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From Director's Desk

Natural and clean environment is essential for the existence of biodiversity, either directly or indirectly. However, in recent decades, due to various anthropogenic activities there is significant decline in the quality of environment across the globe. Therefore, in order to raise awareness about protecting it, every year 5th June celebrated as "World Environment Day" as has been designated by the United Nations.

Every World Environment Day has a different global host country, where the official celebrations take place. India is the global host this year and the theme is 'Beat Plastic Pollution'. Theme invites everyone to consider how they can make changes in their everyday lives to reduce the heavy burden of plastic on our ecosystems, our wildlife and our own health. In fact BSI designated AJC Bose Indian Botanic Garden as plastic free zone on May 2003.

In recent years, significant progress has been achieved in the development of bioplastics as replacement for single use plastic. Bioplastics are derived from renewable biomass sources. Western countries have succeeded in the development of biodegradable products based on agricultural wastes. One of the most studied and promising raw materials for the production of biodegradable plastics is starch, a

natural renewable carbohydrate polymer and an easily available low cost material.

In India, biodegradable plastics are still in their embryonic stage with very few market players operating in this segment because of low awareness. But, there is huge prospective for companies wishing to enter this market as India possesses good source of plant-based raw materials as an alternative to plastics. Recently, the Golden Temple at Amritsar introduced eco-friendly compostable carry bags in collaboration with the Punjab Pollution Control Board (PPCB), where around 15 quintal bags are required in a month.

I wish Botanical Survey of India would also play vital role in creating awareness and use of biodegradable and renewable source of plant based raw materials.

Like earlier issues, hope this issue will also be well received by its regular readers for its contents. I appreciate the efforts of entire team of ENVIS Resource Partner on Biodiversity in bringing out this informative issue.


(Paramjit Singh)
Director

Botanical Survey of India, Kolkata

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Paper Flower Climber

Botanical Name: *Getonia floribunda* Roxb. [syn. *Calycopteris floribunda* (Roxb.) Lam. ex Poir.]

Family: Combretaceae

Vernacular Names: Paper Flower Climber; Bengali: *Gaichholata*; Hindi: *Kokoray*; Kannada: *Enjarigekubsa*, *Marasadaboli*; Konkani: *Uski*; Malayalam: *Pullani*, *Pullanji*; Marathi: *Jhaal*, *Ukshi*; Odia: *Dhonoti*; Sanskrit: *Shvetadhataki*, *Susavi*; Tamil: *Pullaniwalli*; Telugu: *Murugudutige*.

General Morphology: Liana. Stems densely brown velvet-hairy in young. Leaves opposite, ovate, 9–11 x 3–6 cm, entire at margins, acuminate at apex, punctate and tomentose beneath; lateral veins 6–8 pairs, veinlets reticulate; petioles 1–1.3 cm long. Flowers in dense racemes of 5–10 x c. 5 cm, axillary, crowded into dense panicles towards apex of branches; bracts leafy, 0.6–1.2 x 0.3–0.4 cm, hispid. Calyx tube 4–5 mm long, 5-lobed; lobes elliptic, to 5 mm long, velvety, cream-coloured, accrescent. Petals absent. Stamens 10



in two whorls (5+5). Ovary inferior, 3–4 mm long, 1-loculed; ovules 3, pendulous; stigma simple. Drupes ellipsoid with 5 spreading accrescent calyx lobes, 9–10 x 2–2.5 cm, yellow, persistent. Seed solitary, 5–6 mm long.



Getonia floribunda: a. Habit; b. Profusely flowering branches; c. A flowering-twig; d. Close-up of flowers

Know your Plant

Flowering and Fruiting: Flowering observed from the month of December to February with peak blooming in January. Fruiting noticed from end of February to May.

Habitat: Common in Moist Deciduous Forest, Dry Evergreen Forest, Dry Deciduous Forest and plains.

Distribution: India (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Karnataka, Kerala, Maharashtra, Odisha, Tamil Nadu, Telangana and West Bengal) and Southeast Asia.

Uses: The bark fibre is used in rope making and the fruits and seeds are a source of organic dyes and wood used as fuel and charcoal.

Note: This liana is valued as life rescuer by the forest-dependent communities who regularly depend on this plant during summer when watercourses dry up. They cut stem obliquely on two sides and get potable water to quench the thirst. The water is slightly pungent.

Leaves are said to be astringent, laxative, anthelmintic; used in colic and applied on ulcer. Flowers and fruits are used in treating intestinal worms, colic, leprosy and diarrhoea. Leaf paste mixed with butter is useful to treat malaria. Juice from young twigs is used against diarrhoea and dysentery, and the fruits to treat jaundice. The bark is crushed with water and the juice is given to cattle suffering from worms. The leaves have also been used as cigarette paper. Wood is hard and used as handles of tools. Dried wood used as fuel. Wiry young stems used as rope for thatching. Leaves used as fodder for goats and cattle.

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Flower colour variation in *Impatiens* (Balsaminaceae)

Akiyama & al. (2009) stated that "in *Impatiens* it is very rare to have different flower colours within a single species". In this communication, the authors emphasise the insignificant taxonomic value of flower colour in the delimitation of taxa within a species in *Impatiens* through their careful observation on the colour variation in flowers of four different species of *Impatiens* which they could observe while studying the *Impatiens* of Sikkim recently. *Impatiens citrina* Hook.f., an endemic species confined to Parasuram Kund to Tidding area of Lohit district of

frequent variation in flower colour, from deep purple to pure white. First (RG) and last author (AK) have also observed flower colour variation in *I. cathcartii* Hook.f. during their exploration in different parts of Sikkim. Plants with completely creamy white flowers are found at Bhusuk, Sikkim, which are different from typical form having red-flushed or red-tinged flowers or with reddish spur or dorsal horn (Fig. e, f), which occurs in Ravangala, Pelling and Yoksam of Sikkim. The present study reveals that the flower colour does not have much taxonomic



Flower colour variation in *Impatiens*: a. Typical yellow-flowered form of *I. citrina*; b. Creamy or pale form of *I. citrina*; c. Typical yellow-flowered form of *I. racemosa*; d. White form of *I. racemosa*; e. Typical creamy red-tinged flowers of *I. cathcartii*; f. Creamy white form of *I. cathcartii*

Arunachal Pradesh, was described by J.D. Hooker in 1905 on the basis of a William Griffith's collection. During the present study at Tidding, in the same population of this species, plants with two different coloured flowers, the typical yellow-flowered form and white-flowered form, were observed (Fig. a, b). *Impatiens racemosa* DC., a species distributed in subtropical to temperate regions of China, Nepal, Bhutan and Northeast India, and commonly growing on forest margins is usually with golden yellow flowers. A gregarious population of *I. racemosa* was found on the way from Dikchu to Singtum road in Sikkim with individuals having typical yellow flowers and few other individuals with white flowers (Fig. c, d). *Impatiens arguta* Hook.f. & Thomson, a common species of Northeast India, Nepal, Bhutan, Myanmar and China, exhibits

value in delimitation of the taxa in the genus. However, it is important to know the actual phenomenon behind the colour variation in different species of *Impatiens*.

Reference

Akiyama, S., Ikeda, H. & Acharya, S.K. 2009. Studies of Sino-Himalayan *Impatiens* (Balsaminaceae) II. A new species and a new form similar to *Impatiens racemosa* DC. from Nepal Himalaya. *Bull. Natl. Mus. Nat. Sci., Ser. B* 35: 51–56.

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First record of *Helicogloea globosa* (Basidiomycota) from India

Helicogloea globosa Chee J. Chen & Oberw. is a wood-rotting corticoid fungus (bearing smooth fertile surface/hymenophore), which usually occurs on dead and decaying tree trunks and characterised by a papery thin, chalky white to yellowish white resupinate basidiomata and unique type of basidia (probasidia and metabasidia) with globose to subglobose basidiospores. During a routine macrofungal foray to Rajmahal hills of Jharkhand during 2014–2015, this interesting corticoid fungal species was collected. A diagnostic description and macro- and micro-morphological photographs of this species are given here. It is reported here as an addition to the Indian mycobiota as it has never been reported from the country hitherto (Bilgrami & al., 1991; Sorbhoy & al., 1996; Jamaluddin & al., 2004).

Helicogloea globosa Chee J. Chen & Oberw., Mycotaxon 76: 280. 2000.

Basidiomata 150–300 x 80–150 mm, annual, resupinate, widely effused, closely adnate, chalky to powdery in consistency, papery thin on drying, initially arising as small irregular patches, gradually widening in all directions and fused to form large basidiomata. Margin indistinct, sterile, floccose to fibrillose, more or less cottony when fresh, older parts entire to partially lobed to indistinct, chalky white to yellowish white. Hymenophore smooth, even, chalky white when fresh, finally ochre in older specimens. Subiculum 0.5–1 mm thick when fresh, papery thin on drying, rather dense, homogeneous, ochraceous.

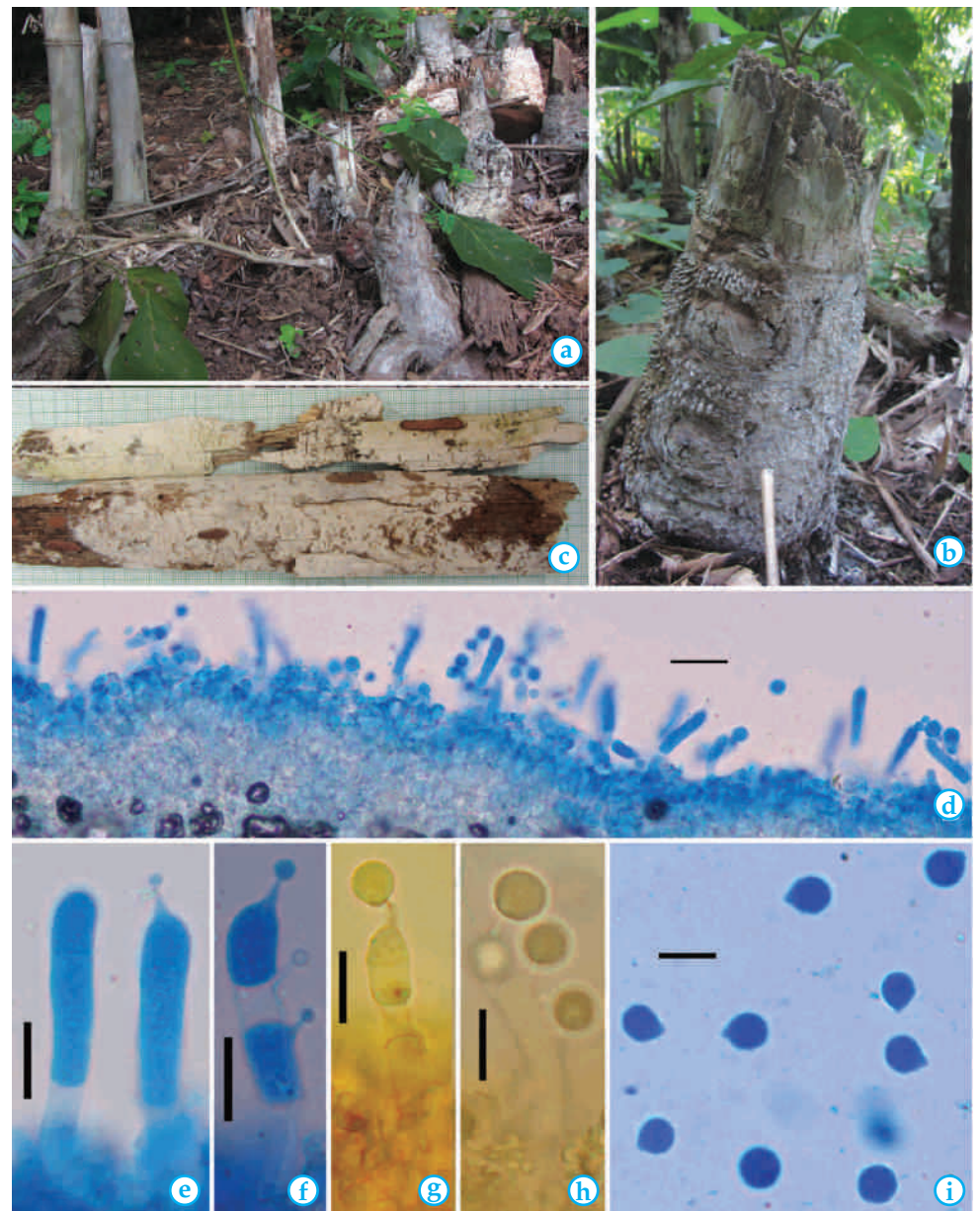
Hyphal system monomitic; generative hyphae septate, thin-walled, smooth, hyaline, acyanophilic, inamyloid. Subiculum hyphae 3–6 μm wide, swelling up to 8 μm wide in 10% KOH, thin to distinctly thick-walled (basal one), (wall up to 1 μm thick), loosely interwoven.

Hymenophore composed of basidia, probasidia and metabasidia; basidia with or without short to long stalks; probasidia clavate, 30–40 x 6–8 μm , thin to thick-walled; metabasidia narrowly clavate, 45–65 x 5–6.5 μm , smooth, hyaline. Basidiospores globose to subglobose, 8.5–10 x 8.5–9.5 μm , germinating by repetition, thin-walled, smooth, cyanophilic, inamyloid; secondary spores globose to oval, thin-walled, smooth, cyanophilic, inamyloid.

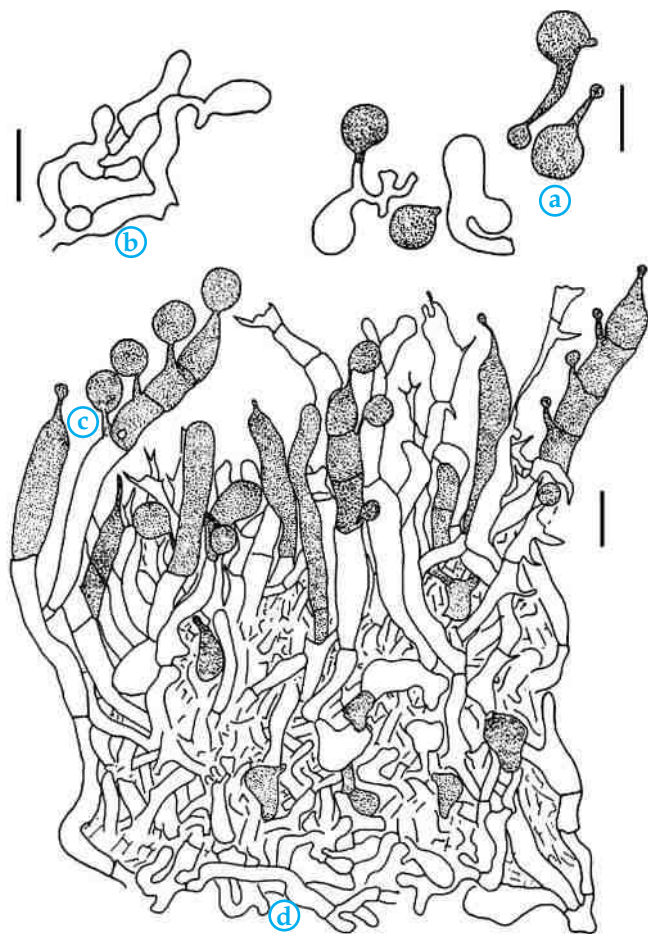
Specimens examined: INDIA, Jharkhand: Rajmahal hills, Dumka

district, Gopikandar block, Gariapani to Dumurtola, 136 m, 24°24'44.1" N –87°29'41.6" E, on the fallen decaying unknown tree trunk, 20.10.2015, *M.E. Hembrom* MEH-69925 (CAL); Rajmahal hills, Godda district, Boarijor block, Amarpur-Puriabandar, 369 m, 25°00'07.1" N–87°27'49.2" E, on the dead stump of bamboos, 8.9.2014, *M.E. Hembrom*, MEH-66449 (CAL).

Note: Genus *Helicogloea* Pat. shares similar habit and habitat with other corticoid macrofungi and characterised by widely effused,



Helicogloea globosa: a. Habitat; b. Habit; c–d. Section through hymenophore; e–h. Developing basidia; i. Basidiospores [scale bars: d = 50 μm ; e–i = 10 μm]



Helicogloea globosa: a. Developing basidiospores and secondary basidiospores; b. Hyphae; c. Basidia; d. Section through basidiomata showing arrangement of hyphae and basidia [scale bars: a–d = 50 µm]

resupinate basidiomata. However, when microscopically examined, it shows peculiar features including variable thickness of basidiomata in sections, gelatinous subhymenium, probasidia with lateral sacs and usually stalked metabasidia (Baker, 1936; Chen & Oberwinkler, 2000). In the present study, this species was found causing

rot on angiospermic woods of both monocot as well as dicot trees. Till now 27 valid species of *Helicogloea* have been reported worldwide and only one species *H. indica* M.S. Patil, Kund. & Nanaware [as per Art. 40.1 (Melbourne) nom. inval.] is known from India (www.indexfungorum.org). Present collections are on conformity (macro- and micro-morphology) with the only known Taiwan (Asia) based type material (Chen & Oberwinkler, 2000). But, the occurrence of present Indian collections from tropical eastern regions of India (Rajmahal hills) is showing its wide range of distribution in different climatic zones of Asia.

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Report on the National Level Workshop on Herbarium Techniques and Plant Nomenclature

The National Level Workshop on Herbarium Techniques and Plant Nomenclature was organised at Ramakrishna Mission Vivekananda Centenary (RKMVC) College, Rahara, Kolkata, in collaboration with BSI-ENVIS Resource Partner on Biodiversity and Central National Herbarium (CNH), Botanical Survey of India (Ministry of Environment, Forest and Climate Change, Government of India) on 22nd and 23rd February, 2018. The resource persons for the workshop were Dr. V. Sampath Kumar, Scientist 'D',

CNH, BSI & ENVIS Coordinator; Dr. Subir Bandyopadhyay, Scientist 'B', BSI (Hqrs.), Howrah; Dr. Avishek Bhattacharjee, Scientist 'B', CNH, BSI and Dr. Sangita Das Chowdhury, AJCB-PDF, BSI (Hqrs.), Howrah.

A total of 87 participants attended the workshop. Forty-four were students of M.Sc. programme from RKMVC College (Autonomous), Barasat Government College (West Bengal State University); Srerampore College (University of Calcutta), Burdwan University and Vidyasagar University, West Bengal. Fourteen

were research scholars from University of Madras, Chennai, Tamil Nadu; Regional Plant Resource Centre, Bhubaneswar, Odisha; National Research Institute of Ayurvedic Drug Development (NRIADD), Kolkata; Uttar Banga Krishi Viswavidyalaya, Kochbehar; University of Calcutta; Vidyasagar University, Midnapore; and Gour Banga University, Malda, West Bengal. The rest of them were Lecturers and Assistant Professors from different Colleges of Odisha and West Bengal, an Associate Professor

from Gour Banga University, Malda and Research Scientists from Directorate of Cinchona and other Medicinal Plants, West Bengal.

Swami Kamalasthananda, Principal, RKMVC College inaugurated the workshop, after a brief introduction about the workshop by Dr. Biswajit Roy, Assistant Professor and Convener of the workshop. Dr. V. Sampath Kumar, BSI and Dr. Biswajit Ghosh, Coordinator, P.G. Department of Botany, RKMVC College, appraised the workshop and its implications. On the first day of the workshop, the students were taught the method of plant collection and processing of plant specimens. Dr. Subir Bandyopadhyay delivered a lecture on herbarium techniques. A film on collection and processing of plant specimens and the technique of making herbarium sheets was also shown to the students for better understanding of the techniques. The processing of plant specimens and preparation of herbarium sheets were demonstrated by Sri Alope Kumar Mukherjee, a retired BSI official. Thereafter, a lecture on "History of the Code of Botanical Nomenclature" was delivered by Dr. V. Sampath Kumar followed by lectures on "Elementary Knowledge of ICBN/ICN and its Principles" by Dr. Sangita Das Chowdhury, "Different Kinds of Names" by Dr. Avishek Bhattacharjee

and "Categories and Hierarchy" in classification of plants by Dr. V. Sampath Kumar were also delivered. On the second day, four lectures were delivered by the resource persons: "Effective and valid publication" by Dr. Avishek Bhattacharjee, "Typification of Plant Names" by Dr. Subir Bandyopadhyay, "Author Citations" by Dr. V. Sampath Kumar and "Principles of Priority and its Limitation" by Dr. Sangita Das Chowdhury. The students actively interacted with the resource persons during the presentations. The printed course materials were provided to all the participants. The resource persons also shared their presented lectures (as PDF files) with the participants. An examination was conducted and seven participants jointly secured first position and ten participants jointly secured second position. The filled feedback forms were received from the participants.

During the valedictory function Swami Vedanurananda, Controller of Examinations, faculty members of RKMVC College, the resource persons of the workshop and staff of the BSI-ENVIS Resource Partner awarded the certificates to the participants. The participants expressed that they were immensely benefited by attending the workshop. They were also enthusiastic to acquire more information and knowledge on the

importance of herbarium and plant nomenclature and they also wished to impart the acquired knowledge in their research and teaching career.

All the participants were impressed with the various facilities, the smart classrooms and well-equipped laboratories with sophisticated instruments for research that are available at the P.G. Department of Botany, RKMVC College. On behalf of the Department, Dr. Biswajit Ghosh, Coordinator, Department of Botany extended hands of collaboration to all to utilise the available facilities for research work. On behalf of organisers, Swami Vedanurananda expressed his sense of gratitude to Dr. Paramjit Singh, Director, BSI, for his kind consent to organise this workshop. He was grateful to Dr. P.V. Prasanna, Scientist-in-Charge, CNH, BSI, Dr. V. Sampath Kumar, Scientist-in-Charge, BSI-ENVIS Resource Partner, as well as all the resource persons and members of ENVIS Resource Partner, for successfully organising the workshop. He also emphasised the importance of this kind of collaborative programmes and proposed vote of thanks.

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Report on Green Skill Development Programme – Advanced Course for Parataxonomist (Floral Diversity)

The students, who had successfully completed the Biodiversity Conservationist course (for details see previous issue of this Newsletter, 22(2): 5. 2017) were given the opportunity either to select the Advanced course in 'Floral Diversity' or in 'Faunal Diversity' in 6 centres, where the BSI and ZSI are situated in the same city. In three centres namely Allahabad, Coimbatore and Gangtok, the students continued the 'Floral Diversity' course, whilst in Calicut, they continued 'Faunal Diversity' course. In each centre, a total of 10 trainee students were accommodated by filling up the rest of the trainee students with a minimum qualification of B.Sc. in Bioscience. Like Biodiversity Conservationist course, the total hour for this course was also 420 hrs. The modules for

Floral Diversity course are: Plant diversity (35 hrs), Collection and identification of different plant groups (105 hrs), Processing and preservation of plant specimens – Herbarium techniques (35 hrs), Eco-restoration of natural habitats (35 hrs), *in situ* and *ex situ* conservation (70 hrs), Gathering of pertinent information from Library and Internet (35 hrs) and GRIDSS & GIS including hands on training (105 hrs.). During this three-month course, the scientific officials and research students of BSI imparted the training to the students. Apart from that some resource persons from different universities, colleges and research institutions were invited to deliver the lectures and to conduct practical classes in specific subjects. As the theory and practical classes were

conducted simultaneously, the trainee students have learnt the subjects satisfactorily.

The exams in theory and practical were conducted after completion of the prescribed course hours. The theory exam for 100 marks (pass mark 50) and practical exam for 75 marks (pass mark 40) and 25 marks viva-voce were conducted and evaluated by an scientific official, who did not serve as an resource person for the GSDP course. For the successful candidates the course completion certificates were distributed during the valedictory function.

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Report on the Celebration of World Wetland Day, 2018

On 2nd February 2018, the ENVIS Resource Partner, Botanical Survey of India (BSI) in collaboration with Central National Herbarium (CNH), BSI, Howrah, celebrated the World Wetland Day on this year's theme, "Wetlands for Sustainable Urban Future". The programme started with the welcome speech by Dr. P.V. Prasanna, Scientist 'F' & HoO, CNH. Dr. Paramjit Singh, Director, BSI in his address expressed the need of wetlands and involvement of students for sustainable urban future. Dr. P.M. Padhye, Scientist 'F', BSI (Hqrs.), Dr. B.K. Sinha, Scientist 'F', BSI (Hqrs.) and other scientists and scientific staff were present during

the celebration. Four teachers and twenty students from BE College Model High School, Howrah and Thanamakhua Model High School, Howrah participated in the programme. Altogether about 110 persons attended the programme. Dr. Animesh Maji, Senior Project Fellow, CNH, BSI, delivered a lecture on "Importance of Wetlands" in Bengali, and Dr. Kumar Avinash Bharati, delivered a lecture on "Significance of Wetlands" in Hindi. Drawing competition was conducted for the students near the lakes of Acharya Jagadish Chandra Bose Indian Botanic Garden (AJCBIBG). During the Valedictory Session prizes to the

winners and participation certificates to all students were distributed. Students and teachers shared their opinions and thanked ENVIS Resource Partner and BSI for organising the programme. The programme concluded with the vote of thanks by Dr. M.U. Sharief, Scientist 'E' & HoO, AJCBIBG. The entire programme was coordinated by Dr. V.P. Prasad, Scientist 'D', CNH, BSI with assistance from colleagues of all units of BSI in Howrah and Kolkata.

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Report on the Celebration of International Day for Biodiversity, 2018

The International Day for Biodiversity 2018 was celebrated at Central National Herbarium, BSI, Howrah, in a befitting manner on 22nd May 2018. Dr. Jose T. Mathew, PCCF (Research), Forest Department, Government of West Bengal, Kolkata was the Chief Guest. The function was attended by the Director, BSI, Scientists and other scientific officials, Research Scholars, Research Associates and AJC Bose PDFs of BSI. Students from University of Calcutta, University of Burdwan and Vidyasagar University in West Bengal were also attended

the function along with their Assistant Professors. Altogether, 120 participants attended the programme.

After the inaugural function, the Chief Guest delivered the lecture on "Biodiversity on Forester's Perspective" followed by seven lectures on biodiversity related themes were delivered by the scientific officials of BSI, which include the last lecture on Role of BSI in conserving biodiversity in the last 25 years by the Director, BSI. A short film on BSI's new initiatives and another on thermal algae in

Jharkhand were also shown to the participants on this occasion.

A quiz was also conducted in which the students from universities and research scholars and research associates of BSI had participated. The function was concluded with the distribution of prizes to the winners of the quiz competition and certificates to all the student participants.

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Medicinal uses of *Pteris* (Pteridaceae) in India

Ferns and their allies, collectively known as Pteridophytes, are non-flowering vascular plants. Pteridophytes are used by human society for different socio-economic purposes from time immemorial. Many pteridophytes are also used in the treatment of several ailments since ancient time. The medicinal qualities of ferns are also mentioned as early as 300 BC by the Greek philosopher, Theophrastus (Corne, 1924). Among Pteridophytes, Pteridaceae are one of largest families with the dominant genus *Pteris* L. The cosmopolitan genus comprises c. 280 species (Copeland, 1947). In India,

it is represented by c. 60 species, and a dozen of subspecies and a few cultivars (Fraser-Jenkins & al., 2017); some of them are exotic and naturalised.

Species of *Pteris* possess various medicinal properties. The two major treatises of Ayurveda namely Charaka Samhita and Sushruta Samhita also include the medicinal properties of some species of *Pteris*. In modern time, several Indian ethnobotanists and pteridologists have also documented the medicinal properties of different species of *Pteris* from India. Medicinal uses of some species are provided below.

No.	Name of the species	Parts used	Medicinal uses
1	<i>Pteris aspericaulis</i> Wall. ex J. Agardh [English: Himalayan prickly brake; Nepali: <i>Thare Uniyo</i>]	Rhizome, tender shoots and leaves	Tender shoots used as antibiotic against pneumonia; mixture of rhizomes of this species, roots of <i>Rubus ellipticus</i> Sm. and bark of <i>Phanera vahlii</i> (Wight & Arn.) Benth. are grounded and juice is extracted; one teaspoon full juice is taken twice a day with hot water for seven days to cure the piles and dysentery (SMPB, 2009); antiseptic and blood coagulant properties are reported by Dash & al. (2003).
2	<i>Pteris biaurita</i> L. [English: Thin leaf brake; Nepali: <i>Thare Uniyo</i>]	Fronds and rhizomes	Fresh fronds applied on cuts and bruises (Rout & al., 2009). Rhizome paste used as relief from body pain (Sekar & al., 2011). Crushed tender shoots are applied on wounds (Kholia, 2014).
3	<i>Pteris cretica</i> L. [English: Cretan brake fern]	Fronds	It has antibacterial and wound healing properties (Benjamin & Manickam, 2007).
4	<i>Pteris ensiformis</i> Burm.	Young fronds and rhizomes	Fresh fronds are used against dysentery; juice of rhizome is applied externally to treat glandular swellings of the neck (Benniamin, 2011).
5	<i>Pteris geminata</i> Wall. & J. Agardh	Fronds	Hypotonic, antiviral and antibacterial (Singh & Upadhyay, 2014).
6	<i>Pteris longipes</i> D. Don [Nepali: <i>Lekh Thare Uniyo</i>]		Uses as in <i>P. aspericaulis</i> (Kholia, 2014).
7	<i>Pteris multifida</i> Poir.	Fronds and Rhizomes	Given in dysentery (Mannan & al., 2008).
8	<i>Pteris quadriaurita</i> Retz.	Rhizomes	Rhizome paste is applied to take out the pus and hasten the healing of boils (Benjamin & Manickam, 2007); also used in treating irregular menstrual cycle (Singh & Upadhyay, 2014).
9	<i>Pteris spinescens</i> C. Presl [English: Himalayan spiny brake fern; Nepali: <i>Lekh Thare Uniyo</i>]		Uses as in <i>P. aspericaulis</i> (Kholia, 2014).
10	<i>Pteris tripartita</i> Sw.	Fronds	Used in childbirth; the fronds are being taken internally (Srivastava, 2007).
11	<i>Pteris venusta</i> Kunze	Fresh fronds	Fresh leaf paste (50 g) mixed with cow ghee (5 ml) is administered thrice a day for 7 days for early maturation of boils (Rout & al., 2009; Singh & Upadhyay, 2014).
12	<i>Pteris vittata</i> L. [English: Chinese Brake fern or Ladder brake]	Whole plant	It has demulcent, hypotensive, tonic, antiviral and antibacterial and wound healing and cold-relieving properties (Benjamin & Manickam, 2007); also used in treating cough and fever (Sekar & al., 2011).
13	<i>Pteris wallichiana</i> J. Agardh [English: Wallich's umbrella brake fern; Nepali: <i>Chatey unio</i>]	Fresh fronds	Stop bleeding and healing of wounds (Benniamin, 2011); juice has astringent properties. Decoction is given in dysentery and also applied to treat glandular-swellings. A roasted frond made into a paste with sesame oil is applied to skin affections of infants (Upreti & al., 2009).



a. *Pteris biaurita*; b. *Pteris cretica*; c. *Pteris ensiformis*; d. *Pteris longipes*; e. *Pteris multifida*; f. *Pteris spinescens*; g. *Pteris venusta*; h. *Pteris vittata*; i. *Pteris wallichiana*

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Muntingia calabura (Muntingiaceae): A note on its occurrence in Odisha with local uses

Muntingia calabura L., popularly known as Jamaica cherry, was collected from Mahipur village in Nayagarh district of Odisha during an ethnobotanical exploration in February 2017. Perusal of relevant literature (Saxena & Brahmam, 1995; Dash & al., 2015) revealed that this species was not reported from Odisha so far.

Muntingia calabura is indigenous to tropical America, now widely cultivated in warmer regions of the New World and Southeast Asia (Morton, 1987). In India, this species has been reported from Andhra Pradesh, Gujarat, Karnataka, Kerala, Maharashtra, Tamil Nadu and West Bengal (Kothari, 2000; Patel & al., 2016).

It is a tree of 6–10 m height with oblong-lanceolate leaves, 5–10 cm long and 2–4 cm wide having obliquely rounded base, serrate margins and acuminate apex, 3–5 primary veins and hairy upper surface and woolly lower surface. Flowers are solitary or in pairs and white. The

many-seeded fleshy berries are about 1.5 cm in diameter, green when young and turning red at maturity.

This plant species has not yet been reported from Odisha, but the locals and the tribal communities of Khond, Saora and Bhumij have been using this plant, known locally as 'Rasogulla', for various purposes for last one decade. A local medicine man, Mr. Prafulla Pattasain (about 50-year old) claimed that he has been treating diabetic patient since last 7–8 years by prescribing 10–15 ripe fruits twice daily for 7–15 days. The fruits are also given in the treatment of faintness. The reddish ripen fruits are sweet and widely relished by children.

Apart from the above uses, it is reported that the leaves are used in lowering the sugar level in blood and its extract possesses significant antidiabetic activity (Sridhar & al., 2011). The leaf infusion is also used for the treatment of cold and

headache, and fruits are cooked in tarts and made into jam (Mahmood & al., 2014). The wood of the plant is light, and is used for making various household articles and the dried wood is used as firewood. The flowers and bark are used as an antiseptic to reduce swellings and also for treating abdominal cramps.

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Muntingia calabura: a. Habit; b. Flower; c. Ripen fruit; d. The local medicine man giving ethnobotanical information of the plant

Panchanan Maheshwari

Panchanan Maheshwari (1904–1966), an eminent botanist and world renowned embryologist, was born on 9 November 1904 in Jaipur, Rajasthan. He obtained his Intermediate (1921), B.Sc. (1923) and M.Sc. (1927) degrees, and later he obtained his D.Sc. in 1931 under Dr. Winfield Scott Dudgeon's supervision on the morphology, anatomy and embryology of some angiosperms from the Ewing Christian College, Allahabad. He began his career as a Lecturer in Botany in Agra College (1930–1937), and later worked on temporary positions for some time at Allahabad University and Lucknow University (1937–1939). In 1939, he was invited to join the University of Dacca as Reader and Head to develop a new biology department, and served at the University for 10 years. In 1949, Maheshwari joined the Delhi University as Professor and Head of the Botany Department, established the department as an internationally recognised centre of research in embryology. He was chiefly noted for his invention of the technique of test-tube fertilization of angiosperms. He was the founder-editor of an

international journal, *Phytomorphology*, and served as the chief editor till his death. He also founded the magazine, *Botanica* published by the Delhi University Botanical Society. Maheshwari's greatest contribution to plant sciences was his book, "Introduction to the Embryology of Angiosperms" in 1950, a book that has inspired botanists and is still referred by students and researchers across the world. An illustrated "Flora of Delhi", was compiled under his supervision and published in 1963. Maheshwari was the President of the Embryology Section of the Seventh International Botanical Congress in Stockholm in 1950, and Vice-President of the Eighth International Botanical Congress held in Paris in 1954. In 1959, he was honoured with a D.Sc. degree honoris causa of McGill University, Montreal on the occasion of the 9th International Botanical Congress. He was elected Foreign Fellow of the Kaiserliche Deutsche Akademie der Naturforscher Leopoldina (1959), Deutsche Botanische Gesellschaft (1961), Fellow of the Royal Dutch Botanical Society (1963), and elected Fellow of the Royal Society (1965). He served as the President of the Indian Botanical Society in 1944 and the National

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Academy of Sciences of India in 1964. Maheshwari was the recipient of Birbal Sahni Medal in 1958 and Sunderlal Hora Memorial Medal in 1964. He died on 18 May 1966, after being afflicted with meningitis, at the age of 62.

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Green Skill Development Programme (GSDP) to be conducted at Botanical Survey of India (BSI) in 2018–2019

- Certificate Course on 'Parataxonomy (including People's Biodiversity Register) in seven Regional Centres and one unit of Botanical Survey of India'**
 - Andaman & Nicobar Regional Centre, Port Blair
 - Arid Zone Regional Centre, Jodhpur
 - Arunachal Pradesh Regional Centre, Itanagar
 - Central Regional Centre, Allahabad
 - Northern Regional Centre, Dehra Dun
 - Southern Regional Centre, Coimbatore
 - Western Regional Centre, Pune and Central National Herbarium, Howrah
- Certificate Course on 'Plant Tissue Culture Techniques and its Application' in three Regional Centres of Botanical Survey of India'**
 - National Orchidarium and Experimental Garden, Southern Regional Centre, Yercaud
 - Eastern Regional Centre, Shillong and
 - Northern Regional Centre, Dehra Dun
- Certificate Course on 'Management of Small Botanic Garden' in two units of Botanical Survey of India'**
 - Acharya Jagadish Chandra Bose Indian Botanic Garden, Howrah and
 - Botanic Garden of Indian Republic, Noida
- Certificate Course on 'Community-based Conservation of Mangroves' in one Regional Centre of Botanical Survey of India'**

Western Regional Centre (WRC), Botanical Survey of India, Pune



a-c. Visit of Hon'ble Union Minister for Environment, Forest and Climate Change, Sri Harsh Vardhan to Central National Herbarium (CNH) and Acharya Jagadish Chandra Bose Indian Botanic Garden (AJCBIBG), Botanical Survey of India (BSI), Howrah; **d.** Releasing of BSI ENVIS Newsletter [Vol. 22(2)] by Sri A.K. Jain, IAS, Addl. Secretary, Ministry of Environment, Forest and Climate Change (MoEF & CC), New Delhi at CNH Auditorium; **e.** Visit of Ms. Manju Pandey, IAS, Joint Secretary, MoEF & CC, New Delhi to the BSI ENVIS Resource Partner at CNH, BSI; **f.** School students participating in the World Environment Day celebration held at AJCBIBG, BSI, Howrah.

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Activities of the Centre: The Botanical Survey of India having involved in exploration activity has been collecting diverse data pertaining to floral diversity and its ENVIS Resource Partner on Biodiversity proposes to disseminate this information by building databases on various scientific themes such as status of plant diversity in Indian States and Union Territories, Biodiversity Hotspots, distribution of endemic and threatened plants, CITES, interesting plants, carnivorous plants, invasive alien species, wetlands, mangroves and traditional/ethnobotanical knowledge. It is also engaged in publication of state-wise bibliography including abstracts of papers pertaining to plants of India and also selected publications that have relevance both in documentation and conservation.

LIST OF PUBLICATION BROUGHT OUT SO FAR

I. Books

1. Mangroves, Associates and Salt Marshes of the Godavari and Krishna Delta, Andhra Pradesh – India
2. Diversity of Coastal Plant Communities in India (Priced publication) Rs. 804.00*
3. Red List of Threatened Vascular Plant Species in India
4. A Pictorial Guide to some of the Indian Plants included in CITES and Negative List of Exports
5. Phytodiversity of Chilika Lake
6. Bibliography and Abstracts of Papers on Flora of different States and Union Territories [West Bengal I & II, North East India – I, Andaman & Nicobar Islands, Maharashtra, Kerala, Tamil Nadu, Karnataka, Goa, Andhra Pradesh (including Telangana), Odisha and Bihar & Jharkhand]

II. Newsletters: Up to Vol. 23(1), 2018

*Demand Draft (DD) is to be drawn in favour of ACCOUNTS OFFICERS, PAO (BSI/ZSI) payable at Kolkata and to be sent to the address of the ENVIS Resource Partner given above