad.

Dr. Nitisha Srivastava, Bot. Asst. attended a National workshop on "Technological innovations in agriculture and rural development" organized by Society of Biological Sciences and Rural Development, Allahabad at Science Council, Allahabad from 13th to 20th December 2015 and also delivered a lecture on 'GM crops and its impact on Plant Biodiversity and Environment'.

Monitoring of Botanical Garden

Dr. G.P. Sinha, Scientist 'E' & HoO visited National Botanic Garden, CSIR-NBRI, Lucknow on 02.12.2015 in connection with the evaluation of the garden and sent the report to Hqrs., BSI for further needful.

Visitors/students

A group of 30 students of M.Sc. Botany led by Prof. J.P. Shukla along with two faculty members of Department of Botany, D.B.S. College, CSJM Kanpur University, Kanpur visited CRC, Allahabad on 22.12.2015. The students were taken to Botanic garden, Herbarium and Library and briefed about organization activities. Simultaneously, two power point lectures were also delivered on lichens and palyno-taxonomy by the experts of the regional centre.



Interaction with students at the conference room of CRC, Allahabad



Students during Herbarium visit at Central Regional Centre, Allahabad

Publications

Garg, A., 2015. P.K.K. Nair –The father of Indian Palynology. *Curr. Sci.* 109(12): 2315–2318.

Singh, P., Singh, K.P. and Bhatt, A.B. 2015. Diversity and distribution of microlichens in the state of Arunachal Pradesh, Eastern Himalaya, India. *Checklist.* 11(6): 1–20.

DECCAN REGIONAL CENTRE, HYDERABAD

Ms. P.S. Annamma, SRF conducted a field trip to Mahavir Harina Vanasthali National Park, Hyderabad on 10.12.2015 and collected specimens of 13 field numbers.

Identified total 135 species in connection with Flora of Seshachalam Biosphere Reserve (11 species by Sri S. Nagaraju, Bot. Asst.), Flora of Sacred Groves of Andhra Pradesh (91 species by Dr. J. Swamy, Bot. Asst.), Flora of Satkosia Tiger Reserve (28 species by Sri K. Chandra Mohan, SRF) and Flora of Kawal Tiger Reserve (5 species by Ms. P.S. Annamma, SRF).

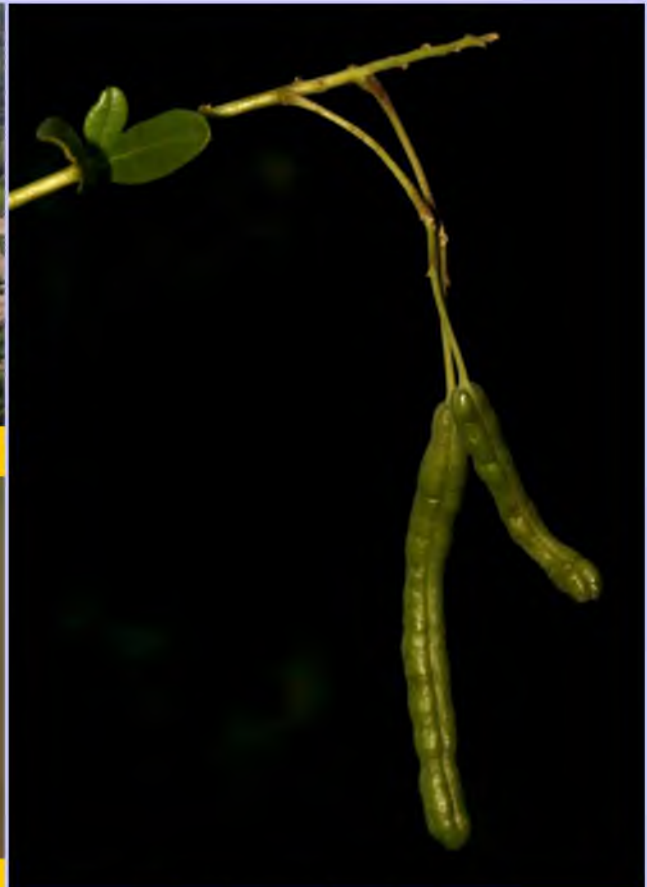
Documented 26 species in connection with Flora of Nagarjunasagar – Srisailem Wildlife Sanctuary (16 species by Dr. L. Rasingam, Scientist 'C') and Flora of Kawal Tiger Reserve (10 species by Ms. P.S. Annamma).



Kondapalli Sacred grove, Krishna District, Andhra Pradesh



Cleome viscosa var. *nagarjunakondensis* from Nagarjunasagar WLS



Cadaba fruticosa from Kondaveedu

Digitization of Herbarium specimens

About 650 Herbarium specimens belonging to the families Menispermaceae, Papaveraceae, Nelumbonaceae, Nymphaeaceae, Capparaceae, Brassicaceae, Cleomaceae, Violaceae, Bixaceae, Salicaceae, Polygalaceae, Poaceae, Moraceae and Orchidaceae were scanned during this month.

Public service rendered

Dr. L. Rasingam and Dr. J. Swamy identified 6 species for Singhanian University, Pacheri Bari & MAK College of Pharmacy, Hyderabad.

EASTERN REGIONAL CENTRE, SHILLONG

Two field tours were conducted, one to Lakhimpur by Dr. Deepu Vijyan, Scientist 'B' and the other to Yangoupokpi Lokchao Wildlife Sanctuary, Chandel District, Manipur by Sri L.R. Meitei, Bot. Asst.

Identified total 12 species and documented 15 species for Flora of Eastern Nagaland by Dr. N. Odyuo, Scientist 'D' and Dr. R. Daimary, Bot. Asst.; Flora of Amchang WLS by Ms. Nandita Sarma, Sr. prev. Asst. and Flora of Yangoupokpi Lokchao WLS (Manipur) by Sri. R. Meitei, Bot. Asst. Dr S.K. Singh, Scientist 'D' identified five samples of *Riccia*.

For the project, 'Taxonomy, phylogeny and ex-situ conservation of Micro-fungal diversity from north-east India with special emphasis on fungi associated with endemic and threatened plants of Meghalaya' by Dr. Ashish Venkatesh Prabhugaonkar, Scientist 'B', Isolated endophytes and litter associated fungi from *Aquilaria* sp. and *Virgatospora* sp., *Synnemellisia* sp. Five no. of Fungi were identified up-to generic level.

In connection with ex-situ conservation of endemic, threatened and economically important plants of the region and recording of phenological data on flowering and fruiting of species growing in the Garden, Dr. M. Murugesan, Scientist 'B' and Sri L.R. Meitei, Bot. Asst. observed and recorded the phenological data of flowering and fruiting of 24 plant species which includes RET species too.

For the ongoing project, Micro-propagation of RET Plants of Northeast India by Dr. A.A. Mao, Scientist 'F' & HoO and L. Ibemhal Chanu, Bot. Asst. inoculated 300 nos. explants of *Rhododendron coxianum* Davidian (Ericaceae) to fresh medium of ½ strength WPM. Prepared media with different concentrations of *Aloe vera*, Manganese sulphate. H₂O, Boric acid, Molybdcic acid (sodium salt) 2H₂O, Zinc sulphate.7H₂O and Copper sulphate. 5H₂O WPM for nodal culture and observing pseudo roots and root formation in short period. Prepared media with 2, 4-D, 2ip for subculturing *Rhododendron coxianum*. Prepared media for *Armadorum senapatianum*, *Cymbidium triginum*, *C. elegans*, *P. hirsutissimum*, *Nepenthes khasiana*. Reading of asymbiotic seed germination in MS medium with 0.2% charcoal + 10% coconut, 10% banana, 0.2% charcoal and control of *Cymbidium tigrinum*, pH screening test for *Rhododendron coxianum* Davidian, *Cymbidium tigrinum*, *Nepenthes khasiana*. Sprayed insecticides and fungicides on the plants maintained in greenhouse and cleaned plant tissue culture laboratory as a part of routine maintenance.



Cymbidium ensifolium in bloom at National Orchidarium, shillong



Paphiopedilum villosum in bloom at National Orchidarium, shillong

For Micropropagation, Phytochemical Screening of Medicinal Plants and Molecular Characterization of Selected Species by Dr. Deepu Vijayan, Scientist 'B', Multiple shoot induction was observed in *in vitro* raised seedlings of *Pyrenaria khasiana*. Two different experiments were initiated with mature seeds of *Pyrenaria khasiana* (both *in vivo* and *in vitro*)

Public service rendered

Identified 10 specimens received from various institutions .

Lecture organised

A lecture was delivered by Dr. Dinesh Kumar Agrawala, Scientist 'C', SHRC, Gangtok on 'Assigning threat status to Orchidaceae in Eastern Himalaya' at ERC on 18.12.2015, which was attended by all the scientists and scientific staff of ERC, Shillong.

Visitors/students

Two lecturers, six Research Scholars, two Scientists and 22 students visited the Centre from various Institutions, Colleges and Universities.

Publication

Talukdar, S.R. and Deori, C. 2015. Life form and biological spectrum of the flora of Barnadi wildlife sanctuary, Assam, India. *Indian For.* 141(11): 1161–1171

NORTHERN REGIONAL CENTRE, DEHRADUN

Dr. K. Ambrish, Scientist 'D' conducted a field tour to Nandhour WLS from 17th to 25th December 2015 and collected 172 field numbers of about 400 plant specimens including two RET live plants.

Identified 82 species and described 91 species of Angiosperms in connection with the 'Flora of Uttarakhand, Vol. V', 'Floristic Diversity and Phytosociological study of Simbalbara National Park', 'Flora of Nandhour Wildlife Sanctuary', 'Flora of Sonanadi Wildlife Sanctuary', 'Revision of family Bignoniaceae, Cyatheaceae and genus *Lepisorus* (Sm.) Ching in India'.

Function attended/lecture delivered

Dr. S.K. Srivastava, Scientist 'E' acted as one of members of the Evaluation Committee for Elocution competition on 04.12.2015 at Central Soil and Water Conservation Research and Training Institute (CSWCRTI), Dehradun on the occasion of International year of Soil, on the topic "Value of soil is more than oil".

Dr. K. Ambrish, Scientist 'D' delivered a talk as a Biology expert in the National seminar on I-next Engineering gate way 2015 at Survey of India, Dehradun, organized by VIT University, Vellore, Tamil Nadu.



Dr. K. Ambrish delivered a talk as a Biology expert in the National seminar on I-next Engineering gate way 2015 at Survey of India, Dehradun



A view of Sharda river in Nandhour WLS, Uttarakhand



Tour party at Nandhour WLS, Uttarakhand



Eria vittata — New record for Mizoram



Dendrobium darjeelingense — New record for Mizoram



Trichotosia dasyphylla — New record for Mizoram



Dendrophthoe falcata at Nandhour WLS, Uttarakhand

Digitization of Herbarium specimens

Scanned about 190 specimens of the family Brassicaceae and Pteridophytes.

Visitors/students

Eight students from different Colleges have visited the centre for consultation of herbarium as well as Library.

Publication

Ambrish, K. and Srivastava, S.K. 2015. *Senna alata* (L.) Roxb. (Caesalpinaceae): A New Record for Northern India from Uttarakhand. *Indian For.* 141(12): 1318–1319.

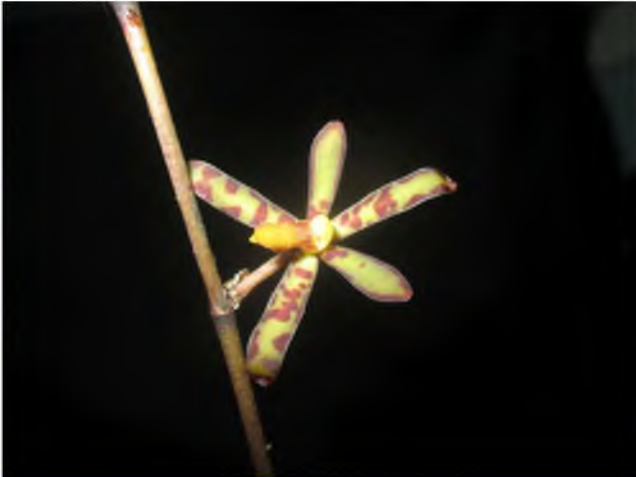
SIKKIM HIMALAYAN REGIONAL CENTRE, GANGTOK

Dr. D.K. Agrawala, Scientist 'C' & HoO conducted a herbarium consultation tour to ASSAM from 12th to 25th December 2015. About 6600 orchidaceae specimens housed at ASSAM were photographed to note the label data, check identity and assign geo-coordinates.

Dr. D.K. Agrawala finalized 100 specimens at BSHC in respect of their identity, geo-coordinates and made entry in the excel sheet for the project, 'Red listing of Orchids of Eastern Himalaya as per IUCN criteria'.

Dr. Agrawala identified three orchid species and illustrated two orchid species.

Sri. S.K. Rai, Pres. Asst. identified 25 species from BSHC herbarium.



Arachnis labrosa — flowered at SHRC, Gangtok



lone cirrhata — flowered at SHRC, Gangtok



Narration of herbarium technique to Tamralipta Mahavidyala, tamluk, West Bengal

Public service rendered

Dr. Agrawala finalized the list of proposed plants suitable to grow at new campus of Sikkim University at Yangyang as per guidelines of MoEF & CC for financial assistance under Botanical Garden scheme.

Meeting /workshop attended

Dr. Agrawala has attended TOLIC meeting on Official Language on 28.12.2015 and briefed about the activities of BSI, SHRC towards the implementation of Official Language Policy.

Dr. Agrawala also attended "Hindi Workshop" as guest speaker at Ayurveda Regional Research Institute (ARRI), Gangtok on 30.12.2015.

Visitors/students

Students and faculty members of Darjeeling Government College, West Bengal on 02.12.2015.

Students and faculty members of Tamralipta Mahavidyalaya, Tamluk, East Midnapur, West Bengal on 08.12.2015.

SOUTHERN REGIONAL CENTRE, COIMBATORE

Dr. K.A.A. Kabeer, Scientist 'D' and Sri A. Ravi Kiran, Bot. Asst. conducted a field tour to Kodaikanal Wildlife Sanctuary (KWLS), Tamil Nadu from 9th to 19th December 2015 and collected 187 field numbers of specimens. The tour party also identified and labelled specimens of 40 field numbers of previous collection. Dr. Gnanasekaran, Bot Asst. undertaken field tour to different districts in Kerala from 7th to 12th December 2015 for collection of species belonging to subtribe *Andrographinae* (Acanthaceae) and also consulted TBGT herbarium, Trivandrum on 11.12.2015. Sri K. Yarrayya, Sr. Pres. Asst. conducted a herbarium consultation tour to TBGT herbarium, Trivandrum from 16th to 18th December and indexed 20 rare collections in connection with Cyperaceae of Tamil Nadu.



Sub-montane evergreen forest at KWLS, Tamil Nadu



Collection of *Heynea trijuga*



Collection of *Vaccinium leschenaultii*



Impatiens aquatica from KWLS, Tamil Nadu

Plant identification

Dr. M. Palanisamy, Scientist 'D' and Sri S.K. Yadav, Bot. Asst. identified 23 field numbers of seaweed specimens for 'seaweed Flora of Karnataka coast'. Dr. J.H. Franklin Benjamin, Scientist 'B' and Sri R.G. Vadhayar, Bot. Asst. identified 85 field numbers from the collections of Malabar Wildlife Sanctuary, Kozhikode, Kerala.

Ex-situ conservation

Dr. Kaliamoorthy, Scientist 'D' and his team multiplied 27 plant samples (19 samples of orchids and 8 samples of other plants), transplanted 6 plants and developed 15 seedlings and 35 cuttings. They also recorded the phenology of 10 species of orchids. Dr. Kaliamoorthy collected and fixed the flower of orchid taxa *Coelogyne glandulosa* in preservatives for SEM study.

Digital image of type, *Rubus leucocarpus* var. *tomentosa* were sent to Dr. S.S. Dash, BSI (Hqrs.), Kolkata. Holotype of *Ficus anamalayana* and 5 Holotypes and Isotypes of Poaceae were sent to CNH (CAL), Howrah.



Ceropegia juncea from KWLS, Tamil Nadu



Crotalaria candicans from KWLS, Tamil Nadu



Mucuna pruriens from KWLS, Tamil Nadu

Scanning Electron Microscopy

Dr. G. Gnanasekaran studied and taken 8 SEM micrographs of pollen grains and seeds of *Andrographis gracilis* (Acanthaceae).

Public Service Rendered

During this month, a total of 57 plant samples (including 17 seaweeds) were identified for research scholars and students from various institutions.

Dr. M.Y. Kamble, Scientist 'D' prepared the distributional data of *Oroxylum indicum* and sent to Prof. M.V. Rao, Bharathidasan University.

Dr. J.V. Sudhakar assisted Tamil Nadu Forest officials in finalisation of list of *Ficus* species available at Sircarpathy (Pollachi) Ficitorium, Coimbatore District, Tamil Nadu.

Conferences /workshops attended

Dr. M. Palanisamy, delivered a lecture on "Seaweeds of Indian Coast – Applications" in the National Conference on "Bioprospecting – Initiatives and Challenges" held at Dr. N. G. P. College of Arts & Science College, Coimbatore on 29.12.2015.

Dr. M. Palanisamy and Dr. C. Murugan attended Salim Ali Memorial Lecture on *GM crops in India* by Prof. K.P. Prabakaran Nair, Federal Republic of Germany, organized by the SACON at the Central Academy of State Forest Service, Forest Campus, Coimbatore on 18.12.2015.

Dr. G. Gnanasekaran, Sri R.K. Vadhyar and Sri K. Yarrayya attended Series Lectures & Exhibition in the eve of Centenary Celebrations of J.S. Gamble's Flora of the Presidency of Madras held at JNTBGRI, Palode, Thiruvanthapuram on 18.12.2015.



Dr. M. Palanisamy delivering a lecture at Dr. NGP College of Arts and Science, Coimbatore



Students of Govt. Medical College, Cuddapah, Andhra Pradesh during their visit to NOEG, Yercaud

Visitors/students

During this month, a total of 274 students, research scholars, scientists, professors /officials visited the herbarium and library of this regional centre whilst 759 persons in 105 parties visited the National Orchidarium and Experimental Garden (NOEG), Yercaud.

Publication

Chandore, A.N., Kamble M.Y. and Gosavi, K.V.C. 2014. *Eleocharis spiralis* (Rottb.) Roem. & Schult.

(Cyperaceae) – A New Record for Andaman & Nicobar Islands, India. *J. Bombay Nat. Hist. Soc.* 111(3): 250–251.

Arumugam. S., Murthy, G.V.S. and Nair, V.J. 2015. “*Muhlenbergia myanmarensis*, a new name for *M. fasciculata* T.P.I. Phan (Poaceae)”. *Telopea* 18: 503–504.



Explaining about Herbarium Methodology to Ayurveda doctor from B.V. Pundit Herbal Garden

WESTERN REGIONAL CENTRE, PUNE

Dr. A. Bennimin, Scientist ‘D’ undertook one field tour to Biligirirangaswamy Temple Wildlife Sanctuary, Kudremukh National Park, Rajiv Gandhi National Park and Anshi National Park, Karnataka from 18th November to 3rd December 2015. A total specimens of 112 field numbers belonging to 75 species were collected. Spores of 40 fern species were also collected to study under Scanning Electron Microscope.

Dr. Jeewan Singh Jalal, Scientist ‘C’ conducted a field tour to collect orchids of Cotigaon Wildlife Sanctuary (Canacona Taluka, in the south of Goa) and its adjacent areas from 10th to 18th December 2015. About 110 sq km area was surveyed and 95 GPS locations were recorded for orchid occurrence. A total of 43 field numbers of orchids were collected which include 17 epiphytic species.

During this month, about 15 angiosperm specimens were identified from Biligiri Rangaswamy Temple (BRT) Wildlife Sanctuary, Karnataka by Dr. J. Jayanthi, Scientist ‘D’. Thirteen species of orchids were documented and descriptions were made for Orchids of Uttarakhand by Dr. J.S. Jalal. Microscopic measurements of 103 fungal species were scrutinized and completed, photoplates of 31 fungal species were completed and

description of 24 fungal species have been completed by Dr. Rashmi Dubey. 12 fern species were identified by Dr. A. Benniamin in connection with 'Flora of Karnataka'.



View of Kudremukh National Park, Karnataka



View of Cotigaon WLS, Goa

Public service rendered

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

Meeting attended

Dr. P. Lakshminarasimhan, Scientist 'E' & HoO attended 10th meeting of Maharashtra State Wildlife Board at Mumbai on 04.12.2015, which was chaired by Sri Devendra Fadnavis, Hon'ble Chief Minister of Maharashtra.

Visitors/students

Two B. Sc. students visited from Appasaheb Pawar College, Pirangut, Pune, Maharashtra. Prof. Arsule, Assistant Professor, New Arts, Commerce and Science College, Shevgaon Dist., Ahmednagar along with five T. Y. B. Sc. (Botany) students and one other Lecturer visited this centre.

Publication

Rai, I.D., Jalal, J.S., Singh, G., and Kumar, P. 2015. A note on the occurrence of *Eulophia flava* (Lindl.) Hook. f. (Orchidaceae) in Kumaon Himalaya. *Indian J. Forest.* 38(3): 263–264.



Pityrogramma calamelanos



Dendrobium ovatum



Andrographis serpyllifolia

PLANT OF THE MONTH



Merremia tuberosa (L.) Rendle (CONVOLVULACEAE) commonly known as Yellow morning-glory or Hawaiian wood rose is a native of Mexico. Planted worldwide as an ornamental vine. Florists use dry fruits for ornamental purpose. Root's resin used as laxative.

By Dr. B.K. Singh

THE HINDU
INDIA'S NATIONAL NEWSPAPER SINCE 1878

NATURALIST'S COLUMN
Botanic garden gets mobile app
Visitors looking for a particular tree in the park in Howrah can click on a virtual library that documents 1,400 species of flora and their characteristics

Stock photo from AFP/Spencer Platt (Auburnia) depicts a giant water lily (Victoria amazonica) and the cup-shaped leaf of Ficus religiosa in the background. Chandra Bose Indian Botanic Garden in Howrah, HOWRAH, WEST BENGAL, INDIA.

NEWS FROM INDIA
MUMBAI The country's oldest and biggest botanic garden has a major new-year gift for its visitors. A mobile application providing details of over 14,000 trees spread over the 275-acre grounds of the Acharya Jnanpada Chandra Bose Indian Botanic Garden (AICBSIG) in Howrah near here will soon be available. "There are about 1,400 species of trees and plants in the garden. Despite there being separate markings for some of these plants and trees, it is still difficult for visitors to identify them by their English or Hindi names," said Anand Prasad, head of the AICBSIG to The Hindu. Two scientists, C.M. Subapathy and Basant Kumar Singh who are working on the GIS-based phylogenetical mapping of the garden for the past few years, said that the application will work on the basis of unique numbers assigned to every tree. "The mobile application will have layered information, depending on how much the visitor or user wants to access. From providing common names to the tree the application will open doors to its identification, distribution and other life cycle-related details. Its distribution and even the history of the plant's introduction in the garden," he Singh said. "Set up in 1963 by Colonel Robert Kay, the garden was the place where the British first introduced a number of economically important plants like tea, coffee, simlana, rubber and mangoes," he added. "The application, which is going to introduce will be the first-of-its-kind of virtual library of living plants," Mr. Subapathy said, adding that that it is now in ready reference for researchers and visitors. "There are many visitors who come looking for a particular tree or plant such as the banyan or Kalpataru tree (Adiantum digitatum) very rare in India and is believed to have powers of granting wishes. The application will locate the tree for the visitor," Mr. Singh added. Similarly, other unique species such as Krishna (Grewia triflorata) and Giant Water Lily (Victoria amazonica) can be found easily. Consultants will be able to identify the host tree to a particular bird species. "The botanic garden also harbours 87 different species of birds and 49 of butterflies."



ISIM official in World Soil Conservation Mela at Agriculture College, Bilaspur, Chhatishgarh



Selling Medicinal plants at Amarkantak region, Madhya Pradesh by a tribal boy



CBL Officials engaged in ethnobotanical data collection



DRC official collecting information on Sacred Grove

Thanks to all the scientists and staff of various regional centres and units of Botanical Survey of India for contributing to this newsletter

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Published by The Director, BSI, Kolkata
Compiled and edited by Drs. V. Sampath Kumar and Avishek Bhattacharjee, CNH, BSI, Howrah