



BSI NEWSLETTER

The monthly electronic newsletter of Botanical Survey of India

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Director's column

Scientists of BSI described two new lichen species belonging to the genera *Acanthothecis* (lichenized Ascomycetes), *Gyalidea* (Ascomycota, *Solorinellaceae*) and a new mushroom, *Cantharellus* (Cantharellales, Agaricomycetes). They have also reported a lichen, *Protoparmelia hesperica* (Ascomycota: Parmeliaceae) and seven flowering plants, *Artabotrys suaveolens*, *Eria merguensis* (Orchidaceae), *Impatiens fugongensis*, *I. yui* and *I. xanthina* (Balsaminaceae), *Tropidia namasiae* (Orchidaceae) and *Sauromatum horsfieldii* (Araceae) for the first time from India. On the other hand, scientists rediscovered *Prismatomeris fragrans* subsp. *andamanica* from South Andaman, which is other than its type locality, after a lapse of about 100 years. Similarly, an endangered species, *Prunus ceylanica* was collected after eight decades from West Bengal.

Scientists, scientific staff and research students of BSI undertook field tours to different parts of India in connection with their projects. Important ones to mention are a field tour to Chandra Prabha Wildlife Sanctuary, Chandauli, Uttar Pradesh; Binog Wildlife Sanctuary, Mussoorie, Uttarakhand; Yarleng and Mechuka areas of West Siang district, Along Daporizo of Upper Subansiri and Raga-Ziro of Lower Subansiri of Arunachal Pradesh.

After successful fertilization of Double Coconut by artificial pollination a couple of years back, the scientists carried out again the artificial pollination in this month in the newly emerged inflorescence of the lone female plant surviving in the large palm house of AJCBIBG, Howrah. The pollens were obtained from Nong Nooch Botanic Garden, Thailand.

The 69th Independence day was celebrated by all the units and regional centres of Botanical Survey of India in a befitting manner with usual gaiety and enthusiasm.

Last year in August 2014, on the occasion of 68th Independence day, we have launched the publication of this electronic monthly news letter. On this occasion of first anniversary, I would like to appreciate the contribution made by the scientists and scientific staff of various regional centres and units of BSI to publish this monthly newsletter.

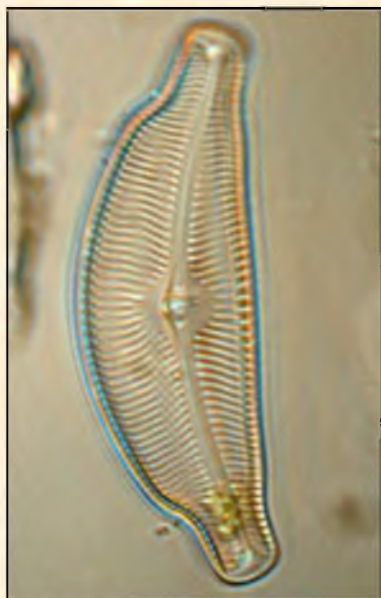
Happy browsing!

Dr. Paramjit Singh
Director, Botanical Survey of India



HEAD QUARTERS, KOLKATA

In connection with the ongoing project on 'Algal Flora of Jharkhand', 'Taxonomic diversity and ecology of cyanobacteria and algae in the alpine regions of Eastern Himalayas', 'Studies on wild mushrooms of 'Sikkim', 'Revision of the family Metzgeriaceae in India', and 'Wood rotting fungi of Rajmahal hills' identification and illustrations are being made. Dr. D. Singh, Scientist 'C' identified 23 specimens belonging to 16 species of liverworts, collected from Silent Valley, Kerala by J.N. Vohra and B.D. Kar in 1980, housed at CAL. Dr. Singh also identified a liverwort specimen as *Plagiochasma appendiculatum* (Aytoniaceae), received from Southern Regional Centre, Coimbatore.



Cymbella caespitosa (diatom)



Cosmarium nudum (Desmids)



Pinnularia gibba (diatom)

Dr. Monalisa Dey, Scientist 'B' studied and photographed the isotype specimen of *Drepanolejeunea angustifolia*, obtained on loan from The Natural History Museum, London(BM). Dr. Monalisa also prepared database of 73 liverwort specimens and herbarium label for 120 herbarium packets.

Ms. Pamela Saha, SRF prepared database of 150 moss specimens collected from Darjeeling District, deposited in General Herbarium of Cryptogamic Unit, Central National Herbarium (CAL).

Public service rendered

Dr. M. N. Aziz, Scientist 'E' confirmed the identity of nine moss specimens collected from Darjeeling district by Professor Mousumi Poddar Sarkar, Associate Prof., Ballygunge Science College, Kolkata. Dr. Aziz also confirmed the identity of six specimens collected from Mechuka, Siang District, Arunachal Pradesh by scientists of BSI, Kolkata.

Dr. R.K. Gupta, Scientist 'D' acted as an Examiner for M. Sc. Botany (Phycology) practical examination in the Department of Botany, The University of Burdwan, West Bengal. Dr. Gupta identified one species of green algae received from IIT, Kharagpur and three species of blue green and one species of green algae from NIT, Durgapur.

Programme attended

Dr. P. Singh, Director, BSI was invited as Chief Guest in

the workshop, 'International Year of Soils' organized by FAO, at Indian Institute of Bio-Social Research and Development (IBRAD), Kolkata on 20.08.2015.



Dr. P. Singh, Director, BSI as a Chief Guest in the workshop on 'International Year of Soils'

Visitors/students

Dr. S.K. Singh, Scientist 'D', Botanical Survey of India, Eastern Regional Centre, Shillong to consult Bryophyte specimens at Cryptogamic Unit, Central National Herbarium (CAL).

Two PG Pharmacy students from Post graduate college of Pharmacy, Bengal School of Technology, Chinsurah, Hooghly Dist., West Bengal.

21 students of class XI and XII from Dubda Deshapran Birendra Vidyapith (H.S.) School.

Publications

Das, K., Hofstetter, V., Chakraborty, D., Baghela, A., Singh, S.K. and Buyck, B. 2015. *Cantharellus sikkimensis* sp. nov. (Cantharellales, Agaricomycetes) from the Indian Himalayas. *Phytotaxa* 222 (4): 267–275.

Keshari, N., Das, S.K. and Adhikary, S.P. 2015. Identification of cyanobacterial species with overlapping morphological features by 16s rRNA gene sequencing. *European J. Phycology* DOI: 10.1080/09670262.2015.1064548

Rao, P.S.N. and Gupta. R.K. 2015. *Algae of India (Excluding Diatoms and Dinoflagellata)*. Botanical Survey of India, Kolkata. 103 pp.

AJC BOSE INDIAN BOTANICAL GARDEN, HOWRAH

Fresh artificial pollination was carried out in the newly emerged inflorescence of *Lodoicea maldivica* (Double Coconut) with the pollens received from Nong Nooch Botanic Garden, Thailand. *Adansonia digitata* and *Anacardium occidentale* were introduced in the Medicinal Plant section (*Charak Udyan*). Regular maintenance is being carried out in the Garden Nursery and Mist Chamber for the plant saplings and orchids collected in various tours.

The Great Banyan tree developed 7 new roots. 11 encaged roots were repaired with new bamboo caging. 38 aerial roots were encaged in bamboo cages to train them as prop root. *Victoria amazonica* and *V. cruziana* were freshly introduced and maintained in Leram, Kunstler, Janardhan and King's Lakes.



Reintroduction of Giant Water Lily, *Victoria* spp. in different lakes of AJCBIBG, Howrah



Er. A.K. Pathak hoisting the National flag at AJCBIBG

Independence Day Celebration

The 69th Independence Day was celebrated on 15th August 2015 at Kiosk Lawn of AJC Bose Indian Botanic Garden. Er. A.K. Pathak, Director-in-Charge hoisted the national flag. Scientists, officers, staff and research scholars of BSI and some visitors were present on this occasion.



Dr. A. Pramanik addressing the gathering during the Independence Day celebration at AJCBIBG

Radio talk

Dr. A. Pramanik, Scientist 'E' & HoO delivered a talk on the Botanic Garden in All India Radio on 13.08.2015.

Meeting/programme attended

Dr. A. Pramanik attended awareness programme on Environment at Academy of Fine Arts, organised by Buxara Sristi, NGO on 18.08.15.

Public service rendered

Fresh plant samples were provided to the B. Pharm. students of Guru Nanak Institute of Pharmaceutical Sciences & Technology, Kolkata in connection with their project work. Permission granted to the Research Scholar of Zoology Department, Calcutta University to carry out study on the native ants (Formicidae) in AJCBIBG campus, Howrah.

Visitors/students

Dr. Sathish Kumar, Orchidologist, TBGRI, Trivandrum, Dr. S.H. Patil, IFS, Addl. PCCF (CAMPA), Maharashtra State and scientists, forest trainees and students from different schools and academic institutions visited the botanic garden.

Publication

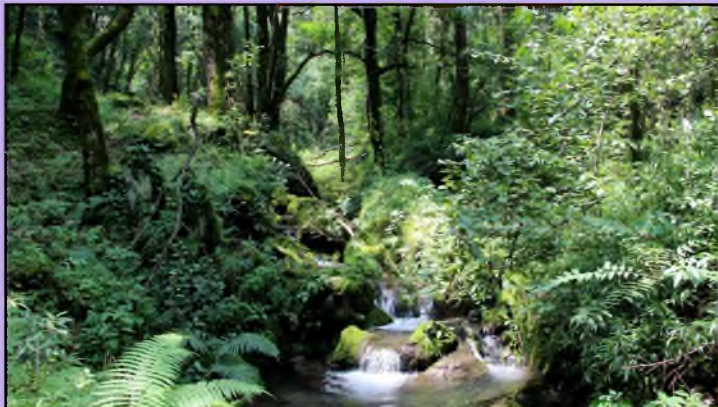
Panda, S.P., Sahoo, H.K., Sahu, A.K. and Subudhi, H.N. (2014) 2015. *Solanum sisymbriifolium* Lam. – an addition to the flora of Jharkhand, India, *J. Bombay Nat. Hist. Soc.* 111(2):147–148.

AJCB Indian Botanical Garden was inundated due to High tide in river Hooghly on 03.08.2015



CENTRAL NATIONAL HERBARIUM, HOWRAH

Dr. Avishek Bhattacharjee, Scientist 'B' visited Binog Wildlife Sanctuary, Mussoorie (along with Dr. M.R. Debta, Scientist 'B', and Sri Amber Srivastava, SRF, NRC, Dehradun) on 26.08.2015 and collected a few orchids (*Calanthe alismaefolia*, *Habenaria leptoloba*, *Malaxis accuminata*, *Nervilia* sp.). Brought live specimen of *C. alismaefolia* for the Orchidarium of AJCBIBG, BSI, Howrah. Dr. Avishek Bhattacharjee also consulted 57 specimens belonging to the genus *Calanthe* at BSD and 80 specimens at DD from 24th to 28th August, 2015.



View of Binog Wildlife Sanctuary, Uttarakhand



View of Binog Wildlife Sanctuary, Uttarakhand



On the way to Dhobighat to Binog, Uttarakhand



Calanthe alismaefolia



Habenaria leptoloba

In connection with the projects on 'Revision of the genus *Fimbristylis* in India', 'Taxonomic Revision of *Bambusoideae* (*Poaceae*) in India', 'Study of *Impatiens* L. (*Balsaminaceae*) of Arunachal Pradesh', 'Survey and Assessment of growing stock of economic bamboos of West Bengal for study of demand supply gaps, trends of use, population status and GIS mapping', 'Flora of Vikramshila Gangetic Dolphin Wildlife Sanctuary (ca 60 km segment of Ganges)', 'Flora of Gautam Buddha Wildlife Sanctuary (ca 259 sq km)', 'Flora of Betla National park, Latehar, Jharkhand (ca 225.37 sq km)', and 'Floras of Bihar and Jharkhand' identification, description and illustrations are being made by the Scientists and scientific staff.

Dr. Pushpa Kumari, Scientist 'C' potted two rhizome stock of *Gigantochloa andamanica* in nursery no. 1 of AJCBIBG in connection with the project, 'Ex situ conservation of Bamboos of India'.

Public service rendered

Issued identification certificates for 53 plant species to different researchers and students of various institutes/universities.

Supplied scanned images of PDF of various literatures to Sri Udit Sharma, Jai Narain Vyas University, Jodhpur; Dr. K.N. Gandhi, Harvard University; Dr. P. Venu, DRC, Hyderabad and Dr. M. Sanjappa, Ex-Director, BSI, Bangalore. Provided image of the isotype of *Acacia tanjorensis* to Dr. Tapas Chakrabarty, Ex-Scientist, BSI, Howrah.

Provided information on the collection of *Mooney* 3646 (DD) of *Alysicarpus gamblei* Schindl. to Milind M. Sardesai, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. Eight images of *Salix* were species sent to Prof. Akhtar H. Malik, Kashmir University, Srinagar. 19 specimens of Lichens were sent on loan for the study of Dr. Swarnalatha Ginnaram, Bot. Asst., DRC, Hyderabad.

Five herbarium specimens of *Wrightia tinctoria*, *Lantana camara*, *Bambusa arundinacea*, *Brassica nigra* and *Murraya koenigii* have been received from Sri R. Rajendra and Ms. Kamala Rajendran for deposition in Central National Herbarium, Howrah. Images of Type specimens (602 nos.) housed at the herbarium (ASSAM) of Eastern Regional Centre, BSI, Shillong were received.

Garden Inspection

Dr. Vinay Ranjan, Scientist 'D' inspected the Botanical Garden, T.M. Bhagalpur University for Assistance to Botanic Garden Scheme of MoEF&CC on 18th to 20th August 2015 and submitted the inspection report to the Director, BSI, Kolkata.

Training programme and meeting attended

Dr. K. Avinash Bharati, Scientist 'B' participated in two-day training programme on "Hardware, Networking & Internet Security" at Institute of Government Accounts and Finance, Regional Research Centre, Kolkata on 17th and 18th August, 2015.

Dr. Vinay Ranjan, and Dr. Pushpa Kumari, Scientist 'C' attended one day Eastern Region Awareness Raising Workshop – International Year of Soils organized by FAO, at Indian Institute of Bio-Social Research and Development (IBRAD), Kestopur, Kolkata on 20.08.2015.

Visitors/students

Ms. Khyati Nagar from York University, Toronto, Ontario, Canada; Ms. Kirtida Mekani, from Singapore Botanic Gardens and Mrs. Amrita Mukerji from SUTRA; Sri Aniket Bhagwat, Landscape Architect, Ahmedabad.; Dr. Subhasis Panda, Asst. Prof., Darjeeling Govt. College; Ms. Arpita Borah, Ms. L. Malemnganbee and Ms. K. Tilottama Devi, Research scholars, Assam University, Silchar; 200 students of Burul High School, Howrah; 18 students and 2 teachers of Rajibpur Anglo-Vernacular High School (H.S.), North 24 Parganas visited CNH.

Publications

Bhattacharjee, A., Dey, S., Bandyopadhyay, S. and Singh, P. 2015. (086) Proposal to amend Article 9.19. *Taxon* 64 (4): 862–863.

Gogoi, R., Borah, S. and Satyanarayana, P. 2015. *Impatiens fugongensis*, *I. yui* and *I. xanthina* (Balsaminaceae), Three New Additions to Flora of India. *J. Jap. Bot.* 90: 270–275.

Maji, A. and Prasad, V.P. 2015. *Carex polycephala* (Cyperaceae): New distribution record for Western Himalaya. *Zoo's Print* 30 (8): 3–4.

Kumar, A. and Paul, T.K. 2015. *Grewia villosa* Willdenow (Malvaceae): a new record from Eastern India. *Pleione* 9 (1). 240–243.

Kumar, V.S. 2015. *Grewia nagensium* Prain vs *Grewia denticulata* Wall. ex Prain (Tiliaceae) – which is to be accepted? *Phytotaxa* 222(1): 81–82.

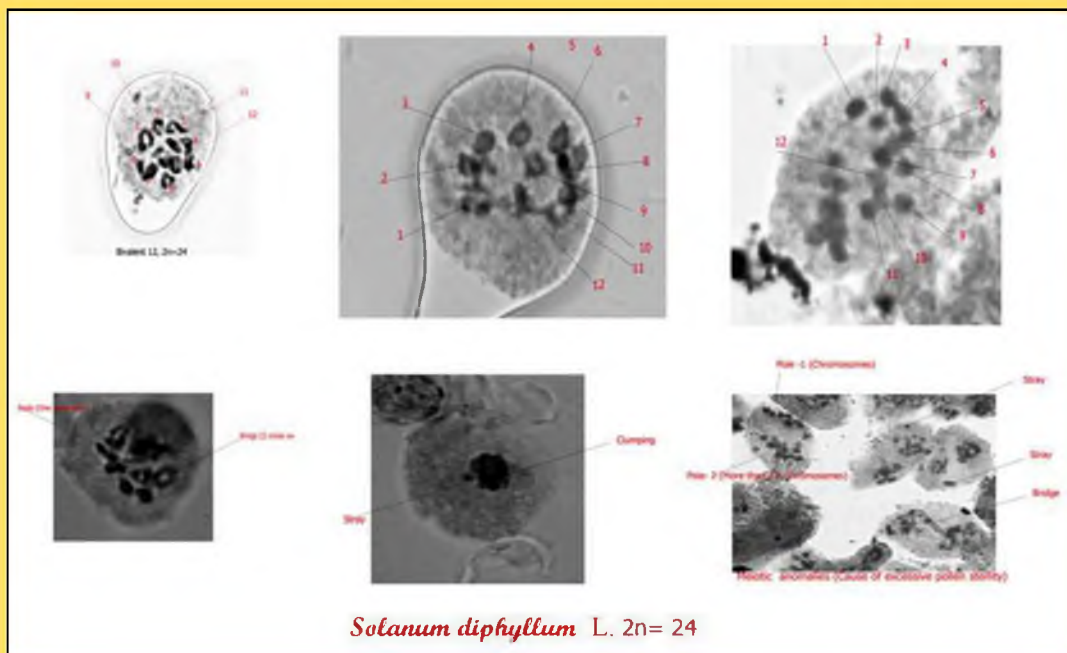
Kumar, V.S. and Karthikeyan, S. 2015. Nomenclatural notes on a flowering plants of India. *Phytodiversity* 2(1): 5–7.

Ranjan, V., Kumar, A. and Krishna, G. 2015. *Prunus ceylanica* (Wight) Miv.: An endangered species collected after eight decades from West Bengal. *Indian J. Forest.* 38(2): 185–186.

CENTRAL BOTANICAL LABORATORY, HOWRAH

A herbarium consultation tour was conducted by Dr. K.A. Sujana, Scientist 'C' and R. Saravanan. Bot. Asst. to Regional Plant resource Centre, Bhubaneswar and Institute of Minerals and Materials Bhubaneswar, Odisha from 9th to 15th August 2015. Dr. A. K. Verma, Scientist 'B' and Ms. Monika Mishra, Bot. Asst. counted the somatic chromosome of *Solanum diphyllum* (2n=24) and digitized data provided in labels of 100 cytological herbarium sheets available in this unit and chromosome database of 50 plants of AJCBIBG was also prepared.

Ms. Sagari Chaudhury JRF identified 15 species, analyzed nutraceuticals (total Phenol content, total DPPH content, total flavonoid content) for species *Solena* and *Dioscorea*.



Somatic chromosome count ($2n=24$) of *Solanum diphylum*

Publication

Bhogaonkar, P.Y., Chavhan, V.N. and Dhole P. A. 2015. Some new additions to the flora of Amravati district (M.S.) India. *World J. Pharm. Life Sci.* 1(2): 91–96.

INDUSTRIAL SECTION INDIAN MUSEUM, KOLKATA

In connection with the 'Interpretation of families in Icones Roxburghianae', the families Convolvulaceae, Cucurbitaceae, Moraceae and Myrtaceae are being carried out. As a part of making a digital database of BSIS about 100 specimens of Monocot and 50 specimens of dicot listed and updated nomenclature was updated.

In connection with the Editing of manuscript for 'Flora of Uttar Pradesh (vol.3)', 18 families (143 pages) were edited by Dr. Manas Bhumick, Scientist 'D'.

Review Committee meeting was held in the presence of Director, BSI with senior officials of HQrs and other units of BSI on 17.08.2015 in connection with the NBCC civil and electrical renovation work at ISIM building.

ANDAMAN & NICOBAR REGIONAL CENTRE, PORT BLAIR

Dr. T.A.M. Jagadeesh Ram, Scientist 'D' identified 38 lichen specimens for the Lichens of Nicobar Islands. Dr. Lal Ji Singh, Scientist 'D' & HoO recorded phenology of 22 tree species of Dhanikhari Experimental Garden cum Arboretum.

Independence Day Celebration

The 69th Independence Day was celebrated in the Centre on 15.08.2015 at Main Office, Port Blair. On this occasion Dr. Lal Ji Singh, Scientist 'D' & HoO hoisted the National Flag in the presence of Scientists and Staff of ANRC.

Meeting/programme attended

Dr. Lal Ji Singh along with Dr. Sanjay Mishra, Scientist 'B' attended 3rd phase meeting on developing nature trail at Dhanikhari Experimental Garden cum Arboretum, ANRC chaired by CCF, Research and Working Plan, Forest Department on 11.08.2015 at Silviculture Division, Department of Environment and Forests, Port Blair and Dr.

Singh attended another meeting on the same at office of the Chief Conservator of Forests, Research & Working Plan, Van Sadan, Haddo, Port Blair on 18.08.2015. Dr. Singh acted as Chairman of Selection Committee for Senior Research Fellow and DEO under project entitled, "Ayurveda Tribal, Health Care Research" at Central Council for Research in Ayurvedic Sciences, Govt. of India, Ministry of Ayush, Port Blair on 14.08.2015. Dr. Singh also attended the reception on Flag hoisting Celebration at Raj Niwas, Port Blair and Flag hoisting celebration at Netaji Subhas Chandra Bose Stadium, Port Blair on 15.08.2015. Dr. Lal Ji Singh and Dr. Sanjay Mishra attended the Research Advisory Committee (RAC) meeting at the office of the Chief Conservator of Forests, Research & Working Plan, Van Sadan, Haddo, Port Blair on 18.08.2015. Dr. Singh also attended 75th Half-Yearly meeting of Town Official Language Implementation Committee (TOLIC) at CIARI, Port Blair on 26.08.2015.



Dr. Lal Ji Singh hoisting the National Flag at ANRC office campus, Port Blair

Radio talk

Dr. Lal Ji Singh has participated in the interactive programme "Aap Ke Saval" on the efforts made by the Botanical Survey of India to save plant species and how a common man can contribute to it on 17.08.2015 (5:30 to 5:50 pm). Dr. Singh was interviewed on All India Radio for the programme "Environment" on the plant discoveries from Andaman and Nicobar Regional Centre, on 20.08.2015 (7:30 to 7:50 am).

Visitors

Mr. Ashwani Kumar, Indian Navy, Kochi along with three members visited Dhanikhari Experimental Garden cum Arboretum (DEGA), Nayashahar on 09.08.2015.

Dr. Ajit Waman and Dr. Pooja Vohra, Scientist (SPMA), Division of Horticulture and Forestry, ICAR-CARI, Port Blair visited DEGA on 12.08.2015.

Dr. Sweta Banerjee, Scientist, Ministry of Science and Technology, Kolkata visited DEGA on 17.08.2015.

Publication

Singh, L.J. and Misra, S. 2015. Morpho-Anatomical Diversity of Roots of *Syzygium cumini* Skeels (Myrtaceae): An Adaptive Strategy Under Stress Ecosystem. *Phytomorphology* 65(1&2): 42-55.

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Dr. P. Satyanarayana, Scientist 'D' & HoO, Sri B.B.T. Tham, Botanist prepared descriptions of 20 species for 'Flora of Pakke Tiger Reserve and Wild Life Sanctuary'.

Dr. Vineet Kumar Rawat, Scientist 'C' identified specimens of 15 field numbers for the family Polypodiaceae of North East India.

Dr. Manish Kandwal Scientist 'C' is on field tour to Anjaw District and surrounding areas from 22.08.2015 in connection with the study of Grass flora of Arunachal Pradesh.

Dr. Krishna Chowlu, Scientist 'B' consulted the herbarium of APFH, SFRI, Itanagar in connection with the study of Red Listing of the orchids of Arunachal Pradesh.

Dr. Umeshkumar L. Tiwari, Scientist 'B' identified 5 species from unidentified specimens of ARUN.

Dr. Souravjyoti Borah, Botanist prepared descriptions of 14 species for Flora of Lohit District and Kamlang Wildlife Sanctuary.

Meetings attended

Dr. Vineet Kumar Rawat, Scientist 'C' attended Project reviewing committee meeting at State Forest Research Institute, Itanagar on 04.08.2015.

ARID ZONE REGIONAL CENTRE, JODHPUR

The Scientists and scientific officials are engaged in identification and writing description of specimens in connection with their allotted projects.

28 species were introduced and 3 plants are planted in Botanical Garden under *ex-situ* Conservation.

Following plants have been collected and introduced:

RET plant: *Pterocarpus santalinus*.

Medicinal plants: *Calotropis gigantea*, *Cestrum nocturnum*, *Ealeocarpus sphericus*, *Jasminum grandiflorum*, *J. humile*, *J. multiflorum*, *J. sambac*, *Michelia champaca*, *Mimusops elengi*, *Rosa indica*.

Economically important: *Bambusa vulgaris*, *Dendrocalamus strictus*, *Litchi chinensis*, *Mangifera indica*, *Manilkara japota*, *Morus australis*, *Pithecellobium dulce*, *Ceiba pentandra*.

Ornamental plants: *Allamanda cathartica*, *Bignonia capreolata*, *Cliandra haematocephala*, *Euphorbia pulcherrima*, *Hamelia patens*, *Hibiscus rosa-chinensis*, *Jatropha integerrima*, *Plumeria rubra*, *Pyrostegia venusta*, *Quisqualis indica*, *Syzygium cumini*.

Ethno-religious plants: *Adansonia digitata*.

Phenological data of 20 plants species in AZRC botanical garden were recorded. Flowering was recorded in only one tree of *Tecomella undulata*, which was unseasonal.



Datura metal at AZRC Botanical Garden



Tribulus rajasthanensis at AZRC Botanical Garden, Jodhpur

Symposia / Seminar attended

Sri Vinod Maina, Dr. S.L. Meena, Dr. Ramesh Kumar, Dr. C.S. Purohit, Shri M.K. Singhadiya, Shri Ravi Prasad, Dr. Harikrishna Peddi and Shri Ramesh Kumar attended a National Seminar on “Recent Innovations in Technical Terminology & Biodiversity” held on 11th and 12th August 2015 at Zoological Survey of India, Jodhpur organized by Commission for Scientific & Technical Terminology, Ministry of Human Resource Development (Department of Higher Education), New Delhi.

Publications

Chakrabarty, T. and Maina, V. 2015. A Note on the Occurrence of *Acacia coleii* Maslin & L.A.J. Thomson (Leguminosae: Mimosoideae) in India. *J. Eon. Taxon. Bot.* 39(1): 194–196.

Sharma, S.C. and Purohit, C.S. 2015. Geographical distribution of grasses of North-west Rajasthan and their importance in human welfare in Ethno-botany a Recent approach. In: B.B.S. Kapoor, S.C. Sharma, A. Arora and R.R. Jain (Eds.), *Ethnobotany a recent approach*, pp. 102–117, Madhu Publications, Bikaner.

Sharma, S.C., Purohit, C.S., Kantiya, J. and Aggrawal, R. 2015. Traditional significant medicinal plants of Rajasthan in Ethno-botany a Recent approach. In: B.B.S. Kapoor, S.C. Sharma, A. Arora and R.R. Jain (Eds.), *Ethnobotany a recent approach*, pp. 191–196, Madhu Publications, Bikaner.

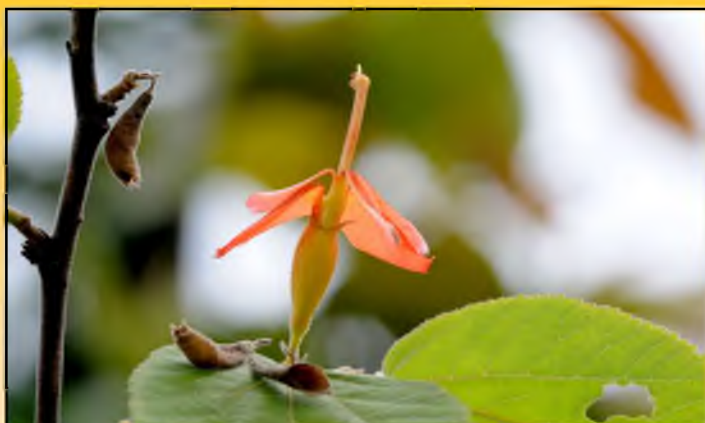
CENTRAL REGIONAL CENTRE, ALLAHABAD

In connection with “Flora of Chandraprabha Wildlife Sanctuary, Chandauli, Uttar Pradesh”, a field tour was undertaken to the assigned area from 18th to 25th August 2015 and 555 specimens were collected by utilizing 185 field numbers.

In connection with the ongoing projects on floral diversity of Upper Ganga Ramsar site, Uttar Pradesh and Floristic diversity of Parvati Aranga Wildlife Sanctuary and adjoining Tikri forest area, Gonda, Uttar Pradesh, a total of 28 species were identified. Similarly, for the Taxonomic studies on lichenised non-thelotremoid Indian Graphidaceae, lichens of Terai region, Uttar Pradesh and Revisionary studies on family Roccellaceae and Lichens of Rajasthan and Kutch, Gujarat a total of 39 species were identified. In addition, a total of 124 earlier collected specimens housed at BSA herbarium were also identified.



Vegetation around Devdari water fall at Chandra Prabha Wildlife Sanctuary, Uttar Pradesh



Helicteres isora (Sterculiaceae)



Selaginella bryopteris (Selaginellaceae)

Conservation

A sapling of *Buchnania lanzan* (Chironji) brought from Chandraprabha Wildlife Sanctuary was introduced in the office garden.

Meeting attended

Dr. G.P.Sinha, Scientist 'E' & HoO attended 12th Madhya Pradesh State Wildlife Board meeting, chaired by Hon'ble Chief Minister, Sri Shivraj Singh Chauhan at Ballav Bhawan, Bhopal on 11.08.2015.

Public service rendered

Identified and authenticated two specimens viz., *Annona squamosa* (Annonaceae) and *Aegle marmelos* (Rutaceae) for Mr. Sufiyan Siddiqui, Research Scholar, Department of Biochemistry, Suresh Gyan Vihar University, Jaipur, Rajasthan.

Publications

Gupta, P. 2015. First record of *Chaenothecopsis* Vainio from India. *J. Econ. Taxon. Bot.* 39(1): 169–171.

Gupta, P. and Sinha, G.P. 2015. A new species of *Acanthothecis* (lichenized Ascomycetes) from India. *J. New Biol. Rep.* 4(2): 103–105.

Gupta, P. and Sinha, G.P. 2015. A new *Gyalidea* species (Ascomycota: Solorinellaceae) from India. *Curr. Res. Environ. Appl. Mycol.* 5(2): 145–148.

Gupta, P. and Sinha, G.P. 2015. *Protoparmelia hesperica* (Ascomycota: Parmeliaceae: A new record for India. *J. New Biol. Rep.* 4(2): 132–134.

Singh V., Singh R.K. and Gupta, S.L. 2015. Diversity of climbers, trailers and parasitic plants in Botanical Garden, Botanical Survey of India, Central Regional Centre, Allahabad. *Indian J. Forest.* 38(2): 195–200.

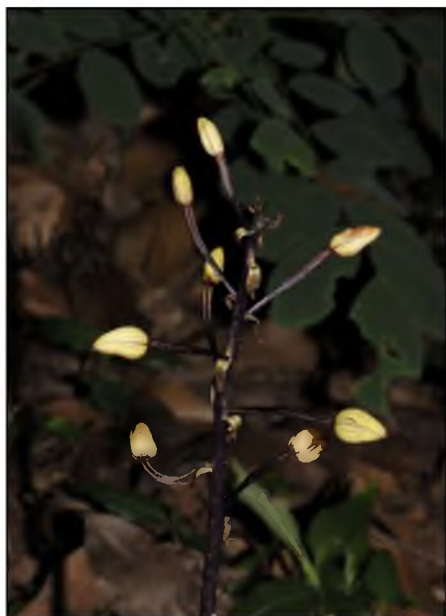
DECCAN REGIONAL CENTRE, HYDERABAD

Sri S. Nagaraju, Bot. Asst. conducted a field tour to Seshachalam hills from 25th July to 1st August 2015 and collected specimens of 41 field numbers. Ms. P. Annamma, JRF conducted a field tour to Jannaram Forest Division of Kawal Tiger Reserve, Telangana from 18th to 22nd August 2015 and collected specimens of 27 field numbers.

Identified plant specimens in connection with Flora of Seshachalam Biosphere Reserve (17 species by Sri S. Nagaraju, Bot. Asst.), Flora of Satkosia Tiger Reserve (15 species by Sri K. Chandra Mohan, JRF), Flora of Greater Hyderabad, Flora of Kawal Tiger Reserve and Weed Flora of Acharya N.G. Ranga Agricultural University (48 species by Dr. J. Swamy, Bot. Asst.). 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. Annamma).

Dr. L. Rasingam revised a book entitled "Pictorial field guide to the Flora of Nilgiri Biosphere Reserve" received from Keystone Foundation, Kotagiri, Tamil Nadu.

In connection with the digitization of Herbarium specimens at BSID, 400 specimens belonging to different angiosperm families were scanned.



Aphyllorchis montana (Orchidaceae)



Cassine glauca (Celastraceae)



Euphorbia nivulia (Euphorbiaceae)



Indigofera aspalathoides (Fabaceae)

Public service rendered

Dr. P. Venu, Scientist 'F' & HoO acted as Ph. D. viva-voce Examiner in Department of Botany, Annamalai University, Tamil Nadu on 07.08.2015.

7 plant specimens (*Aerva javanica*, *Anisomeles malabarica*, *Capparis divaricata*, *Cryptostegia grandiflora*, *Enicostema axillare*, *Oxystelma esculentum* and *Typha domingensis*) were identified for research scholars of Osmania University and JNTU Hyderabad.

Training programme conducted/Meeting

Dr. J. Swamy conducted three months training on "Herbarium Techniques and Weed Identification" for Dr. Vikas Tyagi, Scientist, DWSR-ICAR, Jabalpur, Madhya Pradesh.

Dr. P. Venu attended advisory committee meeting in EPTRI, Hyderabad on 25.08.2015.

Visitor

Prof. C. Kameswara Rao, Bangalore visited the centre.

Publication

Prasad, K. and Rao, B.R.P. 2015. Two rare epiphytic orchids of India, *Saccolabiopsis pusilla* (Lindl.) Seidenf. & Garay and *Oberonia gammiei* King & Pantl. discovered on Andaman Islands, India. *J. Threat. Taxa* 7(9): 7577–7580.

EASTERN REGIONAL CENTRE, SHILLONG

During this month, Identified 54 and documented 15 *Dendrobium ochraceum*, *D. pulchellum*, *Elaeocarpus* species from 'Flora of South Garo Hills Dist., Meghalaya' *floribundus*, *Commelina forestii*, *Caulokaempferia* by Dilip Kumar Roy, Bot. Asst., 'Eastern Nagaland' by Dr. *secunda*, *Curcuma angustifolia*, *Etingera linguiformis*, N. Odyuo, Scientist 'D' and Dr. R. Daimary, Bot. Asst., *Globba racemosa*, *Hedychium coronarium*, *H. ellipticum* 'Amchang Wild Life Sanctuary' by Ms. Nandita Sarma, and *Zingiber zerumbet*.

'Yangoupokpi Lokchao Wild Life Sanctuary' (Manipur) by For the project, Micro-propagation of RET Plants of Sri R. Meitei, Bot. Asst. 'Revision of Bryoflora of Northeast India, Dr. A. A. Mao, Scientist 'E' & HoO and Mizoram' is being continued and study of the genus Ms. L. Ibemhal Chanu, Bot. Asst., subcultured *Riccia* (Marchantiophyta) in India is also being continued *Armadorum senapatianum* (Orchidaceae). Prepared and in this connection one herbarium consultation tour media WPM, HCM and MS with different addition as was conducted to CNH (CAL) from 26th July to 9th August, 2015 by Dr S.K. Singh, Scientist 'D'. aloe, banana, charcoal, coconut and also of different concentration of hormone. Prepared stock solution for

In connection with the 'Taxonomy, phylogeny and *ex-situ* A₁: Ammonium nitrate, A₂: Potassium nitrate, A₃: conservation of Micro-fungal diversity of Northeast India Calcium Chloride Dihydrate, A₄: Magnesium Sulphate with special emphasis on fungi associated with endemic Heptahydrate, and A₅: Potassium Dihydrogen phosphate. and threatened plants of Meghalaya' by Dr. Ashish *Paphiopedilum hirsutissimum* (Orchidaceae), germination Venkatesh Prabhugaonkar, Scientist 'B', isolated litter of the seed, in addition to different medium as in degrading fungi from Barapani experimental Botanical control, aloe, banana, charcoal, coconut in Hengduan garden, attempts were also made for culturing them *Cypripedium* medium is in process. *Rhododendron* using single spore isolation method. 11 fungi were *coxianum* nodal and leaves experiment from *in vitro* for isolated as endophytes of *Nepenthes khasiana*. List of multiple shoot experiment with different concentration fungi isolated, identified up-to genus level are of 2ip.

documented.

For ex-situ conservation of Endemic, threatened and Medicinal Plants and Molecular Characterization of economically important plants of the region and Selected Species, Dr. Deepu Vijayan, Scientist 'B', recording of phenological data on flowering and fruiting initiated multiple shoot induction experiment using *in vitro* raised seedlings of *Pyrenaria khasiana* using new of species growing in the Garden, Dr. M. Murugesan, Scientist 'B' and Sri L.R. Meitei, Bot. Asst., observed and plant growth regulator combination. Dr. Vijayan initiated recorded phenological data of flowering and fruiting of direct shoot induction studies using *in vitro* raised leaf 16 plant species viz., *Acampe rigida*, *Begonia palmata*, *B. ovatifolia*, *B. roxburghii*, *Boesenbergia tiliaefolia*, ducted a local tour to Upper Shillong on 14.08.2015.

Public service rendered

Identified about 70 samples of specimens received from various institutions.

Visitors /students

Nine Research Scholars, nineteen students and one Scientist visited the Centre from various Institutions, Colleges and Universities.

Publications

Odyuo, N., Roy, D.K., Dey, S. and Mao, A.A. 2015. *Sauromatum horsfieldii* (Araceae – Areae): an addition to the Flora of India. *Telopea* 18: 227–232.

Singh, S.K., Kumar, R., Bhattacharjee, A. and Sharma, S. 2015. *Eria merguensis* Lindl. (Orchidaceae) – a new addition to the Indian flora. *Telopea* 18: 171–176.

NORTHERN REGIONAL CENTRE, DEHRADUN

Identified 109 species and made description for 54 species of Angiosperm in connection with the on going projects on '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', 'Tree ferns of India and genus *Lepisorus* (Sm.) Ching in India'.

Foundation Day celebration

The centre observed its Foundation Day' on 01.08.2015. A Plantation Programme was organised on this occasion.



Dr. S.K. Srivastava planting sapling of *Adansonia digitata* on NRC 'Foundation Day'



Officials of NRC during 'Foundation Day' celebrated on 01.08.2015

Meetings attended

Dr. S.K. Srivastava, Scientist 'E' & HoO attended 3rd wild life Board Meeting of Haryana state at Secretariat, Chandigarh on 04.08.2015.

Dr. Srivastava also attended as one of the expert member in selection of the Ph.D., candidates in FRI, Deemed University Dehradun on 12.08.2015.

Dr. Srivastava attended State Level Project Screening Committee at SMPB, DehraDun regarding the UNDP, Government of India project on Mainstreaming the Conservation and Sustainable Utilization of Medicinal Plants in Uttarakhand on 18.08.2015 under the Chairmanship of Dr. S.K. Chandola, PCCF, Uttarakhand.

Dr. Srivastava also attended inaugural session of International Workshop and Training on the role of "Natural World Heritage Sites in Disaster Risk Reduction" on 24.08.2015 at WII, Dehradun.

Dr. Srivastava attended RAC meeting at FRI in connection with an extension of Ph.D. period for one year on 28.08.2015.

Dr. Srivastava attended meeting on National Dialogue on Himalayan Conservation at HESCO, Chaired by Hon'ble Minister of Environment Forests & Climate Change Sri Prakash Javdekar, New Delhi on 31.08.2015.

Hindi karyashaala

Hindi Karyashala was organized on 27.08.2015 at the Centre, where Sri Dhoom Singh, Asst. Director (Official Language) & Member secretary of NARAKAS (Nagar Rajbhasha Karyanvayan Samiti) delivered talk on the constitutional importance, rules, regulation, social aspect and need of the Rajbhasha and also briefed about the letters, correspondence in *Rajbhasha* to be followed by the central government offices and also emphasized the simple and easy use of *Rajbhasha* hindi and the schemes of government of India for promotion of use of *Rajbhasha* for central government employees.



Officials participating in Hindi Karyashaala held on 27.08.2015 at NRC, Dehradun



Sri Dhoom Singh delivering lecture during Hindi karyashaala

Plant identification Service Rendered

7 plant species (under 19 field numbers) were identified for researchers/ faculties of different Colleges/ Universities/Institutes of Uttarakhand.

Visitors/students

16 students from different colleges and universities visited the centre for herbarium or Library consultation.

SIKKIM HIMALAYAN REGIONAL CENTRE, GANGTOK

Dr. D.K. Agrawala, Scientist 'C' undertook field tour to West district of Sikkim covering an area of ca. 350 sq. km and collected 74 field numbers of Orchids besides analyzing the population of all orchids encountered.

Dr. Agrawala studied 30 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 has identified 20 and illustrated 5 orchid species based on live collection and unidentified specimens at BSHC.

Dr. Agrawala introduced 60 orchid samples in the campus garden for further studies and *ex-situ* conservation.

Sri S.K. Rai, Pres. Asst., identified 24 species from unidentified specimens at BSHC.

Dr. M. Gangopadhyay, Scientist 'D' & HoO prepared the updated nomenclature of all the species of the family Rubiaceae for the already submitted manuscript for Flora of India.



***Dendrobium hookerianum* (Orchidaceae)**



Odontochilus lanceolatus (Orchidaceae)



Bulbophyllum retusiusculum (Orchidaceae)



Potentilla lineata (Rosaceae)



Sambucus adnata (Caprifoliaceae)

Meeting attended

Dr. D. K. Agrawala attended GBPIHD, Sikkim Unit as a member of interview board for selection of Project staff on 17.08.2015. Dr. Agrawala worked as a member of Task Force in publishing "DUS testing guidelines for *Paphiopedilums* (Orchidaceae)" in Plant Variety Journal of India 9(8): 215–244 published on 3rd August, 2015 (published by Protection of Plant Varieties and Farmer's Right Authority, New Delhi).

Publications

Agrawala, D.K., Lawkush and Kumar V. 2015. A new synonym of *Herminium monorchis* (Orchidaceae). *Indian J. Forest.* 38 (2): 155–158.

Kumar, V., Rao, A.N. and Agrawala, D.K. 2015. *Tropidia namasiae* (Orchidaceae): A New Distributional Record for India from Manipur. *Richardiana* 15: 317–322.

SOUTHERN REGIONAL CENTRE, COIMBATORE

In connection with the ongoing project 'ex-situ conservation of endangered and threatened plants' Dr. S. Kaliamoorthy, Scientist 'D' and Dr. M.Y. Kamble, Scientist 'C' conducted 2 local field tours to Ghat Road and Nagalur area, Yercaud on 7th and 11th August 2015 respectively and collected a total of 5 samples of 2 orchid taxa i.e. *Geodorum densiflorum* (4) and *Habenaria rariflora* (1) and 2 samples of an angiospermic taxon *Caralluma umbellata* and introduced the same into the garden of National Orchidarium and Experimental Garden, Yercaud.

Dr. Kaliamoorthy also carried out one local tour to Manjakuttai area, Yercaud on 27th August 2015. In addition, they multiplied 149 plant samples (including 147 samples of orchids and 2 samples of other plants), developed 21 seedlings, 150 cuttings, replanted 13 numbers, transplanted 1 sample of *Saraca asoca* and recorded the phenology of 31 species (20 species of orchids and 11 species of other Angiosperms).

For the newly initiated project 'Floristic studies in Kodaikanal Wildlife Sanctuary, Tamil Nadu, India (ca 608.95 sq. km), Dr. K.A.A. Kabeer, Scientist 'D' & Sri A. Ravi Kiran, Bot. Asst., conducted a field tour from 19th August–2nd September, 2015 and collected specimens of 360 Field numbers (in duplicate). They also collected 12 species of Orchidaceae and 1 species of Zingiberaceae and sent to NO & EG, Yercaud for introduction in garden.



Anoctochilus elatus (Orchidaceae)



Cotoneaster buxifolius (Rosaceae)



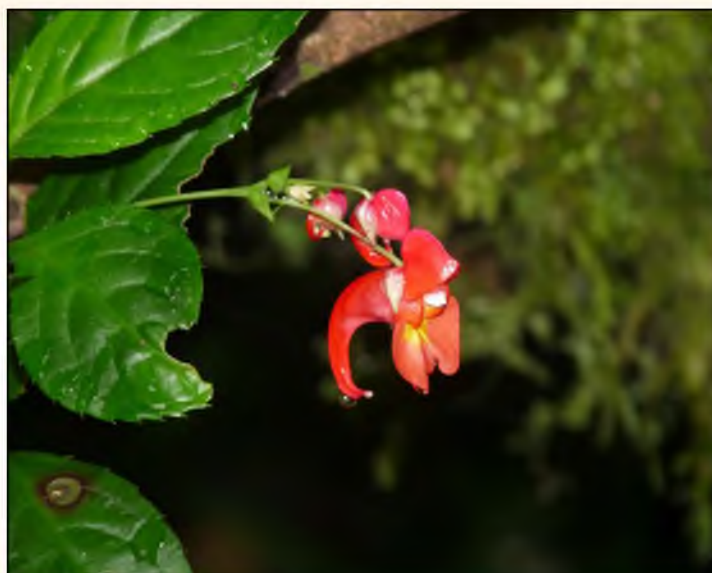
Dimocarpus longan (Sapindaceae)



Elaeocarpus recurvatus (Elaeocarpaceae)



Lilium neilgherrense (Liliaceae)



Impatiens phoenicea (Balsaminaceae)



Plant collection in Kodaikanal WLS

Plant identification

Dr. J.H. Franklin Benjamin, Scientist 'B' & Sri R.G. Vadhyar, Bot. Asst. identified a total of 54 field numbers for the flora of Malabar Wildlife Sanctuary, Kozhikode, Kerala. Dr. M. Palanisamy, Scientist 'D' and Sri S.K. Yadav, Bot. Asst. identified 13 field numbers of seaweed specimens which were collected from Karnataka coast during 1st quarter, 2015. They also preserved live seaweeds (35 field nos.) in fresh chemical.

For the newly initiated project Cyperaceae of Tamil Nadu, Sri Yarrayya consulted Rapinat Herbarium (RHT), Tiruchirappalli from 17th – 19th August 2015 and indexed 320 specimens and pasted 4 determinavit slips on wrongly identifies specimens. Dr. C. Murugan, Scientist 'D' consulted the previous collections of Arecaceae at MH in connection with the newly initiated project 'Flora of Kerala' (Vol. 6), family Arecaceae (25 taxa), whilst Dr. Kamble is involved in study of the families Amaryllidaceae (15 taxa) and Dioscoreaceae (18 taxa).

Scanning Electron Microscopy

Sri G. Gnanasekaran, Bot. Asst. studied the seeds of *Andrographis*, *Haplanthodes* and *Gymnostachyum* spp. and taken 20 micrographs using SEM. Dr. J.V. Sudhakar, Bot. Asst. taken 6 SEM images of 2 taxa i.e. *Ficus hookeriana* and *F. fistulosa*.

Public Service Rendered

A total of 26 plant samples were identified for research scholars and students from various institutions whereas 30 students, research scholars, lectures and scientists visited the herbarium and library of SRC, Coimbatore, whereas 1072 persons in 169 parties visited NO & EG, Yercaud.

Dr. Palanisamy evaluated Ph. D. Thesis entitled “*Geostatistical Tools for Seagrass Ecosystem Health Assessment and Restoration Site Identification along Palk Bay, India*” for the Department of Marine Biology, Annamalai University. Dr. Kaliamoorthy was invited by the Department of Biotechnology, St. Joseph’s College, Tiruchirappalli for the selection of JRF under UGC sponsored Research Project, on 20.08.2015.

Seminar/programme attended

Dr. G.V.S. Murthy, Dr. M. Palanisamy, Dr. J.V. Sudhakar, Sri G. Gnanasekaran and others attended Dr. S. Kedharnath Memorial Lecture, “Dichotomy in Plant Breeding: Diversity and Uniformity” by Dr. M. Maheswaren, Director of Research, TNAU, Coimbatore on 31.08.2015 organised by IFGTB, Coimbatore.

Ph.D. viva-voce

Ph. D. Viva-voce of Dr. C. P. Vivek, Bot. Asst. ANRC, PortBlair was conducted at SRC, Coimbatore on 05.08.2015 and was awarded Ph. D. for his work on “A Taxonomic study on the grass genus *Eragrostis* Wolf. In India”.



Dr. C.P. Vivek delivering lecture during his Ph.D. viva-voce



Examiners, scientists and staff of SRC during Ph.D. viva-voce of Dr. C.P. Vivek

Publications

Gnanasekaran G. and Murthy, G.V.S. Epitypification of *Andrographis alata* (Acanthaceae). *Telopea* 18: 165–166. 2015.

Gnanasekaran G. and Murthy, G.V.S. 2015. *Andrographis producta* (Acanthaceae), an endemic species from the Western Ghats: Its taxonomy, lectotypification and distribution. *Telopea* 18: 209–216.

Kaliamoorthy, S., Saravanan, T.S., Elango, B.S. and Murthy, G.V.S. 2015. The Elenadu Shortcrown *Brachystelma elenaduense* sathyan. (Asclepiadaceae) – A New Distribution Record for Tamil Nadu, India. *J. Threat. Taxa.* 7(9): 7587–7588.

Murugan, C., Alappatt, J.P. and Arisdason, W. 2015. Rediscovery of *Prismatomeris fragrans* subsp. *andamanica* (Ridl.) J.T. Johanss. (Rubiaceae) from Andamans, India. *Indian J. Forest.* 38(2): 171–172.

Prabhu S., Sathiyaseelan, R., Aron, S. and Murugan, C. 2015. A review of the genus *Artabotrys* R. Br. (Annonaceae) from Andaman and Nicobar islands, with a new record for India. *Indian J. Forest.* 38(2): 159–164.

Singh V., Singh, R.K. and Gupta, S.L. 2015. Diversity of Climbers, Trailers and Parasitic Plants in Botanical Garden, Botanical Survey of India, Central Regional Centre, Allahabad. *Indian J. Forest.* 38(2): 195–200.

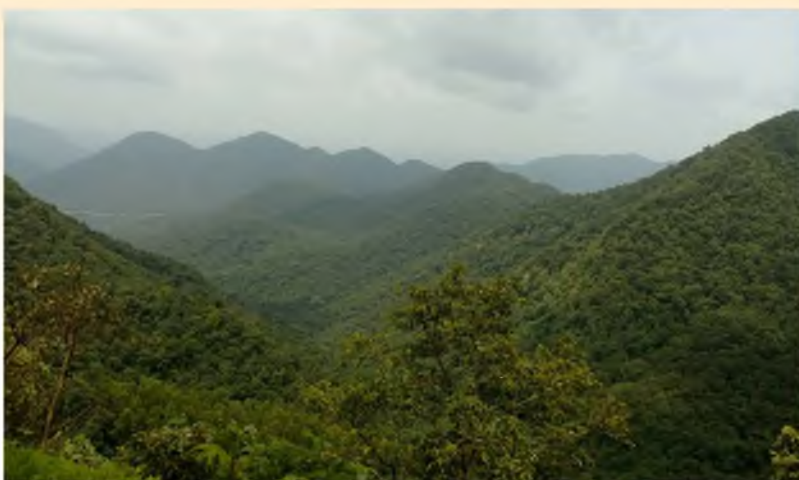
Sudhakar J.V., Mehala Devi, R. and Murthy, G.V.S. 2015. Additions to the flora of South Indian States. *Ann. Pl. Sci.* 4 (7): 1158–1161.

Yarrayya, K., Murthy, G.V.S., Kaliamoorthy, S. and Ratna Kumar, P.K. 2015. Sedge Flora of Karaivetti Bird Sanctuary, Tamil Nadu. *Indian J. Forest.* 38(3) 173–175.

WESTERN REGIONAL CENTRE, PUNE

One field tour was conducted by Dr. Jeewan Singh Jalal, Scientist 'C' during the period from 16th to 25th August 2015 to different protected areas of Goa such as Madhei Wildlife Sanctuary, Bondla Wildlife Sanctuary and adjacent areas to explore the orchid diversity under the project, "An assessment of orchid diversity in Central Western Ghats".

During this month about 71 angiosperm specimens were identified and 48 species were described from protected areas such as Biligiri Rangaswamy Temple Wildlife Sanctuary, Sharavathy valley Wildlife Sanctuary in Karnataka and Koyna Wildlife Sanctuary, Maharashtra. About 2 pteridophytic specimens were identified from Kudremukh National Park, Karnataka. Identification of 13 fungal species was done and descriptions of 12 fungal species were completed. Scanning Electron Microscopic (SEM) studies of five fungal specimens were also done.



Evergreen forest in Madhei Wildlife Sanctuary, Goa



Eria reticosa



Smithsonia viridiflora in Koyna Wildlife Sanctuary, Maharashtra

Public service rendered

Identified and authentication certificates were issued for 10 students from B.Pharm., M. Pharm., M.sc and Ph.D. students from different institutions, universities and colleges.

Visitors/Students

Ph.D. student Ms. Pradnya Yadav from Shivaji University Kolhapur visited BSI, WRC for herbarium consultation. Two research students from Naoroji Godrej Centre for Plant Research, Shirval, Satara District, Maharashtra visited BSI, WRC for herbarium consultation.

B.Sc. students from Vidya Pratishthan's School of Biotechnology, Baramati, Pune District, Maharashtra visited WRC to know about plant identification methods.

Sri M.C. Beniwal, Under Secretary, Ministry of Environment, Forest & Climate Change, New Delhi visited BSI, WRC, Pune on 12.08.2015.

Ms. Madhumita Biswas, Director (Scientific) / Scientist 'F', Ministry of Environment, Forest & Climate Change, New Delhi visited BSI, WRC, Pune & Mundhwa Experimental Garden on 19-08-2015 on OM Inspection.

The officers from Indian Audit & Accounts Department, Scientific Departments, Mumbai Branch (Sri Sanjay Kumar Ram, Asstt. Audit Officer; Sri S.B. Hegde, Sr. Auditor; Sri R.S. Mayekar, Auditor) visited BSI, WRC, Pune to conduct Audit during the period from 4th to 12th August 2015.

Expert committee members from University of Pune comprising of Dr. S.S. Deokule, HoD, Botany and Dr. T.D. Nikam visited WRC on 27.08.15 to assess the assigned projects of JRFs intended for Ph.D. registration in the University of Pune .

20 M.Sc. students from Abasaheb Garware College, Pune visited BSI, WRC, Pune for learning the herbarium methodology. They also visited herbarium section, office garden and museum.

Independence Day Celebration

The 69th Independence Day was celebrated and Dr. P. Lakshminarasimhan, Scientist 'E' & HoO performed the flag hoisting ceremony at WRC on 15.08.15.

Programmes attended

Dr. P. Lakshminarasimhan, Scientist 'E' & HoO along with other scientists attended the Wellness Day on 21.08.2015 organised by Fr. Agnel's Vidyankur School, Vrindavannagar, Vadgaonsheri, Pune. In this programme a herbal garden or a medicinal plant garden was inaugurated by Mr. Shripad Naik, Minister of State, GoI, Minister in charge of Ayush; attended by Dr. Satyalaksmi, Director, National Institute of Naturopathy. WRC also provided two posters on medicinal plants and also six live medicinal plants for the exhibition. Dr. P. Lakshminarasimhan and Dr. A. Benniamin, Scientist 'D' received Honourable Union Minister of MoEF, Sri Prakash Javedekar at Pune airport on 28.08.2015.



Welcoming Dr. Madhumita Biswas during her visit to WRC, Pune for OM inspection

PLANT OF THE MONTH



Gloriosa superba L. (COLCHICACEAE) Known as flame lily or Agni shikha for its flame like petals structure is a native to Africa and Asia. Known worldwide as an ornamental, medicinal, poisonous, and noxious weed.

By Dr. B.K. Singh



Successfully propagated plants of *Ephedra gerardiana* at NRC, Dehradun



Reintroduction of propagated plants of *Ephedra gerardiana* in Chakrata forest, Uttarakhand



Reintroduction of Propagated plants of *Ephedra gerardiana* in Deoban forest, Uttarakhand

NEW RECRUITMENT

- ◆ Dr. David Lalsama Biata joined SHRC, Gangtok as Scientist 'B' on 28.08.2015.

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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