

BSI NEWSLETTER

The monthly electronic newsletter of Botanical Survey of India

December 2018

Volume 5

Number 12



Botanical Survey of India
CGO Complex, 3rd MSO Building, Block – F
5th Floor, DF Block, Sector – I, Salt Lake City
Kolkata – 700 064



HEAD QUARTERS, KOLKATA

Dr. Kanad Das, Scientist 'E' identified the field numbers KD 18-60 as *Russula indohimalayana* sp. nov. (Russulaceae) and KD 18-009 and KD 18-076 as *Chroogomphus himalayanus* sp. nov. (Gomphidiaceae)

Dr. R.K. Gupta, Scientist 'D' identified, described and illustrated five species of cyanobacteria (blue green algae) viz., *Calothrix brownii*, *Calothrix thermalis*, *Fischerella thermalis*, *Chroococcus minutus*, *Synechococcus elongatus* and taken Microphotographs of three diatom species belonging to the genera *Nitzschia*, *Pinularia*, *Synedra*.

For the project, "Pharmacognosy of Indian Cycas", Dr. A.B.D. Selvam, Scientist 'D' anatomically studied the leaflets of *Cycas rumphii* under Light Microscope (LM), which was collected from Andaman Islands.

Dr. Devendra Singh, Scientist 'D' identified six specimens belonging to four species collected from Parasanath Wildlife Sanctuary, Jharkhand: *Anthoceros punctatus* L. (71044), *Cyathodium aureonitens* (Griff.) Mitt. (71001), *Notothylias indica* Kashyap (71038), *Riccia billardierei* Mont. & Nees (71005).

Dr. Singh Prepared the camera lucida illustration and taken microphotographs of two species, *Cyathodium aureonitens* (Griff.) Mitt. and *Notothylias indica* Kashyap collected from Jharkhand.

Dr. Monalisa Dey, Scientist 'C' identified 12 specimens belonging to seven species from Darjeeling District, West Bengal viz., *Acanthocoleus gilvus* (Gottsche) Kruijt, *Cololejeunea trichomanis* (Gottsche) Steph., *Lopholejeunea subfusca* (Nees) Schiffn., *Marchantia subintegra* Mitt., *Plagiochila parvifolia* Lindenb., *Radula auriculata* Steph. and *Radula stenocalyx* Mont.

Dr. Manoj Emanuel Hembrom, Botanist prepared ArcGIS map for *Tomentella* sp. 1.

Sri Arvind Parihar, Bot. Asst. accessioned and incorporated one specimen received from Ms. Shewali Goswami, DRDO, DRL, Tezpur, Assam.

Public service rendered

Dr. Kanad Das reviewed a manuscript for the journal *MycKeys*.

Dr. A.B.D. Selvam pharmacognostically studied and authenticated two plant stem bark samples, *Symplocos racemosa* Roxb. (Symplocaceae) and *Ficus racemosa* L. (Moraceae), which were received from Institute of Post Graduate Ayurvedic Education & Research, Kolkata.

Dr. A.B.D. Selvam pharmacognostically also studied and authenticated 15 plant samples, as detailed below, which were received from Institute of Post Graduate Ayurvedic Education & Research, Kolkata.

Azadirachta indica A.Juss. (Meliaceae) – Root, Stem & Leaf

Momordica charantia L. (Cucurbitaceae) – Root, Stem & Leaf

Cassia fistula L. (Fabaceae) – Root, Stem & Leaf

Tinospora cordifolia (Willd.) Miers (Menispermaceae) – Root, Stem & Leaf

Gymnema sylvestre R.Br. (Apocynaceae) – Root, Stem & Leaf.

Training/meeting attended/lecture delivered/talk organised

Dr. Kanad Das attended the meeting during the visit of Sri A.K. Jain, Additional Secretary, MoEF & CC and Ms. Manju Pandey, Joint Secretary, MoEF & CC at the committee room of Headquarter, BSI, Kolkata on 04.12.2018. Dr. A.B.D. Selvam delivered a lecture for Parataxonomy training programme under GSDP at CNH, BSI, Howrah, on the topic 'Identification of illegally traded plant species using Pharmacognosy techniques' on 11.12.2018.

Visitors/students

Mr. S.K. Residul Islam, JRF, Vidyasagar University for Bryophyte herbarium consultation at CAL.

Publications

Chakraborty, D., Vizzini, A. and Das, K. 2018. A new species of *Gliophorus* (Hyphoraceae, Agaricales) from Eastern Himalayan region of India with morphological details and phylogenetic inferences. *MycKeys* 44: 123–135.

Selvam, A.B.D. 2018. Diversity, Exploitation, Conservation and Current Status of Indian *Cycas*. *J. Pharmacog. and Phytochem.* 7(6): 1163–1165.

CENTRAL NATIONAL HERBARIUM, HOWRAH

Dr. Vinay Ranjan, Scientist 'D' and Sri Anant Kumar, Bot. Asst. identified specimens of 10 field numbers and 17 species collected from Neora Valley National Park, Darjeeling district, West Bengal.

Sri P.P. Ghoshal, Botanist identified 10 species collected from of Betla National Park, Latehar, Jharkhand.

Public service rendered

Dr. Subir Bandyopadhyay, Scientist 'C' provided PDF of 7 pages of a write-up on procedure of authenticating plant samples from CNH to Anjan Hazra, Agricultural & Ecological Research Unit, Biological Science Division Indian Statistical Institute, Barrackpore Trunk Road, Kolkata and of 2 pages on *Abutilon neelgerrense* Munro ex Wight from "The Botany of Robert Wight" by H. Noltie to Dr. Milind M. Sardesai, Department of Botany, Savitribai Phule Pune University, Pune.

Dr. Bandyopadhyay provided images of seven specimens of *Spiraea robusta* Hand.-Mazz. (Rosaceae) from the general herbarium (CAL) to Dr. Roman Businsky, Department of Biodiversity, Silva Tarouca Research Institute for Landscape & Ornamental Gardening, Czech Republic.

Dr. Bandyopadhyay provided images of 11 specimens identified to be of *Spiraea bella* Sims/*Spiraea callosa* Thunb./*Spiraea micrantha* Hook.f./*Spiraea robusta* Hand.-Mazz. from the general herbarium with assistance from Ms. Chandani Gupta to Dr. Roman Businsky, Department of Biodiversity, Silva Tarouca Research Institute for Landscape & Ornamental Gardening, Czech Republic.

Dr. Subir provided images of type specimens of *Elatostema lineolatum* Wight var. *setosum* A.N. Henry and *Elatostema lineolatum* Wight var. *tomentella* Hook.f. with assistance from Saurabh Sachan and Anand Kumar to Dr. P. Sunojkumar, Assistant Professor, Department of Botany, University of Calicut, Kerala.

Dr. K. Karthigeyan, Scientist 'D', provided two images of *Calamus micranthus* Griffith (Arecaceae) to Dr. A. Henderson, New York Botanic Garden, USA.

Dr. K. Kartigeyan provided the image of Roxburgh's painting of *Aquillaria malaccensis* to Dr. P.V. Prasanna, Scientist 'F' & HoO, Deccan Regional Centre on request on 13.12.2018.

Lecture organised/meeting/programme attended

Dr. K. Karthigeyan delivered a Lecture on 'Plant Collection and Herbarium Methodology' in the workshop on 'Vascular Plant Taxonomy: Field Skills, Plant Identification & Plant Nomenclature' – organized by Department of Botany, Calcutta University on 05.12.2018 at the auditorium of Calcutta University.

Dr. Subir Bandyopadhyay delivered a lecture on 'Herbarium Techniques' to the GSDP students on 07.12.2018.

Sri P.K. Baskey, Botanist delivered a lecture to GSDP Students on 21.12.2018, pertaining to Medicinal Plants and Folklore/Traditional Medicinal System.

Dr. Avishek Bhattacharjee, Scientist 'C' attended meeting of the committee constituted for preparing draft proposal of CITES on 10.12.2018 at MoEF & CC, New Delhi.

Dr. K. Karthigeyan attended the 29th state level steering committee for Sundarban Biosphere Reserve management at Aranya Bhavan, Salt lake, Kolkata on 14.12.2018.

Visitors/students

Dr. Suman Chakraborty, Calcutta Homeopathic Medical College on 03.12.2018.

20 students from Sree Chaitanya College, Howrah on 04.12.2018.

Ms. Sneha Bramhadande from Naoroji Godrej Centre for Plant Research for consultation of General and Type Herbarium II from 5th to 12th December 2018.

44 students from Sinthi Kasturba Kanya Vidyapith, Sinthi, Kolkata on 08.12.2018.

Sri Zubair Ahmad Rather, JPF, Centre for Biodiversity and Taxonomy, Department of Botany, University of Kashmir, Srinagar and Sri Kangkan Kumar Das, SRF, Assam University on 11.12.2018.

10 students from Sarat Centenary College; 11 Students from Druba Chand Halder College, Dhakshin Barasat and 27 students of B.Sc. (Botany Hons. and General) from Vijaygarh Jyotish Ray College, Kolkata on 12.12.2018.

Sri Biplav Banik, JPF, Tripura University and 12 students from Panskura Bradley Birt High school on 13.12.2018.

36 students from Serampore College, Hooghly; 28 students from Bangabosi College, Kolkata and 30 students from Narasinha Dutta College on 14.12.2018.

Sri Ashish Kumar Chowdhury, Research Scholar, Department of Botany, Tripura University on 15 & 16.12.2018.

Sri Dipan Sharma and Biswajit Baishab, Research Scholars, Department of Botany, Tripura University on 15.12.2018.

Sri Tanmay Mallick and Sri Vikram Kumar Das from Dept. of Botany, Burdwan University for consultation of General Herbarium on 17 & 18.12.2018.

Sri Arun Prasanth. R., JRF, CSIR-CIMAP, Bangalore and 15 students from Dhruva Chandra Halder College on 18.12.2018.

Ms. Shagufta Ahmed and Ms. Nabasmita Malakar, JPF, ATREE; 14 students of B.Sc. (Botany Hons.) from Narasinha Dutta College, Howrah and Prof. F.A. Lore from SKUAST, Kashmir on 19.12.2018.

73 students of class VIII to X from Bainan Girls' high school, Howrah and 23 students of B.Sc. (Botany Hons.) from Asansol Girls' College, Paschim Bardhaman on 21.12.2018.

Mrs. R. Vasavi from Andhra University on 27.12.2018.

15 students from Presidency College, Kolkata on 28.12.2018.

Publications

Bandyopadhyay, S. and Lakshminarasimhan, P. 2018. Epitypification of *Bauhinia scandens* (Leguminosae: Cercidoideae). *J. Econ. Taxon. Bot.* 41(3–4): 137–138.

Bandyopadhyay, S. 2018. Typification of *Bauhinia touranensis* (Leguminosae: Cercidoideae). *Gard. Bull. Singapore* 70(2): 405–407.

– Dr. V.P. Prasad
Scientist 'E' & HoO

INDUSTRIAL SECTION INDIAN MUSEUM, KOLKATA

The botanical paintings by Roxburgh are being interpreted with updated nomenclature. For this project, two species of Poaceae were interpreted viz., *Panicum uliginosum* Roxb. and *P. umbrosum* Retz. and eight species were described, viz., *Arundinella bengalensis* (Spreng.) Druce, *Cyrtococcum trigonum* (Retz.) A.Camus, *Echinochloa frumentacea* Link, *Eragrostis japonica* (Thunb.) Trin., *E. tenella* (L.) P. Beauv. ex Roem. & Schult., *Eulalia trispicata* (Schult.) Henrard, *Paspalum scrobiculatum* L. and *Themeda triandra* Forssk. From the family Orchidaceae following 26 species were also interpreted, viz., *Dendrobium acinaciforme*, *D. aggregatum*, *D. anceps*, *D. calceolum*, *D. clavatum*, *D. crumenatum*, *D. flavum*, *D. formosum*, *D. pierardi*, *D. pulchellum*, *D. pumilum*, *D. purpureum*, *D. teres*, *D. tripetaloides*, *D. veratrifolium*, *Epipactis babianifolia*, *E. carinata*, *E. graminifolia*, *E. juliana*, *E. plicata*, *Malaxis plicata*, *Orchis commelinifolia*, *O. plantaginea*, *O. platyphyllos*, *O. uniflora* and *Pterygodium sulcata* and seven species were described, viz., *Aerides multiflora* Roxb., *Arundina graminifolia* (D. Don) Hochr., *Coelogyne punctulata* Lindl., *Cymbidium alofolium* (L.) Sw., *Dendrobium aphyllum* (Roxb.) C.E.C. Fisch., *Pholidota imbricata* Hook. and *Pteroceras teres* (Blume) Holttum.

Database of Herbarium Specimens

As a part of preparing a database of herbarium specimens at BSIS, 345 numbers of Dicot herbarium specimens were listed and documented.

Public service rendered

Under the Narcotic Drugs & Psychotropic Substances (NDPS) Act, 15 samples received from West Bengal Police were identified.



Photo: ISIM



School student under EEAP visiting Gallery of Botanical History of India (left) and attending a lecture on Potential Dye Yielding Plants of India & Natural Dyeing delivered by Sri B.C. Dey (right) at ISIM, BSI, Kolkata



Photo: ISIM

ISIM-BSI Exhibition Stall at 'Damodar Mela' held at Amta, Howrah from 7th to 13th December 2018



School children visiting BSI-ISIM exhibition stall at Meghnad Saha Smarak Science Fair

Awareness programme/workshop organized/attended/lecture delivered

A workshop on 'Vascular Plant Taxonomy: Field Skills, Plant identification & Plant Nomenclature' organized by Taxonomy Research & training centre (AICOPTAX, MoEF & CC, Govt. of India) & CAS, Department of Botany, University of Calcutta on 05.12.2018 was attended by Dr. Manas Bhaumik and Dr. A.K. Sahoo.

Under Environmental Education awareness Programme (EEAP) a group of school students visited Botanical Galleries and attended a lecture on "Potential Dye Yielding Plants of India & Natural Dyeing" delivered by Sri B.C. Dey on 15.12.2018.

BSI-ISIM participated in Meghnad Saha Smarak Science Fair & Exhibition held at Triangular Park, Rasbehari Avenue, Kolkata from 29.11.2018 to 02.12.2018 and visitors were guided by Sri B.C. Dey, Ms. Sudeshna Datta and Sri S.K. Sharma during the exhibition. Another Science Fair & Exhibition "Damodor Mela" held at Amta, Howrah from 07.12.18 to 13.12.18 was also participated by BSI-ISIM and Sri Subir Dutta and Sri Ashok Mondal guided the visitors.



Photo: ISIM

Addl. Secretary & Joint Secretary, MoEF & CC, New Delhi viewing BSI-Archival Documents during their visit

Visitors/students

Sri Anil Kumar Jain, Addl. Secretary and Ms. Manju Pandey, Joint Secretary, MoEF & CC, New Delhi visited Botanical Galleries on 05.12.2019. A group of 15 foreign visitors from various organizations visited Botanical Galleries and consulted archival volumes of Indian Natural Dyes and Textile Fabrics Manufacturers of India on 10.12.2018.

– Dr. Manas Bhaumik
Scientist 'E' & HoO

ARID ZONE REGIONAL CENTRE, JODHPUR

Dr. Ramesh Kumar, Scientist 'D' and Dr. C.S. Purohit, Scientist 'B' conducted one Herbarium consultation tour to BLATT (Blatter Herbarium, St. Xavir College, Mumbai) from 18th to 23rd December 2018 and studied 35 Type specimens and 31 herbarium specimens.

Identification of herbarium specimens

Total number of specimens of 100 Field numbers has been identified during this period, under report, which were collected for different projects such as Dr. C.S. Purohit, Scientist 'B' identified 15 plant species collected from Tadgarh-Raoli WLS, Rajasthan i.e. *Amaranthaceae: Barleria prionities* L. var. *dicantha* Blatt. & Halib. (CSP33518); *Heliotropium strigosum* Willd.(CSP33558); *Senna auriculata* (L.) Roxb. (CSP33528); *Merremia aegyptica* (L.) Urban (CSP33520); *Ipomoea pes-tigridis* L. (CSP33540), *Ipomoea alba* L. (CSP33543); *Canavalia cathartica* Thouras (CSP33529); *Crotalaria hirsuta* Willd. (CSP33544); *Hibiscus vitifolius* L. (CSP33524); *Nymphaea pubescens* Willd. (CSP33526); *Plumbago zeylanica* L. (CSP33533); *Aegle marmelos* Corr. (CSP33530); *Solanum incanum* L. (CSP33527); *Melhania hamiltoniana* Wallich (CSP33536) and *Melhania magnifolia* Blatt. & Halb. (CSP33561).

Dr. P. Harikrishna, Bot. Asst. and Sri Ramesh Kumar, Bot. Asst. identified 15 plant species collected from Bassi WLS. i.e. *Phyllanthus virgatus* G.Forst. (035673); *Desmodium triflorum* (L.) DC. (035674); *Acrachne racemosa* (B.Heyne ex Roth) Ohwi (035675); *Melochia corchorifolia* L. (035676); *Triumfetta pilosa* Roth (035677); *Mucuna pruriens* (L.) DC.(035785); *Senna tora* (L.) Roxb. (035786); *Senna uniflora* (Mill.) H.S.Irwin & Barneby (035787); *Celosia argentea* L. (035788); *Heteropogon contortus* (L.) P.Beauv. ex Roem. & Schult. (037310); *Apluda mutica* L. (037311); *Sehima nervosum* (Rottler) Stapf (037312); *Dichanthium foveolatum* (Delile) Roberty (037313); *Vigna trilobata* (L.) Verdc. (037314); *Dicoma tomentosa* Cass.(037315); *Chamaecrista absus* (L.) H.S.Irwin & Barneby (037329); *Cyperus difformis* L. (037330); *Nyctanthes arbor-tristis* L. (037331); *Trichodesma zeylanica* (Burm.f.) R. Br. (037343); *Ceropegia bulbosa* Roxb. var. *bulbosa* (037352); *Lantana wightiana* Wall. ex Gamble (037377) and *Celastrus paniculatus* Wild. (037378).

Dr. Ramesh Kumar identified 20 plant species collected from Navsari District, Gujarat.

Dr. M.K. Singhadiya, Botanist and Ravi Prasad identified 18 plant species collected from Flora of Sariska Tiger Reserve, Alwar District, Rajasthan.

Dr. S.L. Meena, Scientist 'D', Identified 25 plant species collected from Flora of Jambughoda Wildlife Sanctuary, Gujarat.

Lecture delivered

Dr. Ramesh Kumar, Scientist 'D' delivered a lecture on "Plant diversity-Sustainable utilisation" on 22.12.2018 on invitation of Prof. Rajendra D. Shinde, Principal, St. Xavier College, Mumbai.

Dr. C.S. Purohit, Scientist 'B' delivered a lecture on "Present status and conservation of Threatened plants of Indian Desert" at conference hall of St. Xavier College, Mumbai on 22.12.2018.

– Sri Vinod Maina
Scientist 'D' & HoO

CENTRAL REGIONAL CENTRE, ALLAHABAD

For the project, 'Studies of fossil and living plants with reference to the impact of climate change on flora of Gangetic Plains and Central India', data on detailed taxonomic description and key of two taxa viz., *Ludwigia octovalvis* subsp. *octovalvis* and *Ludwigia octovalvis* subsp. *sessiliflora* was prepared and shared with BSIP. A tour was undertaken to the BSIP, Lucknow for study of fossil and present pollen slides of *Ludwigia* L. in India. Completed pollen description based on LM, SEM and confocal microscopy. Comparative studies of seven living species of the genus and two fossil specimens, Copropollinitis (65 mya) and Karewa fossil pollen (2.5 mya) completed. The results are summarized and affinities drawn.

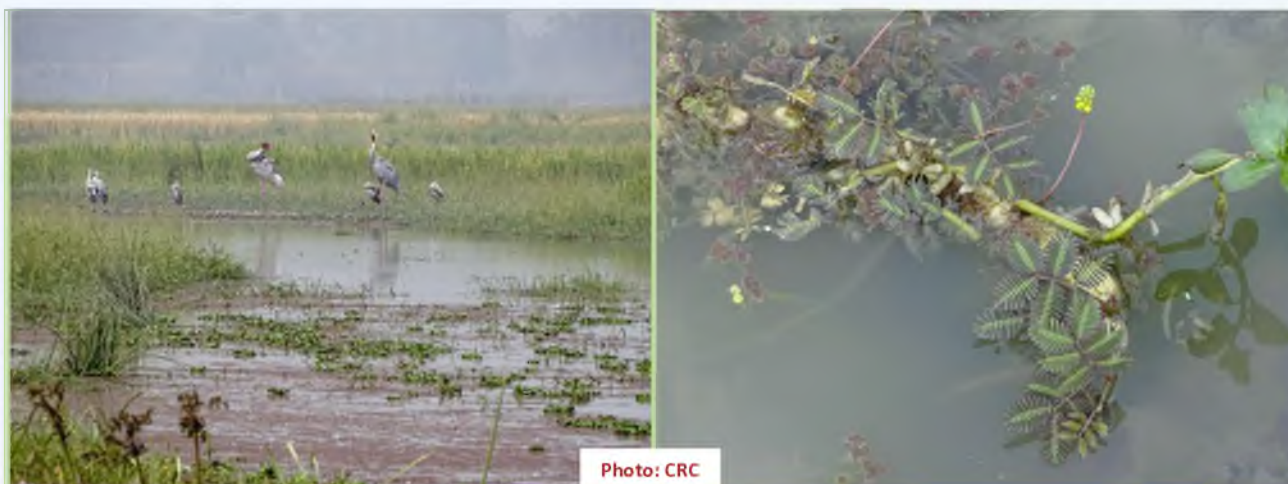


Photo: CRC

Avian Fauna in Alwara Wetland (left); *Neptunia oleracea* Lour. - a floating herb in Alwara Wetland (right)

For the project 'Floristic diversity of Alwara wetland, Kaushambi district, 25 species collected earlier from Alwara wetland area, Kaushambi were identified.

For the project, 'Cytotaxonomical studies of selected taxa of Indian subtribe *Cassiinae*', karyotypic studies in *Senna occidentalis* (L.) Link; *Senna alata* (L.) Roxb; *Senna tora* (L.) Roxb. and *Senna obtusifolia* (L.) Irwin & Burney are in progress. Compilation of cytological data of worked out species of subtribe *Cassiinae* (10 species) has been completed.

For the project, 'SEM studies of the species belonging to family Acanthaceae (available at BSA)', leaf epidermal biology of 3 species of *Barleria* L. viz., *B. cristata* L., *B. prionitis* L. and *B. gibsoni* Dalz. were studied using epidermal peel under compound microscope and tabulated different epidermal features under SEM. Comprehensive description of epidermal features of the above species has been completed.

For the project, 'Ex situ conservation of Endemic, threatened and economic plant species in the associated garden of CRC' and documentation of phenological data on flowering and fruiting every month, phenological stages (criteria-wise) of 100 plant species were recorded.

For the project, 'Taxonomic and phylogenetic reassessment and revision of the genus *Phaeographis* and allied genera in the family Graphidaceae (lichenized fungi: Ascomycota) of India', a lichen collection tour was undertaken to Meghalaya, Arunachal Pradesh and Assam from 19th November to 8th December 2018 during which ca 250 lichen specimens were collected. Following species were identified: *Glyphis scyphulifera* (Ach.) Staiger (10751 BSA), *Glyphis cicatricosa* Ach. (10659, 10763 BSA), *Pallidogramme divaricoides* (Sirt.) Pushpi Singh & Kr.P.Singh (10687, 10712 BSA) and *Thelotrema porinaceum* Mull. Arg. (10546 BSA).

A total of 40 specimens were identified in connection with the project, 'Identification of old unidentified specimens of BSA'.

Seminar attended

Sri Vineet Kr. Singh, Bot. Asst. attended one day National seminar on 'Present Scenario of Environmental challenges and Issues' at C.M.P. P.G., College, Prayagraj on 16.12.2018.

Green Skill Development Programme (GSDP) Certificate Course

All officers and scientific staff imparted training to the GSDP participants through series of lectures.

Publications

Garg, A. 2018. Migration route of *Trifolium tomentosum* L. (Fabaceae) in Bhoj Ramsar Site of Madhya Pradesh, India. *Geophytology* 48(2): 99–102.

Tiwari, A.P. and Garg, A. 2018. Four New records of Angiosperms for Uttar Pradesh. *Indian J. Forest.* 41(3): 311–313.

Verma, S., Maurya, O.N. and Verma, A.K. 2018. Medicinal Plants: Green Elixir for Cancer Treatment'. In: A.K. Awasthi, A.K. Singh and A. Sharma (Eds.). Dynamics of Ecosystem and Climate Change in India. 295–307.

Singh, V. 2018. *Fagonia schweinfurthii* (Hadidi) Hadidi ex Ghafoor (Zygophyllaceae) - An Addition to the flora of Uttar Pradesh, India. *Indian J. Forest.* 41(3): 291–292.

– Dr. G.P. Sinha
Scientist 'E' & HoO

EASTERN REGIONAL CENTRE, SHILLONG

One field tour was conducted from 21st to 25th December, 2018 in Assam and Arunachal for collection of endemic species viz, *Pyrenaria barringtoniifolia* and *P. khasiana* var. *lakhimpurensis* for the project "DNA barcoding and Phylogenetic analysis of 20 selected endemic plant species of Northeast India and Phytochemical Screening of 11 medicinal Plants" by Dr D. Vijayan, Scientist 'C' and Dr. D.K. Roy, Botanist.

Herbarium consultation tour to ARUN (24.12.2018) was carried out by Dr. D.K. Roy for Flora of India Project, "Vol. 20. Acanthaceae: Genus *Strobilanthes* of North-Eastern India and Himalaya" (ca 70 spp.). Total 16 species of *Strobilanthes* were recorded and 92 specimens were examined.

Identification of herbarium specimens

For the project, 'Flora of Nagaland' (Vol. I & 2) by Dr. N. Odyuo, Scientist 'D', and Dr. D.K. Roy 10 species were identified.

25 specimen identified for project, "Flora of West & South-West Khasi hills district, Meghalaya with reference to the sacred groves" by Dr. Chaya Deori, Scientist 'D' and Dr. S.R. Talukdar, Bot. Asst.

For the project 'Genus *Riccia* (Marchantiophyta) in India' by Dr. S.K. Singh, Scientist 'D' identified 14 samples of *Riccia* collected from Tamil Nadu; confirm the identity of five species of *Riccia* received from Dr. Manju, Kerala and also 15 samples belong to 15 species of liverworts from Nagaland.

For the project, "DNA barcoding and Phylogenetic analysis of 20 selected endemic plant species of Northeast India and Phytochemical Screening of 11 medicinal Plants" Dr. D. Vijayan and Dr. D.K. Roy, Qualitative phytochemical analysis of *Pyrenaria camelliflora* (fruits) and *Clerodendron indicum* (mature stem) have been completed to check the presence of bioactive compounds (proteins, carbohydrates, flavonoids, saponins, glycosides, phenols and tannins, steroid and terpenoid) using standard methodologies.

For the project, 'Diversity and phylogeny of aquatic fungi from Northeast India' by Dr. Ashish Venkatesh Prabhugaonkar, Scientist 'C' received sequences of proposed new genus *Deejebhatia bambusae* from RFDI at RGCB Trivandrum, further analysis of sequences is in progress. Maintained and observed aquatic fungal cultures obtained from field trips earlier.

For the project, 'Red Listing of Orchids of Eastern Himalaya as per IUCN criteria' by Dr. David Lalsama Biata, Scientist 'B' is working on 306 taxon data sheets to finalize different components including synonyms, taxonomic history (citation), phenology, habitat, distribution (global and Indian context) and exsiccata and Finalized taxonomic descriptions of six species viz., *Androcorys josephii*, *A. monophylla*, *Bhutanthera albomarginata*, *B. alpina*, *Diplomeris josephii* and *D. pulchella*.

For the project, 'Ex-situ conservation of Endemic, threatened and economically important plants of the region and recording phenological data on flowering and fruiting of species growing in the Garden' observed and recorded phenological data of flowering and fruiting of 49 plant species which are available in the garden by Sri L.R. Meitei, Bot. Asst.

Conference/workshop attended/lecture delivered

Dr. Dilip Kr. Roy delivered a lecture on 'Taxonomic novelties in the family Asparagaceae from northeast India' on 04.12.2018, during the workshop on "Angiosperm Taxonomy, Bio-resource conservation and its utilization" from 3rd to 7th December 2018 at Indian Institute of Entrepreneurship, Guwahati .

Dr. Deepu Vijayan presented a paper entitled, "Phytochemical Screening and GC-MS Analysis of Leaf Extract of *Aristolochia saccata* Wall." and Dr. Ashish V. Prabhugaonkar presented paper entitled 'Study on diversity of micro-fungi in Meghalaya using traditional and modern molecular phylogenetic approach' in secession 'Taxonomy, botanical and allied biological science research' in 'International Conference on Climate Change, Biodiversity and Sustainable Agriculture (ICCBSA-2018) from 13th to 16th December 2018, organised by Assam Agricultural University at Jorhat, Assam.

– Dr. N. Odyuo
Scientist 'D' & HoO

SOUTHERN REGIONAL CENTRE, COIMBATORE

Dr. K.A.A. Kabeer, Scientist 'D' and Sri A. Ravi Kiran, Bot. Asst. conducted a botanical exploration from 5th to 13th December 2018 at Kodaikanal WLS, Tamil Nadu and vouched specimens of 87 field numbers. They also completed identification of specimens for 20 field numbers.

Sri Balaji, JPF and Sri Hariharan, JPF conducted a botanical exploration from 3rd to 10th December 2018 at Agamalai Hills of Theni District and collected and introduced 11 plant species into the National Orchidarium & Experimental Garden (NO & EG), Yercaud.

Dr. S. Arumugam, Bot. Asst. conducted a botanical exploration from 14th to 22nd December 2018 at Gulf of Mannar Biosphere Reserve, Ramanathapuram, Tamil Nadu and vouched 40 field numbers and completed description of five species of Cyperaceae.



Caulerpa sertularioides



Memecylon sisparsense (Melastomataceae)



Photo: K.A.A. Kabeer

Strobilanthes consanguineus (Acanthaceae)



Photo: A. Ravi Kiran

Taeniophyllum alwisii (Orchidaceae)

Identification of herbarium specimens

Sri Rakesh G. Vadhyar, Bot. Asst. completed identification of 49 field numbers from Kanniyakumari WLS, Tamil Nadu. Dr. C. Murugan, Scientist 'E' and Dr. S. Arumugam, Bot. Asst. completed identification of specimens for 50 field numbers from Megamalai WLS, Tamil Nadu. Dr. R. Manikandan, Scientist 'D' and Ms. R. Mehala Devi, Sr. Pres. Asst. completed identification of specimens for 58 field number from Cauvery North WLS, Tamil Nadu. Dr. M. Palanisamy, Scientist 'D' and Dr. S.K. Yadav, Botanist, completed identification of 32 species and taxonomic description of 10 species of seaweeds from Goa coast and collected 8 references pertaining to the study area. Dr. M. Murugesan, Scientist 'B' is involved in updation of families Altingiaceae, Sonneratiaceae, Crypteroniaceae, Punicaceae, Trapaceae, Caricaceae, Datisceae for Flora of India Vol. 10. (ca. 22 species) and updated one species i.e. *Sonneratia griffithii* as per Flora of India format.

Ex-situ conservation

Dr. S. Kaliamoorthy, Scientist 'D', Dr. M. Y. Kamble, Scientist 'D' and his team multiplied 69 plants belonging to 18 taxa, developed 34 seedlings of 8 taxa, 52 cuttings of 4 taxa and recorded the phenological data of 30 plants, including 19 orchids and 11 other angiosperms at NO & EG, Yercaud.

Research students

Sri Basil Paul, JPF completed descriptions for seven taxa, belonging to the family Bignoniaceae. consulted herbarium and referred various books/journals pertaining to the study area. Delivered classes on "Introduction to Traditional Indian Medicinal System" to GSDP on 21.12.2018. Sri P. Murugan, JPF completed descriptions for five taxa of *Jasminum* and consulted herbarium and referred various books/journals pertaining to the study area. Ms. M. Uma Maheshwari, JPF completed descriptions for six species of Moraceae (*Ficus amplissima* J.E. Smith, *F. arnottiana* (Miq.) Miq., *F. beddomei* King, *F. benghalensis* L., *F. benjamina* L., *F. callosa* Willd. Consulted herbarium and prepared database for Flora of Nilambur. Sri M. Sulaiman, JPF completed descriptions for 20 species of Orchidaceae and consulted herbarium and referred various books/journals pertaining to the study area. Delivered classes on "Introduction to Economic Plants (Special Reference with Fodder Species)" and "Introduction to sacred groves" to GSDP on 11.12.2018 and 14.12.2018.

Scanning Electron Microscopy (SEM)

Ms. R. Mehala Devi and Ms. M. Ananthalakshmi, Sr. Pres. Assts., compiled manuscript for Tribe Cyperae (*Cyperus*-40 species, *Kyllinga*-6 species and *Pycnus*-10 species) based on SEM study. Dr. S. Kaliamoorthy and Dr. T.S. Saravanan collected the pollinia from 6 species of orchids and fixed into FAA for further SEM studies.

Lead Garden Project at NO&EG, Yercaud—Micro/vegetative propagation of Target plants

Micropropagation as well as vegetative propagation of the 5 plants (*Vernonia shevaroyensis* Gamble; *Crotalaria shevaroyensis* Gamble; *Canarium strictum* Roxb.; *Coelogyne nervosa* A. Rich. and *Xenikophyton smeeanum* (Rchb.f.) Garay, *Aerides crispa* and *Paphiopedilum spiceranum*) were carried out at NO & EG, Yercaud. Besides, under vermiculture procedure, cow dung were collected and diluted with water and sprayed into the organic waste materials for semi digestion process, which is again used to feed the earthworm for multiplication.

Green Skill Development Programme

The inaugural ceremony of Green Skill Development Program (GSDP) Para-taxonomy including People's Biodiversity Register was held on 03.12.2018 at SRC, BSI, Coimbatore. During the months, several lectures, practical classes and field visits to the nearby forest areas were undertaken by the scientific personnel of this centre.

Dr. M. Palanisamy delivered a plenary lecture was taken on Major ecosystem (Wetlands & Desert) for the trainees of GSDP: Para-taxonomist on 04.12.2018.

Dr. M. Murugesan, Scientist 'B' delivered a lecture to GSDP trainees on Phyto-geographical Regions of India, Endemism in India with special emphasis on flowering plants and 2018 Introduction of tribal communities in India on 05.12.2018, 07.12.2018 and 13.12.2018 respectively.

Dr. S.K. Yadav, Botanist delivered a lecture on "A Taxonomic Approach of Research on Marine Macro Algae" and with the assistance from Mr. Aron Santhosh Kumar, JPF and Mr. S. Vivek, Research Scholar, made demonstration on herbarium techniques for preparation of marine algal herbarium to the trainees.



Photo: SRC



Inauguration of Certificate Course on Parataxonomy including Peoples Biodiversity Register and plantation programme during the inaugural programme at SRC, BSI on 03.12.2018



Photo: SRC



Guest lectures delivered to GSDP Trainees



Photo: SRC



GSDP trainees during their plant collection to Nilgiri Mountain



Photo: SRC



GSDP trainees during plant collection to Vellingiri (left) and field visit to Valaprai, Anamalai Tiger Reserve (right)

Public service rendered

Identified 81 plant species for the students/research scholars of various institutions.

Ms. R. Mehala devi and Ms. M. Ananthalakshmi, Sr. Pres. Assts. delivered lectures on Herbarium techniques to 50 students from Kerala University and 13 students from TNAU.

Meetings/training/seminar attended

Dr. C. Murugan participated one day National Workshop on Biodiversity and Restoration of Mangroves organized by CAS in Marine Biologoy, Faculty of Marine Sciences, Annamalai University, Parangipettai, Chidambaram, Tamil Nadu and delivered lecture on Taxonomy of Angiosperms & Herbarium Technique and Diversity of Mangroves of Andaman & Nicobar Islands on 14.12.2018.



Photo: SRC

Inauguration ceremony of National Workshop-Cum-Hands on Training on Marine Macro Algal Taxonomy at SRC, BSI, Coimbatore on 21.12.2018

Dr. M. Palanisamy organized the one day “National Workshop-Cum-Hands on training on Marine Macro Algal Taxonomy” on 21.12.2018 at SRC, BSI, Coimbatore, sponsored by MoEF & CC, New Delhi under AICOPTAX Project entitled, “Study of Diversity of Marine Macro Algae of Andhra Pradesh”. A total of 50 participant participated in the workshop. The forenoon session was performed with five invited special lectures on marine macro algae and afternoon session with hands on training on collection, preservation and preparation of herbarium, observation & illustrations of morphological & anatomical characters based on microscopic observations.

Ms. R. Mehala Devi, Sr. Pres. Asst. attended two days Training on ‘Characterization of Forest Genetic Resources and its Conservation’ at IFGTB on 18 & 19.12.2018.

Visitors/students

During this month, 76 scientific personnel/officials/students/scholars visited the museum, herbarium and library of this regional centre whereas 195 persons in 33 parties are visited the NO & EG, Yercaud.

Publications

Franklin Benjamin, J.H. and Vadhyar, R.G. 2018. *Julostylis* (Malvaceae): A New Generic Record for Tamil Nadu. *Indian J. Forestry* 41(3): 269–271.

Kaliamoorthy, S. and Saravanan, T.S. 2018. *Cheirostylis parvifolia* Lindl. (Orchidaceae): An addition to the flora of Palakkad District, Kerala. *Indian J. Forestry*. 41(3): 303–305.

Manikandan, R., Murugan, C., Mehala Devi, R. and Nithya, S.P. 2018. “Contribution to the Flora of Sonanadi Wildlife Sanctuary Uttarakhand-II (Monocotyledons)”. *Indian J. Forestry* 41(3): 235–240.

Sudhakar, J.S., Arumugam, S. and Murugan, C. 2018. *Psidium cattleyanaum* (Myrtaceae): Naturalised edible species in Agasthiyamalai Biosphere Reserve, India. *Indian J. Forestry* 41(3): 287–289.

– Dr. C. Murugan
Scientist ‘E’ & HoO

WESTERN REGIONAL CENTRE, PUNE

Dr. Priyanka Ingle, Scientist 'B' identified specimens of 10 field numbers for the project, "Floristic diversity of Wan Wildlife Sanctuary, Maharashtra".

Sri D. Jesubalan, Bot. Asst. identified specimens of three field numbers for the project, "Pteridophytic flora of Pushpagiri Wildlife Sanctuary, Karnataka with 10% periphery".

Dr. Rashmi Dubey, Scientist 'E' identified seven species for the project, "Taxonomic Studies of Micro fungi of Sanjay Gandhi National Park along with its 10% peripheral area".

Public service rendered

During this month 38 plant specimens identified and issued authentication certificates to students from B. Pharm, M. Pharm. colleges, Ph.D. and P.G. students from different institutions.



Dr. P. Lakshminarasimhan, Scientist 'E' & HoO in the interactive meeting on coastal and marine ecosystem resilience of Government of India-UNDP/GEF project in Sindhudurg, Maharashtra

Meeting/camp/workshop attended/talk delivered

Dr. P. Lakshminarasimhan, Scientist 'E' & HoO attended the 14th meeting of Maharashtra State Board for Wildlife on 05.12.2018 in the Committee Chamber of Honourable Chief Minister of Maharashtra State.

Dr. P. Lakshminarasimhan and Sri Shrikant Godake, JPF attended the interactive meeting on coastal and marine ecosystem resilience of Government of India-UNDP/GEF project in Sindhudurg, Maharashtra on 11th and 12th December 2018.

Dr. P. Lakshminarasimhan attended the Inaugural Session on 25.12.2018 of DST Supported "Inspire Internship Camp" as Chief Guest held during 25th to 29th December 2018 at Sri Shivaji Science College, Amravati for 150 meritorious students pursuing science education in XI standard. Dr. Lakshminarasimhan also gave an Induction talk on "Biological Research as Profession".

Dr. P. Lakshminarasimhan gave a talk on "CITES and Plants" during the workshop on "Hands-on training in Plant Taxonomy" held on 29.12.2018 in Department of Botany, Y.C. Institute of Science, Satara (organised by NGCPR and Y.C. Institute of Science) comprising of graduate, post graduate and Botany students from all colleges of Satara District.

Visitors/students

Four research scholars from Agharkar Research Institute, Pune visited WRC for herbarium consultation. One representative of Pharma company consulted the WRC herbarium for identification of plant specimens.

Publication

Patil, S.C. and Lakshminarasimhan, P. 2018. A new record of the Malay Cardamom *Amomum aculeatum* Roxb. (Zingiberaceae) for mainland India. *J. Threatened Taxa* 10(13): 12850–12853.

– **Dr. P. Lakshminarasimhan**
Scientist 'E' & HoO



Glimpses of training imparted to the trainees during Certificate Course on "Parataxonomy including People's Biodiversity Register (PBR)" under Green Skill Development Programme at Central National Herbarium, Botanical Survey of India, Howrah

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

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Published by The Director I/c, BSI, Kolkata
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