



BSI NEWSLETTER



The monthly electronic newsletter of Botanical Survey of India

Volume 1
Number 1

August 2014

From the Director's Desk

The Botanical Survey of India (BSI) was established on 13th February 1890 in the then Royal Botanical Garden (RBG), Calcutta. After independence in 1947, the RBG was renamed as Indian Botanic Garden and subsequently it is rechristened as Acharya Jagadish Chandra Bose Indian Botanic Garden in 2009. The activities of BSI were more or less indolent from 1939 mainly due to World War II. The BSI was reorganized after independence based on the plan drawn by Dr. E.K. Janaki Ammal, who was appointed in 1952 as Officer on Special Duty for this purpose. The plan proposed by Dr. Janaki Ammal was accepted by the Govt. of India and orders for the reorganization of the Survey were passed on 29th March 1954. Rev. Fr. H. Santapau was appointed as the first Chief Botanist of the Survey and the post Chief Botanist was re-designated as Director in August 1963. Subsequent to the reorganization, four regional circles (now known as Regional Centres) were established at Coimbatore, Shillong, Pune and Dehra Dun in the following two years. Gradually, more regional circles were also opened for better administration, survey and documentation. At present, BSI has 10 Regional Centres and one Botanic Garden at Noida (Botanic Garden of Indian Republic) besides AJC Bose Indian Botanic Garden, Central National Herbarium and Central Botanical Laboratory at Howrah, Industrial Section, Indian Museum at Kolkata and Administrative Head office at CGO Complex, Salt Lake city, Kolkata.

I am happy to launch the BSI e-newsletter during the 125th year of BSI's establishment. In this first issue the activities of scientists of various regional centres are highlighted. The field tours undertaken by regional centres and units augment herbarium collection of various group of plants as well as add to existing information about ethno-botanically important plants from the various tribal areas. During this month Northern Regional Centre at Dehra Dun celebrated its 59th foundation day.

At the end of the newsletter, a list of Emeritus Scientists, DST young Scientists, AJC Bose Post-Doctoral fellows and the Research scholars (SRF and JRF) presently working at BSI are provided.

I hope the readers will like this effort of our scientists to outreach to the general public and send their suggestions to enable us to further improve the content.

Happy browsing!

Paramjit Singh

Director, Botanical Survey of India, Kolkata



Dr. E.K. Janaki Ammal

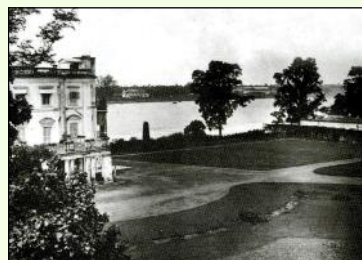


Rev. Fr. H. Santapau
(First Chief Botanist)



Dr. J.C. Sengupta
(Second Chief Botanist)

Botanical Survey of India
Established in 1890



HEAD QUARTERS, KOLKATA

A macro-fungal survey to different areas of North and East districts of Sikkim was conducted from second half of July to first half of August by Dr. Kanad Das, Scientist 'D' and Ms. Dyutiparna Chakraborty, JRF. During this field trip total 67 species were collected by covering the areas of Lachen, Samthang-South, between Zema 3 and Zema 4, Linza-Bey and Bey top of North Sikkim and Gangtok, Churten, Phadamchen, Boysa-khola, Lungthuk, Koopup, Memainchu lake, Changu and Kyangnosla of East Sikkim.



Wild Mushroom from Sikkim—*Russula compacta*

Shri M. E. Hembrom, Botanist visited the Rajmahal hills in connection with the ongoing project on 'Wood-rotting fungi of Rajmahal Hills' in the second half of the August and collected wood rotting fungi.

In connection with the algal flora of the Jharkhand, 9 species were identified from the specimens collected in the tour of the earlier months by Dr. R.K. Gupta, Scientist 'C'. For the ongoing project on Liverwort and Hornwort Flora of Sikkim, Dr. D. Singh has identified the 13 species and also illustrated and described 9 species. In connection with the 'Moss Flora of Darjeeling District', Dr. Nihal Aziz, Scientist 'D' and Pamela Saha, SRF identified two species, *Ditrichum flexicaule* and *Philonotis thwaitesii* and prepared the database of 30 mounted specimens collected from Darjeeling District.

Public service rendered

Dr. R.K. Gupta identified algal samples received from the Deputy Technical Manager, R.V. Briggs & Co. Private Ltd.,

Kolkata and Central Institute of Fisheries Education (ICAR), Kolkata. Further, Dr. Gupta also identified 7 species out of twenty samples received from Southern Regional Centre, BSI, Coimbatore. Dr. Gupta also acted as an Examiner for M.Sc. Botany (semester IV) students for the paper 406 (Spl.) Phycology and for dissertation in the University of Burdwan.



Wild Mushroom from Sikkim—*Armillaria mellea*

Dr. Nihal Aziz and his student identified two moss specimens sent from Ballygunj Science College, University of Calcutta, those collected from Darjeeling have been identified as *Ditrichum* sp. and *Philonotis* sp. Dr. A.B.D. Selvam, Scientist 'C' studied and authenticated two wood samples as heartwood of *Pterocarpus santalinus* (Papilionaceae), which were received from Regional Deputy Director, Wildlife Crime Control Bureau, Eastern Region, Kolkata. Dr. Selvam also studied and authenticated two crude drug samples as stem of *Glycyrrhiza glabra* (Papilionaceae) and bark of *Symplocos racemosa* (Symplocaceae), received from Institute of Post Graduate

Ayurvedic Education & Research, Kolkata. Dr. A.B.D. Selvam evaluated a Ph.D. Thesis entitled “Studies on Pharmacognosy and Hepatoprotective potentials of *Ecbolium viride* (Forssk.) Alston, *Gendarussa vulgaris* Nees and *Sphaeranthus amaranthoides* Burm.f. against Nonalcoholic steatohepatitis (NASH)” received from University of Madras, Chennai.

Meetings attended

Dr. Paramjit Singh, Director, BSI, Dr. R.C. Srivastava, Retd. Scientist ‘E’, BSI and Dr. A. Pramanik, Scientist ‘D’ & HoO, AJCBIBG, and Dr. P. Lakshminarasimhan, Scientist ‘D’ & HoO, CNH attended a meeting with the Vice Chancellor, University of Burdwan, West Bengal on 2nd August 2014 in connection with signing of MoU between BSI and the University of Burdwan.

Dr. Paramjit Singh Director, BSI, attended 2nd ABS (Access Benefit Sharing) dialogue on key challenges and practical ways forward for implementation of the Nagoya Protocol (CBD) on 3rd to 6th August at Goa.



Wood rotting fungi - *Trametes suaveolens*

Publications

Kanad Das, Hembrom, M.E., Arvind Parihar, Deepa Mishra and Sharma, J.R. 2014. *Strobilomyces polypyraxis* – rediscovery of a wild mushroom from Sikkim, India. *Indian J. Pl. Sci.* 3(2): 13–18.

Hembrom, M.E., Parihar, A., Martin, M.P., Watling, R. and Das, K. 2014. First report of *Astraeus odoratus* from India. *Kavaka* 42: 10–13.

Hembrom, M.E., Parihar, A. and Das, K. 2014. *Gyrodontium sacchari* (Spreng.) Hjortstam — a new record of wood-inhabiting hydroid fungus from India. *J. New Biol. Reports* 3 (2): 71–74.



Wood rotting fungi - *Trichaptum byssogenum*



Wood rotting fungi - *Serpula similis*



Wood rotting fungi - *Neofavolus alveolaris*

AJC BOSE INDIAN BOTANICAL GARDEN, HOWRAH

New plants of *Chrysanthemum* sp., *Dhalia* sp., *Gustavia gracillima*, *Codiaeum variegatum*, *Plumeria podagrica* were raised in the garden nursery. Besides, seeds of *Licuala* sp. and *Bentinckia nicobarica* are collected for propagation and development of seedlings. The Great Banyan Tree, an iconic identity of AJC Bose Indian Botanic Garden has produced 5 new prop roots. These are encaged with bamboo support. Old supports are also replaced /repaired for proper development of the roots.

The 68th Independence Day is celebrated on 15th August, 2014 in the Curator Office Lawn of AJC Bose Indian Botanic Garden in a befitting manner in the presence of senior officers, scientists and staffs of Botanical Survey of India. Plantation of saplings of rare and endemic plants is also done by the present dignitaries and guests.



Plantation by guests during the celebration of 68th Independence Day in AJC Bose Indian Botanic Garden



Gustavia gracillima in flowering at AJC Bose Indian Botanic Garden

Public service rendered

Dr. S.S. Hameed, Scientist 'C', Dr. C.M. Sabapathy, Botanist and Dr. Basant Kumar Singh made an inspection and spot visit at the Banabitan Biodiversity Park, Salt Lake, Kolkata and Hooghly District to assess the reason for sudden death of Rain/Sirish Tree on the request of West Bengal Forest Department. The mortality of the rain tree is mainly due to primary infection by scaly insects followed by stem borers lead to the destruction of phloem tissue of the bark causing blockage of sugar circulation in plant body.



Dead rain tree (*Albizia saman*) in Banabitan Biodiversity Park, Kolkata (inset: stem borer)

Public service rendered (cont...)

Saplings of various rare, endemic and economically important plants are provided to the Additional Director's Office of CGHS, Kolkata and Yamuna Biodiversity Park, New Delhi.

Visitors

Many VIPs and dignitaries including the Indian Ambassador to Seychelles Island, Commissioner of Income Tax (Kolkata Region), senior bureaucrats from Indian Forest Service and Dr. Klaus J. Appenroth, University of Jena, Germany visited the garden in the month of August. Scientists of the AJCBIBG explained them about the garden and its activities by taking them to important spots in the garden.



New prop roots of the Great Banyan tree being protected through the Bamboo cage

CENTRAL NATIONAL HERBARIUM, HOWRAH

In connection with the revision of Cyperaceae, field tour to Western Ghats was conducted by Dr. V.P. Prasad, Scientist 'D' along with Shri Animesh Maji, JRF. During this tour, he visited Silent Valley, Velliangiri hills and Pulney hills in the last week of August. Ms. Piu Das, JRF also visited along with the party of Dr. Prasad to collect the Pteridophyte species from Western Ghats.

Two specimens collected by Sri Suman Halder, SRF in connection with the 'Wetland Flora of Gangetic Plains in Bihar, from Buxar to Katihar' were identified as *Juncus bufonius* and *Cyperus amabilis* and are new additions to the flora of Bihar.

Currently, Flora of Buxa Wildlife Sanctuary, Flora of Jaldapara Wildlife Sanctuary, Flora of Vikramshila Gangetic Dolphin Wildlife Sanctuary, and Flora of Gautam Buddha Wildlife Sanctuary are being carried out by the officials of CNH. In this connection the specimens collected in earlier months are being identified.

In connection with the Digitisation of Economic botany herbarium specimens at CAL under e-Governance programme of Ministry of Environment & Forests - the digitization work of 4395 specimens carried out by the outsourced agency (M/s Cyan Colour Lab, Kolkata). For which the specimens of various families have been sorted out from different halls and submitted for digitization work after cataloguing the same.



High altitude grassland and evergreen forest in Silent Valley



Wetland dominated by sedges

Public service rendered

Dr. P. Lakshminarasimhan, Scientist 'D' & HoO acted as an examiner for M.Sc. Botany students (II Semester) Practical examination, paper 205 (Pteridology, Palaeobotany, Palynology and Reproductive Biology) at Department of Botany, Burdwan University, Burdwan from 25th to 27th August 2014.

CNH officials Identified four digital images of Passifloraceae and three digital images of Araceae for Prof. Amal Kumar Mondal, Dept. of Botany, Vidyasagar University, West Bengal. Also identified images of *Dioscorea hispida* and *Iphiginia magnifica* for Dr. Tanveer A. Khan, Dept. of Botany, H. J. Thim College, Jalgaon, Maharashtra.

Dr. P. Lakshminarasimhan, provided the information about the total number of species of flora documented in the Maharashtra State and survey conducted for floral diversity in Maharashtra State to Dr. Dilip Singh, APCCF & Member Secretary, Maharashtra State Biodiversity Board, Nagpur.

Total 10 plant identification certificates were issued to different institutes/ students/ researchers in connection with their research work for authentication.

Meetings and seminar attended

Dr. P. Lakshminarasimhan, Scientist 'D' & HoO attended the 29th meeting of the West Bengal Biodiversity Board held on 12th August 2014 at Conference Room of Dept. of Environment, Govt. of West Bengal, Kolkata as a representative of the Director, BSI. He has also attended a meeting in the Office of Vice Chancellor, University of Burdwan, West Bengal on 2nd August 2014 in connection with signing of MoU between BSI and the University.

Dr. Mayur Nandikar, Postdoctoral Fellow, Goa University has delivered a lecture on "Taxonomic Revision of Indian Commelinaceae - with emphasis on Diversity and Distribution" in the Central National Herbarium on 08th August 2014. It was attended by the Scientists, Scientific staffs and research scholars of BSI in Howrah/Kolkata units at Conference room of CNH, Howrah.

Publication

Sivadasan, M., Abdul Jaleel, V., Ahmed H. Alfarhan and Lakshminarasimhan, P. 2014. Taxonomic identity of

Theriophonum danielii and *T. manickamii* (Araceae). *Bangladesh J. Plant Taxon.* 21(1): 63-70.

Scanning Electron Microscopy

Fourteen samples of various plant specimens were micrographed by using the Scanning Electron Microscope installed at CNH. The samples include bamboo leaves, orchid pollinia and seeds of Altingiaceae and Vahliaceae families.

Students/Visitors

Dr. Mayur Nandikar, Goa University

Sandip Kisan Gavade, Kolhapur University

A.P. Janeesha, Calicut University

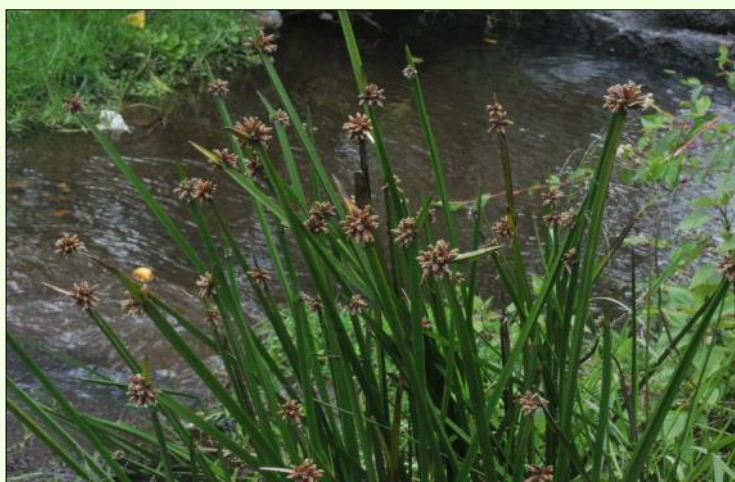
Dr. D. Maity, Calcutta University

Dr. Sunit Mitra, Ranaghat College, Nadia, West Bengal

Students of Pandua Sasibhusan Saha High School (34 students) visited to CNH on 14th August 2014, to them about Central National Herbarium and its importance as well as about herbarium specimens were explained by Dr. Subir Bandyopadhyay, Botanist.



Inflorescence of *Cyperus cyperoides*



***Schoenoplectus mucronatus* along the forest stream**

CENTRAL BOTANICAL LABORATORY, HOWRAH

One ethno-botanical field tour was conducted to Deogarh district, Odisha by Dr. Harish Singh, Scientist 'C' & HoO and his team. They surveyed about 47 tribal villages and adjacent forest areas of Deogarh, Barkote, Pallahara, Reamal Forest ranges of Deogarh forest Division and interacted with several tribal groups namely Oraon, Munda, Kisan, Gond, Bhuinya, Paudia Bhuinya, Kolho, Khadia, Shabar, Binjhal and many non-tribal communities. A total of 286 field numbers comprising 343 ethnobotanical information, which are used by the tribes and other rural people for different purposes like medicine (290 nos.), edible (27 nos.), magico-religious beliefs (10 nos.), religious (5 nos.), Fish poison (2 nos.), dye (1 no.) and miscellaneous uses. Particularly in case of medicinal plants, the tribal men provided information on rheumatic pains, gout (*Vata*), fever, stomachache, diarrhea, dysentery and spermatorrhoea. For displaying in Ethno-botanical museum, collected five exhibits (leaves, fruits, bark and plant produce etc.) and for introduction in pergola Garden at 4th floor of CNH building five live plants were made. Bulk amount of edible leaves of *Sauropus androgynus* were also collected for nutraceutical analysis. 72 ethno-botanically important specimens from Ganjam district and 10 from Jajpur district have been identified by the scientists of CBL. They also described 90 plants collected from Balasore district of Odisha in earlier months and were made entry into the Excel sheet. Four NRI from Qatar visited CBL on 26th August 2014 to whom explained about the exhibits displayed at Ethno-botany museum.



A medicine man sharing ethno-botanical information at Bhitarpad, Deogarh, Odisha



A Shabar medicine man at Talkundi, Deogarh, Odisha



A Bhuinya tribe preparing local wine from the flowers of *Madhuca longifolia*



A traditional tribal dish (Pitha) made from bamboo shoots in Deogarh, Odisha

Publication

Sujana K. A., Nagaraju S., R. Saravanan and Arvind, D.P. 2014. *Gymnema montanum*—New distributional record of an endemic liana to Odisha, East India. *Ann. Pl. Sci.*, 3(7): 776-778.



Documenting ethno-botanical information from Munda tribe at Kelda, Deogarh, Odisha



Tribal couple engaged in making bamboo strips for mats at Deogarh, Odisha

INDUSTRIAL SECTION INDIAN MUSEUM, KOLKATA

A field tour was conducted to Shillong and adjoining areas for the enrichment of botanical gallery, for which different local plant materials of food value (8 nos.), bamboo and cane made artefacts (16 nos.) and medicinal plant samples (5 nos.) were collected. In connection with the Revision of the family Gesneriaceae in Northeast India, a herbarium consultation tour was also conducted to ASSAM herbarium, Shillong for studying the Gesneriaceae members by Ms. Sudeshna Dutta.

As a part of preparing a digital database of BSIS, 470 dicot and 186 monocot herbarium specimens and 300 specimens collected by I. H. Burkill (an eminent economic botanist) were listed along with their relevant field notes.

Public service rendered

Industrial Section renders Identification Service through N.D.P.S. (The Narcotic Drugs and Psychotropic Substances) Act and identified 8 samples during this month.

Publications

Verma, D, Singh, S. K., Kholia, B.S., Sinha, B.K. and Panday, S. 2014. Petridophytes of Khawnglung Wild Life Sanctuary, Mizoram India. *Indian J. Forestry* 37(2): 219-234.

Panday, S., Sinha, B. K. and Karmakar, P. 2014. Five new distributional records for the flora of Mizoram, India. *Indian J. Forestry* 37(1): 93 – 96.

Kumar, R and Sinha, B.K. (2013) 2014. Three new additions to the Flora of Meghalaya. *Kanean J. Sci.* 2: 3-5.

Panday, S., Verma, D., Singh, S.K. and Sinha, B. K. (2013) 2014. *Bulbophyllum picturatum* a rare and less known orchid recollected from Mizoram, North East India. *Kanean J. Sci.* 2: 53-56.

Panday, S., Singh, S.K., Kumar, R. and Sinha, B. K. (2013) 2014. *Notes on two interesting and less known orchids of Meghalaya.* *Kanean J. Sci.* 2: 63-66.



Local lady selling the mushrooms at Shillong market



**Caterpillars sold in local market, Shillong,
used as food**



***Chirita pumila* (Gesneriaceae)**

ANDAMAN & NICOBAR REGIONAL CENTRE, PORT BLAIR

Dr. C. Murugan, Scientist 'D' & HoO identified 100 plant specimens into 30 species from the earlier collections of Rani Jhansi Marine National Park. Dr. Jagadeesh Ram, Scientist 'C' has been sorted out earlier collections from Nicobar Islands and assigned field Numbers *ca* 832 by using stereomicroscope. Dr. Lal Ji Singh collected and introduced seeds and seedlings of 6 spp. (*Garcinia dhanikhariensis* – 05 nos.; *Spondias magifera* – 15 nos.; *Sterculia alata* – 30 nos.; *Terminalia bilateralata* – 15 nos.; *Annona muricata* – 20 nos.; *Sandoricum koetjape* – 20 nos.). Besides, phenology of about 25 tree species were noted down by Dr. Singh, in connection with the Phenological Survey of Dhankari Experimental Garden – cum – Arboretum. For the project, digitization of Herbarium specimens at PBL, more than 400 sheets of Orchidaceae and Apocynaceae were scanned.

Public service rendered

About 200 seeds of *Garcinia cowa* are supplied to the Sylviculture Division, Department of Environment and Forests, Port Blair.

Dr. C. Murugan, Scientist 'D' & HoO, acted as one of the committee members for the on-spot verification of activities of applicants for plant Genome Savior Community award 2012–13 at Car Nicobar Island from 04.08.2014 to 06.08.2014.

Programme attended

Dr. M.Y. Kamble, Scientist 'C' attended *Passing out Ceremony* of 47th *Batch of Foresters* at Forest Training Institute, Wimberligunj, South Andaman on 4th August 2014.

Publication

Kamble, M. Y., Gosavi, K. V. C. and Chandore, A. N. 2014. *Nechamandra (Hydrocharitaceae)* - A New Generic record for Andaman & Nicobar Islands, India. *Ind. J. Forestry* 37(2): 235-236.



**Verification
of Nicobari
Aloo by Dr.
C. Murugan
at Car
Nicobar
Island**

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

One new species has been described and published by Dr. R. Gogoi, Scientist 'D' and Dr. S.J. Borah, Botanist as *Impatiens paramjitiana* (Balsaminaceae). One Field exploration tour was conducted to Siang Districts of Arunachal Pradesh by Dr. Manish Kandwal, Scientist 'C' in the second half of August as well as in the first half of September and collected total 197 field nos. by surveying the areas of Mechuka, Tuting, Pasighat, Lolla pass, Track junction. Dr. V.K. Rawat, Scientist 'C' conducted one herbarium consultation tour to Central National Herbarium, Kolkata in connection with the study of the Pteridophyte specimens.

Publications

Gogoi, R. and Borah, S. 2014. a new species of Balsaminaceae from Arunachal Pradesh, India. *Phytotaxa* 175 (3): 171-175.

Bhaumik, M., 2014. An account of monocotyledonous plants from Dihang Dibang Biosphere Reserve, Arunachal Pradesh, India. *Indian For.* 140(8): 801-806.



Impatiens paramjitiana – new species

ARID ZONE REGIONAL CENTRE, JODHPUR

Presently, Flora of Jamwa Ramgarh Wildlife Sanctuary, Rajasthan, Flora of Shoolpaneshwar Wildlife Sanctuary, Gujarat and Ethnobotany of Dang District, Gujarat are in progress. In this connection, a field tour has been conducted by Dr. S. L. Meena, Scientist 'C' to Shoolpaneshwar Wildlife Sanctuary in the second half of the August and total about 150 field nos. were utilized to collect the plant samples from the different areas. For the other projects, the specimens collected in the earlier months are being identified.

In connection with the Flora of India, vol. 9, the editing of the families Saxifagaceae, Myrtaceae, Altiaginaceae, Combretaceae, Crassulaceae, Rhizophoraceae, Hammamelidaceae, and Droseraceae are in progress.

The following species were introduced in the garden of AZRC campus:

Medicinal and Economically important plants

- *Gmelina arborea*
- *Butea monosperma*
- *Nyctanthes arbor-tristis*
- *Glacirhiza glabra*

- *Dioscorea pentaphylla*

- *Melia dubia*

RET

- *Withania coagulans*
- *Calligonum polygonoides*
- *Anogeissus sericea*
- *Cordia crenata*
- *Morinda tomentosa*
- *Tecomella undulata*

Meeting attended

Stake Holders meeting of AFRI was attended by Shri Vinod Maina, Scientist 'C' & HoO on 20th August 2014 at Van Bhanwan, Jaipur.

Publication

Satish, K.V., Saranya, K.R.L., Reddy, C.S., Hari Krishna, P., Jha, C.S. and Prasada Rao, P.V.V. 2014. Geospatial assessment and monitoring of historical forest cover changes in Nilgiri Biosphere Reserve, Western Ghats, India (1920-2012). *Environmental Monitoring and Assessment* DOI 10.1007/s10661-014-3991-3.



Nervilia discolor from Shoolpaneshwar WLS



Flueggea leucopyrus from Shoolpaneshwar WLS

BOTANIC GARDEN OF INDIAN REPUBLIC, NOIDA

Development of database of introduced trees of BGIR as well as database of medicinal plants is in progress, for which various websites are consulted for updating purpose. Further, many fields in the databases were updated by feeding proper entries like propagation method, medicinal properties, flowering and fruiting period. Routine maintenance and developmental work of the garden is being carried out which includes colouring of earthen pots by Rex Oxide, Hedge pruning, de-weeding, mowing, ploughing, and irrigation. Total about 4,500 plants of the following species were planted either in beds or pots:

- Adansonia digitata* (28 new pots)
- Adansonia digitata* (Lal Badshah – 500 nos.)
- Clerodendrum inerme* (2000 nos.)
- Cycas revoluta*
(Sago palm, king sago, sago cycad – 30 new pots)
- Epipremnum aureum* (100 new pots)
- Ficus panda* (Panda – 500 nos.)
- Jatropha integerrima* (Jatropha – 35 new pots)
- Alternanthera ficoidea* var. *bettzickiana*
(Lady anther - 200 new pots)
- Lawsonia inermis* (1000 nos.)
- Narcissus poeticus* (Nargis – 67 new pots)
- Portulacaria afra* (Dwarf Jade plant – 51 new pots)
- Putranjiva roxburghii* (Putranjiva – 60 new pots)
- Tradescantia pallida* (Lal Patti – 96 new pots)

Recording of phenological data of species growing in garden are being carried out by Dr. Kuldip Singh Dogra, Scientist 'B'. Dr. Dogra during August recorded flowering in 19 tree species and fruiting and seed setting in 15 species .

Independence Day was celebrated on 15th August 2014 and the flag was hoisted at 09.30 AM. During the ceremony three guests, Dr. A. A. Mao, Scientist 'E' & HoO, ERC, BSI, Shillong; Mrs. Nitu Sethi, Butter Fly Watcher, NOIDA and Dr. (Mrs.) Vimla Sharma, Biology Teacher, New Delhi were present. On this occasion, saplings including medicinal plant species were distributed. Besides total 132 saplings of various species like *Plumeria obtusa* (White Champa), *Plumeria rubra* (Red Champa), *Tabernaemontana divaricata* (Chandni) and *Hibiscus rosa-sinensis* (Hibiscus) were also planted in garden. A Quarterly Meeting of Rajbhasha (QMR) was held on 12th August 2014 in which reports of work undertaken as per previous QMR were reviewed and decisions were taken for organizing the forthcoming Hindi Pakhwara from 15.09.2014 to 30.09.2014.

Students/visitors

Total 270 students and 10 teachers visited the garden. About 220 visitors from India and five from foreign countries also visited the garden in the month of August.

CENTRAL REGIONAL CENTER, ALLAHABAD

A field tour was undertaken to Pilibhit area to collect the Lichens in connection with the project Lichens of Terai regions of Uttar Pradesh by Dr. G.P. Sinha, Scientist 'D' and Ms. Pooja Gupta, JRF. During this tour about 75 field packets were collected and the specimens are being processed. In connection with the project, 'Floristic diversity of Parvati Aranga Wildlife Sanctuary and adjacent Tikri forest area in Gonda, U.P. with ecological aspects, population status of endemics and GIS mapping' field tour was undertaken by Shri V. K. Singh, Bot. Asst. and collected plant specimens by utilising more than 160 field numbers. For the ongoing projects on Floral diversity of Upper Ganga Ramsar site, Uttar Pradesh and Flora of Chattisgarh, Revisionary studies on the tribe *Helianthae* (Asteraceae) the specimens collected in the previous tours are being identified. Similarly, for the Systematic studies on the lichen flora of Kerala, Revisionary studies on the family Pertusariaceae as well as Roccellaceae, Taxonomic studies on lichenised non thelotremoid Indian Graphidaceae, identified certain specimens by studying morpho-anatomically and Thin Layer Chromatography (TLC) method.



Beautiful flowers of *Oxystelma esculentum*

Public service rendered

Identified 4 lichen specimens received from Kanchi Mamunivar Center for P.G. Studies, Puducherry. Also identified 45 plant specimens from Jiwaji University, Gwalior and one specimen from United Institute of Pharmacy, UCER, Allahabad.

Meeting attended

Dr. S.L. Gupta, Scientist 'E' & HoO and Dr. G. P. Sinha, Scientist 'D' participated in the Town Official language implementation half-yearly meeting at office of the Commissioner of Income Tax, Allahabad on 27th August 2014.



A view of Parvati Aranga Wetland, Gonda, Uttar Pradesh



Wild germlasm of *Nelumbo nucifera* at Parvati Aranga Wetland, Gonda, Uttar Pradesh

Publication

Vaishya, J.K., Ansari, A.A. and Dubey, N.K. 2014. Notes on *Parthenium argentatum* A. Gray (Asteraceae). *Indian J. Forest.* 37 (2): 237—240.

DECCAN REGIONAL CENTRE, HYDERABAD

Dr. M. Sankara Rao surveyed four sacred groves viz., Modhakondamma, Uppa, Kamaraj and Madhavadara in Vishakapatnam district for about 15 days and collected around 50 field numbers of plant specimens. Ms. P.S. Annamma, JRF conducted a field tour to Jannaram Forest Division of Kawal Tiger Reserve for a week and collected about 90 specimens.

In connection with the Flora of Seshachalam Biosphere Reserve and Flora of Nagarjunasagar-Srisailem Wildlife Sanctuary the specimens collected in the previous tours are being identified. Dr. K. Prasad, Research Associate carried out one herbarium consultation tour to Madras Herbarium, Coimbatore and noted available *Habenaria* specimens. Identified *Habenaria rariflora*, *Brachycorythis iantha*, *Diplocentrum recurvum*, *Luisia birchea* collected from Western Ghats.

The regional centre has organised a lecture on “The Role Taxonomy in Modern Agricultural Technology” in which Prof. C. Kameswara Rao delivered the lecture on 7th August, 2014 at LaCONES auditorium, Hyderabad.

Dr. L. Rasingam delivered a lecture on Herbarium Techniques in a workshop on 1st August 2014 at St. Pious Women College, Nacharam, Hyderabad (a total of hundred students from three different colleges have been participated). Whereas Shri J. Swamy, Botanical Asst. demonstrated Herbarium techniques in that workshop. Shri Swamy also made oral presentation on “Floral diversity of Pocharam Wildlife Sanctuary, Telangana” and presented 2 posters along with K. Chandramohan, JRF in National Seminar on “Recent Trends in Plant Science” on 22nd – 23rd August, 2014 organized by Department of Botany, Satavahana University, Karimnagar.



Prof. C. Kameswara Rao delivering lecture on The Role Taxonomy in Modern Agricultural Technology at LaCONES Auditorium



Dr. L. Rasingam delivering a lecture on herbarium techniques at St. Pious Women College Nacharam, Hyderabad

Meeting attended

Dr. P.V. Prasanna, Scientist ‘E’ attended a meeting at A.P. Biodiversity Board on 14th August 2014 in connection with reprinting a book on Biodiversity Park.

Publications

Chorghe, A. 2014. New bloom in the Eastern Ghats. *Saevus* 3 (6): 13.

Naidu, M.T., Chandra Mohan, K., Sankara Rao M. and Annamma, P.S. 2014. *Desmodium scorpiurus* (Sw.) Desv. (Leguminosae-Papilionoideae): A new record for the Eastern Ghats. *Indian J. Forestry* 37(2): 183-184.

Venkat Ramana, M., Chorghe, A. and Venu, P. 2014. Two new species of *Syzygium* (Myrtaceae) from Saddle Peak National Park, Andaman and Nicobar Islands, India. *Blumea* 59: 49-52.

Sankara Rao, M., Naidu, M.T. and Venkaiah, M. 2014. *Ethnobotany of Srikakulam District, Andhra Pradesh, India*. 202 pp. Lambert Academic Publishing, Germany.



Rhynchosia ravii
– a new species
described from
Ananthapur
Dist., Andhra
Pradesh

EASTERN REGIONAL CENTRE, SHILLONG

In connection with the Ex-situ conservation of Endemic, threatened and economically important plants of the region and recording phenological data on flowering and fruiting of species growing in EBG, Barapani Experimental garden, observed and recorded phenological data of 10 plant species growing in the garden. Further, Introduced 3 plant saplings in the garden viz., *Eria javanica* (2 nos.) and *Robiquetia spathulata* (1 no.) collected from Umtasor Reserved Forests, Meghalaya.

For project related to Micro-propagation of RET species, Asymbiotic seed germination was initiated in MS medium for *Ilex khasiana*. Set up an experiment for multiple shoot induction by using different concentrations of plant growth regulator (BAP) and the data is being recorded regularly. For *Cymbidium tigrinum*, MS medium was prepared and subculture was done; cultures established in vitro are being maintained and about 40 plantlets were transferred to greenhouse. For *Armodorum senapatianum*, MS medium prepared with addition of charcoal; subculture done at regular period; set up an experiment with different additives. Further, shoot induction experiment was initiated with in vitro raised roots as explants. For *Rhododendron coxianum*, set up an experiment for multiple shooting using different concentrations of plant growth regulator (2-ip); sub-cultured in WPM media and regular sub-culturing is also done.

Dr, Ramesh Kumar, Scientist 'C', attended one day workshop on "Promotion, cultivation and judicious use of medicinal and aromatic plants" organised by District Basin Development Unit, West Khasi Hills District, Nongstoin, Meghalaya on 19th August 2014. In the workshop, Dr. Kumar delivered a lecture on "Medicinal plants and their Identification".

In connection with the Micropropagation, Phytochemical Screening of Medicinal Plants and Molecular Characterization of selected species of NE India, the shoot induction experiment was continued on *Paris polyphylla* with rhizome as explants with different concentrations of plant growth regulator in MS medium. Comparative qualitative phytochemical analysis was

done with the leaf samples of *Ormosia robusta* collected from Itanagar (Arunachal Pradesh), Baghmara and Balphakram National park (Garo hills, Meghalaya).

Public service rendered

Identified 10 samples of specimens received from different Institutions, Colleges and Universities.

Students/Visitors

Two scientists and two lecturers and five research scholars and eight students visited the Centre from various Institutions, Colleges and Universities.



***Hedychium densiflorum* from Tuensang district, Nagaland**



***Ilex khasiana* – an endemic and endangered species of NE India**

Publications

Verma, D, Singh, S. K., Kholia, B.S., Sinha, B.K. and Panday, S. 2014. Petridophytes of Khawnglung Wild Life Sanctuary, Mizoram India. *Indian J. Forestry* 37(2): 219–234.

Vijayan, D., Jibu Thomas, Maria John, K.M., Pius, P.K. and Muraleedharan, N. 2014. Characterization of selected south Indian tea (*Camellia* spp.) germplasm using morphological traits and RAPD markers. 2013. *Keanean J. Sci.* 2: 45-52



Cymbidium trigrinum – beautiful endangered orchid of NE India

NORTHERN REGIONAL CENTRE, DEHRA DUN

In connection with the Flora of Uttarakhand, Flora of Sultampur and Kalesar National Park, Flora of Sonanadi Wildlife Sanctuary, Flora of Nandhour Wild Life Sanctuary, Floristic Diversity and Phytosociological study of Simbalbara National Park, Revisionary study on the family Bignoniaceae in India, Revisionary study on the genus *Lepisorus* (Sm.) Ching in India and Taxonomic revision of Tree ferns (*Cyathea*, *Cibotium* and *Brainea*) of India the specimens are being identified and described by the scientific officials and research scholars.

Dr. Debasmita Pramanik, Bot. Asst. has undertaken one Herbarium Consultation Tour to Central National Herbarium (CAL) and studied 180 herbarium specimens and verified, authenticated and pasted det. slip on 40 herbarium specimens of the genus *Ficus* in connection with the Flora of Uttarakhand.

About 200 specimens of the family Ranunculaceae, Grossulariaceae, Verbenaceae and Rosaceae have been scanned and digitized as a part of Digitization of Herbarium specimens in BSD.

Dr. P.K. Pusalkar, Scientis 'D' has attended 28th Research Seminar at Wildlife Institute of India, Chandrabani, Dehradun on 21st August 2014.

The centre has organized 'Foundation Day' celebration on 1st August 2014. On this occasion, the Uttarakhand state tree of *Rhododendron arboreum* was planted in the office campus by the chief guest Dr. P.K. Hajra, Ex-Director, BSI.

Publication

Pusalkar, P.K. 2014. *Picrorhiza tungnathii* sp. nov. from Western Himalaya, India. *Nordic J. Bot.* 32: 308-313.



Delivering lecture on Foundation Day of the centre by the chief guest Dr. P.K. Hajra, Ex-Director, BSI



Rhododendron arboreum - state tree of Uttarakhand was planted in the office campus by the chief guest Dr. P.K. Hajra, Ex-Director, BSI

SIKKIM HIMALAYAN REGIONAL CENTRE, GANGTOK

In connection with the Red listing of Orchids of Eastern Himalaya as per IUCN criteria, a local field tour has been undertaken by Dr. D. K. Agarwala, Scientist 'C' at Phamthang-Ranjit Bridge area in South district of Sikkim and populations of 5 Orchid species were analyzed. Another 14 day field tour was also conducted by Dr. Agarwala in the alpine areas of North district of Sikkim (Lachen, Thangu, Lachung, Yumthang, Katau) to analyze population of 35 orchid species. He has also collected total 78 field numbers as well as 35 live specimens to introduce in the campus garden for further study and ex-situ conservation. Associated vegetation of the rare and less known orchid species were also analyzed by him. One more field tour was also conducted by Dr. Agarwala at Darjeeling Himalayan region covering Senchal forest, Sevoke forest and Kurseong forest area and analyzed. Populations of 5 orchid species in these areas. One of the rare orchid species i.e. *Diplomeris hirsuta* earlier recorded from the Coronation Bridge area of Sevoke, later regarded as disappeared from that locality, could be relocated at the same locality with fairly good population size spread over almost 3 sq. km. area. However, these are subjected to severe threat due to clearing of roadside forest wall and back cutting of the roads for widening.

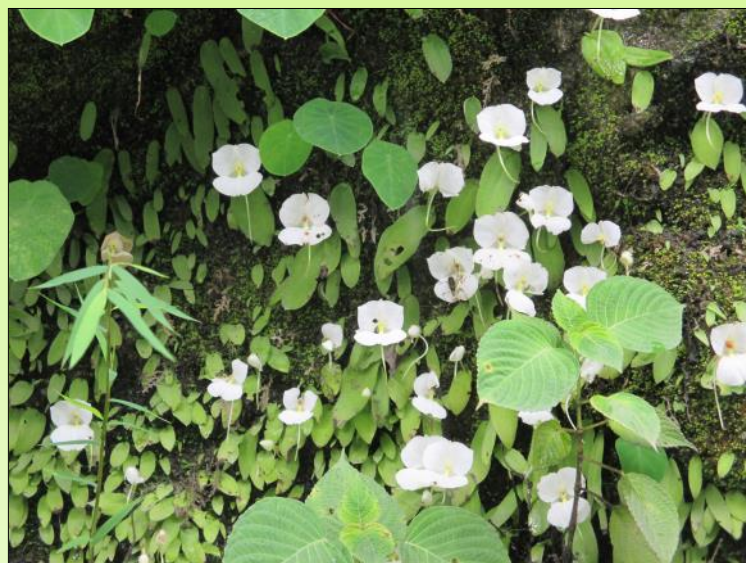


***Clematis montana* - a shade loving high altitude flowering plant at North Sikkim**

In connection with revision of the family Rubiaceae in India, Dr. M. Gangopadhyay, Scientist 'D' & HoO conducted a local field tour at Dikchu and Pangthang area, East district of Sikkim and collected 26 field numbers.

Publication

Kholia, B.S, Piu Das and Pradhan, S. 2014. On the occurrence of *Athyrium nakanoi* Makino (Woodsiaceae) in Sikkim Himalaya. *Indian J. Forestry* 36: 81-86.



***Diplomeris hirsuta* - reappearance near Coronation Bridge, Sevoke, Darjeeling Himalaya**



***Drosera peltata* - an insectivorous plant from Lachen, North Sikkim**



Geranium wallichianum
- high altitude plant at North Sikkim



Potentilla fruticosa
from Lachung, North Sikkim



Spathoglottis ixiioides - an orchid species from Lachung, North Sikkim

SOUTHERN REGIONAL CENTRE, COIMBATORE

Shri J.V. Sudhakar and Shri K. Yarrayya, Bot. Assts. conducted field trips to Anamalai and Nilgiri hills respectively in connection with the study of *Ficus* and Cyperaceae members. They have collected 20 filed numbers each of *Ficus* species (for DNA studies) and sedges.

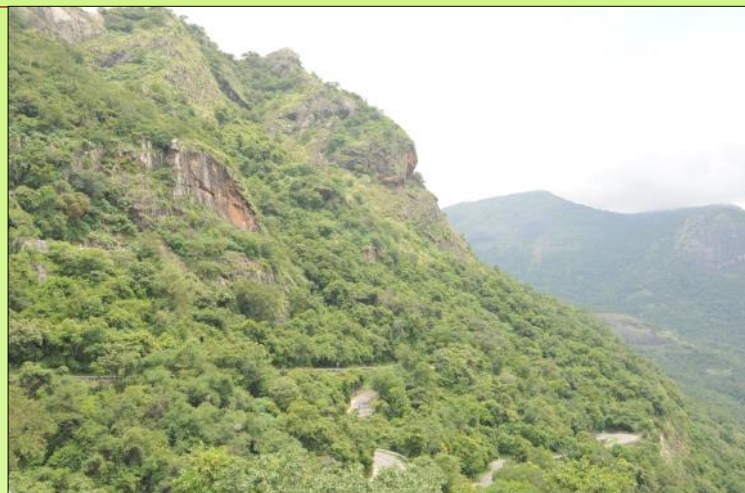
In connection with the Flora of Karaivetti Wildlife Sanctuary, Perambalur District, Tamil Nadu; Vaduvur Wildlife Sanctuary, Tiruvarur District, Tamil Nadu; Srivilliputhur Grizzled Giant Squirrel Wildlife Sanctuary, Tamil Nadu and Malabar Wildlife Sanctuary, Kozhikode district, Kerala the specimens collected in the earlier months were identified.

Shri G. Gnanasekaran, Bot. Asst. imaged 30 SEM photographs of the leaf surface and pollen of the Acanthaceae genus *Andrographis*. On the other hand 10 microscopic images of the brown seaweed *Padina tetrastromatica* was photographed by Shri S.K. Yadav, Bot. Asst. The Scientific officials of SRC, Coimbatore prepared Wight's catalogue based on the cross verification of about 2965 specimens of Robert Wight.

Dr. S. Kaliamoorthy, Scientist 'C', Shri B.S. Elango, Garden Supervisor and Shri T.S. Saravanan transplanted 51 taxa including 50 orchids (6 endemic and 44 endangered) and 1 monocot under Ex-situ conservation at National Orchidarium and Experimental Garden, Yercaud. They also developed seedlings (8nos.), cuttings (27nos.), multiplied (17nos.) and recorded the phenology of 9 species of orchids and 8 species of angiosperms. Shri T.S. Saravanan did the tissue culture study on the asymbiotic germination of *Coelogyne breviscapa* for its transfer in the experimental garden of NO & EG, Yercaud. Shri Sudhakar introduced an endemic species *Ficus amplocarpa* into SRC garden, Coimbatore.

Students/ Visitors

Total 152 visitors including research scholars, scientists/professors/lecturers, UG and PG students etc. consulted MH herbarium, whilst 597 persons in 76 parties and 39 students of Padmavani Arts and Science College, Salem visited NO & EG, Yercaud.



View of Anamalai hills, Western Ghats



Figs of *Ficus guttata* – endemic to Nilgiris

Public service rendered

Total 34 plant samples were identified for outside researchers.

Lecture delivered

Dr. S. Kaliamoorthy visited Padma Vani college of Arts and Science for Women as a resource person and delivered a lecture on “*Ex situ Conservation using Plant Tissue Culture*”.

Collaborative projects

As a collaborative work with other institution, Shri J.V. Sudhakar submitted 30 leaf samples of different *Ficus* species to PSGR Krishnammal college of Women, Coimbatore (16 samples) and Dept. of Biotechnology, Bharathiar University (14 samples) for DNA studies.



***Cyperus involucratus* from Western Ghats**



***Pterolobium hexapetalum* from Nilgiris**

WESTERN REGIONAL CENTRE, PUNE

Dr. J. S. Jalal, Scientist ‘C’ has conducted one annual action plan tour to Kolhapur and Sindhudurg districts of Maharashtra in connection with the project “Orchids of Maharashtra”. Ms. Prajakta S. Pathare, SRF conducted one plant exploration tour to Koyna Wildlife Sanctuary.

In connection with the various ongoing projects 79 angiosperm specimens, 34 pteridophyte specimens and 29 fungi species have been identified by the scientists and researchers of this centre. Besides, spores of *Psilotum nudum*, *Pteris pellucida* were also studied under Scanning Electron Microscope (SEM).

Public service rendered

Identification and authentication of plant specimens were done for research students, B. Pharm. and M. Pharm. students. Advisory services were rendered for students from Shivaji University (Kolhapur), Dr. Babasaheb Ambedkar Marathwada University (Aurangabad), Omni Active Health Technologies (Thane), Guru Nanak Khalsa College of Arts, Science, Commerce (Mumbai), University of Calicut, Kerala and Forest Department, Pune.

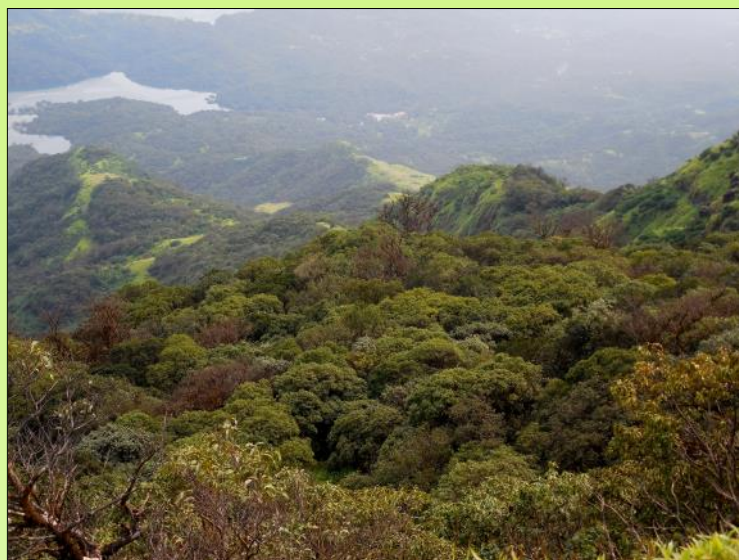
Meeting and workshop attended

Dr. A. Benniamin, Scientist ‘D’ & HoO attended the Goa State Wildlife Board meeting on 25th August 2014.

Dr. Rashmi Dubey, Scientist ‘C’ attended a workshop on “Molecular Biology/ Genetic Engineering application” held at Venture Centre, Innovation Park, NCL, Pune from 5th to 7th August, 2014.

Publication

Jayanthi J., Karthigeyan, K. Sumathi, R. and Jalal, J.S.. 2014. Taxonomic note on *Phalaenopsis speciosa* (Orchidaceae) in Andaman & Nicobar Islands, India. *Richardiana* 14: 242–246.



A view of semi-evergreen forests in Koyna Wildlife Sanctuary, Maharashtra



A view of endemic orchid *Habenaria suaveolens* in a small plateau in Changad taluk of Kolhapur District, Maharashtra



View of epiphytic orchid *Conchidium braccatum* in Koyna Wildlife Sanctuary, Maharashtra

PLANT OF THE MONTH

Cycas circinalis L. (CYCADACEAE) also known as Queen Sago is an endemic species of Western Ghats is growing very well at AJC Bose Indian Botanic Garden, Howrah.

Seeds are poisonous and used for cattle poisoning. The plant can easily be propagated with propagules (bulbils).

The pinnately compound leaves with cylindrical bole make this species a good choice for gardening.



***Cycas circinalis* at AJC Bose Indian Botanic Garden**

EMERITUS SCIENTISTS

1. Dr. H. J. Chowdhery (former Scientist 'F', BSI) offered with Emeritus Scientist post in Botanical Survey of India to work on 'Revisionary Studies on some subtribes of the Family Orchidaceae for Flora of India' and the working place is Northern Regional Centre, BSI, Dehradun.
2. Dr. K. P. Singh (former Scientist 'F', BSI) offered with Emeritus Scientist post in Botanical Survey of India to work on 'Revisionary Studies on the Lichen Family Pertusariaceae *sensu lato* in India' and the working place is Central Regional Centre, BSI, Allahabad.
3. Dr. J. R. Sharma (former Scientist 'E', BSI) offered with Emeritus Scientist post in Botanical Survey of India to work on 'Revision of the Family Hymenochaetaceae (Fungi) in India' and the working place is Northern Regional Centre, BSI, Dehradun.

DST YOUNG SCIENTISTS

1. Dr. Avishek Bhattacharjee, SERB-DST Young Scientist, is working at Central National Herbarium, BSI, Howrah on the project, "Inventorization of Indian *Calanthe* R.Br. (Orchidaceae) with focus on micro-morphology of pollinia".
2. Dr. K. Prasad, SERB-DST Young Scientist, is working at Deccan Regional Centre, Hyderabad on the project, "Studies on taxonomy, phytogeography and conservation of South Indian *Habenaria* (Orchidaceae)".

**ACHARYA JAGADISH CHANDRA
BOSE POST DOCTORAL FELLOWS**

1. Dr. (Ms.) Monalisa Dey, offered with post-doctoral fellowship for 3 years to work on "Taxonomic Revision of Liverwort Genus *Drepanolejeunea* (Spruce) Schiffn. in India" and Dr. Dey's working place is Central national herbarium, BSI, Howrah.

2. Dr. S. Prabhu, offered with post-doctoral fellowship for 3 years to work on "Morphological, Molecular Systematics, Biochemical Characterisation and *in-vitro* conservation of *Memecylon* L. (Melastomataceae) in Andaman & Nicobar Islands" and Dr. prabhu's working place is Andaman & Nicobar Regional Centre, BSI, PortBlair.
3. Dr. Pushpesh Joshi, offered with post-doctoral fellowship for 3 years to work on "Revisionary studies on family Ophioglossaceae Martinov in India" and Dr. Joshi's working place is Northern Regional Centre, BSI, DehraDun.
4. Dr. (Mrs.) Sangita Das Chowdhery (nee Dey), offered with post-doctoral fellowship for 3 years to work on "Revision of the subtribe Tripogoninae (Poaceae) in India" and Dr. Dey's working place is Central National Herbarium, BSI, Howrah.
5. Dr. Sudipta Kumar Das, offered with post-doctoral fellowship for 3 years to work on "Taxonomic diversity and ecology of cyanobacteria and algae in the alpine regions of Eastern Himalayas" and Dr. Das' working place is Central National Herbarium, BSI, Howrah.

RESEARCH SCHOLARS

1. Ms. Sutrishna Kar, SRF, working on "Revision of the Genus *Festuca* in India" under the supervision of Dr. P. Singh, Director, BSI, Hqrs., Kolkata.
2. Smt. Bandana Bhattacharjee, SRF, working on "Revision of the Tribe Vernonieae in India" under the supervision of Dr. P. Lakshminarasimhan, Scientist 'D' & HoO, CNH, BSI, Howrah.
3. Sri Siddhartha Singh Deo, SRF, working on "Floristic study of the Liverworts and Hornworts of Arunachal Pradesh with special reference to West Siang District" under the supervision of Dr. D. K. Singh, Scientist 'F', Hqrs., BSI, Kolkata.
4. Ms. Pamela Saha, SRF, working on "Moss Flora of Darjeeling District, West Bengal" under the supervision of Dr. Nehal Aziz, Scientist 'D', Hqrs., BSI, Howrah.

5. Sri Bikash Jana, SRF, working on “Revision on the subgenus *Vignea*, *Vigneastra* & *Psylophora* of the genus *Carex* L. (Cyperaceae) in India” under the supervision of Dr. V. Sampath Kumar, Scientist ‘C’, CNH, BSI, Howrah
6. Ms. Moumita Das Das, SRF, working on “Revision of the Family Memecylaceae in India” under the supervision of Dr. A. Pramanik, Scientist ‘D’ & HoO, AJC Bose Indian Botanic Garden, BSI, Howrah.
7. Sri Samiran Panday, SRF, working on “Flora of the Phawngpui Blue Mountain Peak, Mizoram” under the supervision of Dr. B. K. Sinha, Scientist ‘E’ & HoO, ISIM, BSI, Kolkata.
8. Sri Siljo Joseph, SRF, working on “Revision of Family Roccellaceae in India” under the supervision of Dr. G. P. Sinha, Scientist ‘D’, CRC, BSI, Allahabad.
9. Sri Sashikant Gupta, SRF, working on “Studies on Family Pertusariaceae in India” under the supervision of Dr. K. P. Singh, Emeritus Scientist, CRC, BSI, Allahabad.
10. Sri Suman Halder, SRF, working on “Wetland Flora of the Gangetic Plains from Buxar to Katihar in Bihar” under the supervision of Dr. P. Venu, Scientist ‘F’ & HoO, DRC, BSI, Hyderabad.
11. Ms. Prajakta Shivaji Pathare, SRF, working on “Flora of Koyna Wildlife Sanctuary, Maharashtra” under the supervision of Dr. P. G. Diwakar, Ex-Scientist ‘E’, WRC, BSI, Pune.
12. Sri Jitendra Kumar Vaishya, SRF, working on “Revision of the tribe Heliantheae in India” under the supervision of Dr. A. A. Ansari, Ex-Scientist ‘E’, CRC, BSI, Allahabad.
13. Sri Alok Rabindra Chorghe, SRF, working on “Poaceae of Odisha State” under the supervision of Dr. P. V. Prasanna, Scientist ‘E’, DRC, BSI, Hyderabad.
14. Ms. Saumyasree Pathak, JRF, working on “Taxonomic Studies of the members of Poaceae in Mizoram” under the supervision of Dr. P. Singh, Director, BSI, Hqrs., Kolkata.
15. Sri Shuvadeep Majumdar, JRF, working on “Taxonomic Studies on Hepaticae and Anthocerotae of Anjaw District, Arunachal Pradesh” under the supervision of Dr. D. K. Singh, Scientist ‘F’, Hqrs., BSI, Kolkata.
16. Ms. Rijupalika Roy, JRF, working on “Revision of the Family Myrsinaceae in India” under the supervision of Dr. A. Pramanik, Scientist ‘D’ & HoO, AJC Bose Indian Botanic Garden, BSI, Howrah.
17. Sri Animesh Maji, JRF, working on “Taxonomic revision of subgenus *Carex* of Genus *Carex* L. (Cyperaceae) in India” under the supervision of Dr. V.P. Prasad, Scientist ‘D’, CNH, BSI, Howrah.
18. Ms. Shankhamala Mitra, JRF, working on “Taxonomic revision of the family Fagaceae in India” under supervision of Dr. Vinay Ranjan, Scientist ‘C’, CNH, BSI, Howrah.
19. Ms. Sagari Chaudhury JRF, working on “Ethnobotanical study of Lodha (a primitive tribal group) of West Bengal and nutraceutical analysis of selected plant species” under the supervision of Dr. Harish Singh, CBL, BSI, Howrah.
20. Ms. Dyutipama Chakraborty, JRF, working on “Studies on the families Agaricaceae, Boletaceae, Hygrophoraceae, Suillaceae and Cantharellaceae of East and South Districts of Sikkim” under the supervision of Dr. Kanad Das, Scientist ‘D’, Cryptogamy, Hqrs., BSI, Howrah.
21. Ms. Chandni Gupta, JRF, working on “Taxonomic Studies of genus *Rubus* L. in India” under the supervision of Dr. S. S. Dash, Scientist ‘C’, Hqrs., BSI, Kolkata.
22. Ms. Piu Das, JRF, working on “Taxonomic revision of fern genus *Pteris* L. (Pteridaceae) in India” under supervision of Dr. P. M. Padhye, Scientist ‘E’, Hqrs., BSI, Kolkata .
23. Mrs. S. Shalini, JRF, working on “A systematic study of the tribe *Ipomeae* Hallier f. (Convolvulaceae) in India” under the supervision of Dr. P. Lakshminarasimhan, Scientist ‘D’ & HoO, CNH, BSI, Howrah.
24. Ms. P.S. Annamma, JRF, working on “Studies on the Floras of Kawal Tiger Reserve, Mahavir Harina vanasthali National Park and Mrugavani National Park, Andhra Pradesh with 10% periphery” under the supervision of Dr. P. Venu, Scientist ‘F’ & HoO, DRC, Hyderabad..

