



Indian Council of  
Forestry Research  
and Education

# ICFRE NEWSLETTER

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## Significant Research Findings

### Forest Research Institute, Dehradun

• One 'Essential oil field distillation unit' was installed at farmers field in the Pasoli Village, Gram Panchayat Vikas nagar, Dehradun for extraction of essential oils from aromatic crops grown by the farmers.

- *In vitro* screening of water extract isolated from knot-wood of *Pinus roxburghii* against brown rot (*Oligoporus placenta*) and white rot (*Pycnoporus sanguineus*) fungi showed moderate fungi toxicity.
- Total Phenolic Contents (TPCs) in the hexane extracts isolated from knot-wood of *Mangifera indica*, *Eucalyptus tereticornis*, *E. citriodora* and *Melia dubia* were determined for characterization of phenolic constituents in these extracts.
- Ten samples of lepidopterous larvae/cocoons: *Hyposidra* spp., *Catopsila pomona*, *Eutectona machaeralis* and some unknown larvae were collected from district Dehradun in Uttarakhand from different forestry trees: *Dalbergia sissoo*, *Cassia fistula*, *Populus* sp. and *Tectona grandis* for their laboratory rearing which was continued for emergence of *Apanteles* spp. Fourteen specimens of *Apanteles* were mounted on cards, photography and species identification of *Apanteles* spp. are in progress.
- Tour was performed and fifty sweeping samples of insect were collected from districts: Sonipat, Panipat, Karnal, Kaithal and Kurukshetra (Haryana) and twenty seven insect eggs were collected from different forestry trees: *Acacia* sp., *Cassia fistula*, *Delonix regia*, *Haldina cordifolia*, *Santalum album* and *Shorea robusta*. One egg parasitoid; *Euplemus* sp. family Euplimidae was emerged out from the bug eggs on *Holoptelea integrifolia*. Fifteen sweeping samples were sorted out and twelve egg parasitoids were recovered from sweeping samples.
- Field survey was carried out in three sites in Rajaji National Park, Jhilmil Jheel Conservation Reserve & Tons valley Forest, Dehradun, Uttarakhand, during autumn/winter season. Sampling was carried out on three transects in forest sub-type namely 3C/C2 a Moist Shiwalik Sal Forest &

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5B/C2 Northern Dry Mixed Deciduous Forest. Total of 31 species were sampled. Database on larval host plants was updated.

- Experiments on biology of the Cerambycid borer *Xylotrechus basifuliginosus* on Kharsu oak logs brought from the Deoban RF, Chakrata earlier & Cerambycid borer *Aphrodisium hardwickianum* Ban oak logs brought from Devli village in Thanu range, Dehradun District, are continued in the laboratory. Database on insects attacking Western Himalayan oak was updated by adding & updating information for 6 more species of Coleopteran. Experiments on life cycle of 2 species of Lepidoptera (Lymantridae & Tortricidae) brought from the field were carried out in the laboratory for their life history studies.
- Digitized 91 types with about 645 photos. Edited about 1300 photographs of 142 species and saved them in Tiff, Jpeg and compressed forms. Verified names of 2177 number of species in cabinets 129-137.
- Leaf area feeding by insect were measured in 10 different clones of poplar by graph paper counting method. Leaf sample extraction of 20 different poplar clones has been done. A field visit to Tehri (Garhwal) region was done for collection of different insect pests of poplar and observation of poplar fields.
- Field observation and collection of some unidentified pteromalid wasps were done in FRI Campus through Sweeping Net. Twenty samples of pteromalids were collected from Dehradun. Collection of galled leaves of oak and their reared in the laboratory pteromalid female wasp (Unidentified) was obtained.
- 72 bacterial isolates were isolated from samples collected from Khair forest, mixed forest, Agriculture land use and degraded area of Punjab out of 72 isolates 26 were gram positive and 46 were gram negative. 18 isolates didn't solubilise phosphorus in pikovaskya's medium. 23 isolates didn't tested positive for IAA production.
- Yield data of kharif crop has been taken from all the sites and compilation is in progress. Available Phosphorus was found in medium ranges at all sites. Available Nitrogen and Potassium were found in low ranges at Dhaluwala than the sites at Fatehpur Pelio and Kodapur. Sowing of Rabi crop has been done at all the sites Fatehpur Pelio, Dhaluwala majbata and Kodapur. Maintenance and monitoring of plantation of *G. arborea* and *E. officinalis* at above sites is in progress. Damage was also observed in *G. arborea* and *E. officinalis* plantation by wild animals i.e. Elephant and blue bull at Dhaluwal majbata sites.
- Analysis of soil samples is in progress. Kadam is performing better than Bhimal and Kachnar at both sites. Maintenance & monitoring of plantation of Kachnar,

Bhimal and Kadam at both above sites was also done. Damage was also observed in Kachnar, Bhimal and Kadam plantation by wild animals i.e. elephant and blue bull at Dhaluwal majbata sites.

- Three different trees have been selected for lopping in three different manners i.e. 25%, 50% and 75%. Eight different trees have been selected for lopping 100% at three different sites at Kalsi, Am gaon Kandi (Yamkeswar block) and Walna (Ranikhet block). Conducted survey successfully regarding population of Bhimal in Dwarahat block at three different villages (Binta, Bhatara and Almiya). The process of determination of saponin from *G. optiva* has been started by taking various samples is in progress. Multiplication of fungus i.e. *Aspergillus niger* is under progress for development of eco-friendly method to extract the fibre from *G. optiva*.

#### Institute of Forest Genetics and Tree Breeding, Coimbatore

- Chromatographic characterization of 103 *Simarouba glauca* seed oils of the seed sources identified in Kerala, Karnataka, Andhra Pradesh and Tamil Nadu through GC/MS/MS showed that among 103 oil samples 94.17% of oil contains oleic acid as a major compound. 93.20%, 69.90%, 67.96%, 36.89%, 35.92%, 7.77%, and 6.80% of oils contains palmitic acid, eicosanoic acid, octadecanoic acid, heptadecanoic acid, ethyl linoleate, ethyl oleate and linoleic acid respectively as a major fatty acid compounds.
- The formulation of *S. glauca* seed oil tested against the ailanthus defoliator, *Eligma narcissus* and teak defoliator *Hyblaea puera* at various concentrations. In *E. narcissus* 100% larval mortality was recorded after 72 hours at 1% concentration whereas in case of *H. puera* 100% mortality was observed only after 96 hours of application at 1.5% concentration of *S. glauca* seed oil. In *H. puera*, pupal deformities were noted and deformed pupae failed to become adult. Probit analysis to find out LD50 and LD90 value of *S. glauca* seed oil showed that the results were highly significant for all.
- A total of 94 isolates were made from all the four selected tree samples viz. *Tectona grandis*, *Ailanthus excelsa*, *Gmelina arborea* and *Pterocarpus santalinus* collected from various agroclimatic zones of Tamil Nadu of which 24 isolates were from teak, 30 from ailanthus, 16 from red sanders and 24 from gmelina trees. The endophytic fungi were confirmed as *Cladosporium* spp. *Trichoderma* spp, *Aspergillus* spp. *Mucor* spp. *Colletotrichum* spp. *Curvularia* spp. and *Fusarium* spp. of which *Cladosporium* sp. and *Curvularia* sp. found to have entomopathogenic significance against ailanthus defoliator, *Eligma narcissus*.

**Himalayan Forest Research Institute, Shimla**

• Population status of eleven highly traded and high value endemic temperate medicinal plant species viz., *Aconitum heterophyllum*, *A. benthamii*, *Fritillaria roylei*, *Gentiana kurroo*, *Paris polyphylla*, *Podophyllum hexandrum*, *Polygonatum cirrhifolium*, *P. verticillatum*, *Rheum australe*, *R. webbianum* and *Trillium govaniatum* was assessed in different geographical locations of Himachal Pradesh. Besides, population status, information on family,

common name, botanical description, flowering and fruiting of all eleven target medicinal plants were recorded. The distribution patterns of all the eleven targeted plant species were found to be contagious in different locations of the state. Ever increasing demand and heavy biotic pressure on these high altitude medicinal plants, urgently needs measures for their protection, enrichment, conservation and sustainable utilization besides encouraging commercial cultivation to meet the industrial demand in coming years.

**Consultancies**

• ICFRE, Dehradun presently works on eleven consultancy projects, which are awarded by Tehri Hydro Development Corporation India Ltd; Himachal Pradesh Power Corporation Limited; Karnataka State Official Authority; MoEF&CC, Gol, New Delhi; Coal India Limited, Kolkata; NTPC Ltd Noida; NMDC Ltd, Hyderabad; Singreni Collieries Company Ltd., Kothagudem; Chhattisgarh Forest Department, Raipur; Deptt. of Forest and Environment, Bhubaneswar and Khairaha UG Coal Mine of SECL M.P.

**Tree Growers Mela/ Kisan Mela**

Institute	Participated	Duration	Place
IWST, Bengaluru	Kerala Bamboo Fest – 2019	6 to 10 December 2019	Ernakulam, Kerala
RFRI, Jorhat	Zonal Farmers' Fair	7 December 2019	Regional Agricultural Research Station, North-Lakhimpur
TFRI Jabalpur	7 <sup>th</sup> International Herbal Fair, 2019	18 to 22 December 2019	Bhopal
	Mati, Krishi, Krishi Bipanan, Samobai-O-Prani	20 to 22 December 2019	Primary School Deshbandhupara Pally, Dayaramjote
IFP, Ranchi	19 <sup>th</sup> Krishi Swasth O Sardik Siksha Sachetan Mela	22 to 24 December 2019	Puthuri Village, Burdwan, West Bengal
	Mati, Krishi, Krishi Bipanan, Samobai-O-Prani Sampad Block-O-Mahakuma Mela	24 to 26 December 2019	Thiknikata



IFP stall at Matigara, West Bengal



IFP stall at 19<sup>th</sup> Krishi Swasth O Sardik Siksha Sachetan Mela, Burdwan, West Bengal

S.No.	Topic	Duration	Beneficiaries
<b>Forest Research Institute, Dehradun</b>			
1.	Research Institute-Wood Industry Interactive Meet	20 December 2019	-
<b>Rain Forest Research Institute, Jorhat</b>			
2.	Integration of REDD+ in the Land use Planning Activities in the State of Mizoram (FRC-BR, Aizawl)	17 December 2019	Department of Forest, Agriculture, Horticulture, and Land resource, Soil & water Conservation, Govt. of Mizoram, NGOs, Farmers' Association etc.
3.	Utilization of Medicinal Plants Among the Mog Tribal Community (FRC-LE, Agartala)	24 December 2019	Mog community tribal people
4.	Selecting the Second Project Implementation Site under the NMHS	27 December 2019	Villagers of Karbi Anglong district of Assam
<b>Arid Forest Research Institute, Jodhpur</b>			
5.	Finalization of Draft DPR on Forestry Intervention for Luni River Rejuvenation	26 December 2019	Forest officers, scientists, agriculturists, horticulturists and technical staffs
<b>Himalayan Forest Research Institute, Shimla</b>			
6.	Biological Control of Insect-Pests by Insect Parasitoids and Predators	30 December 2019	Scientists, Technical staff and Researchers



State level workshop for Finalization of draft DPR on Forestry Intervention for Luni river rejuvenation

S.No.	Topic	Duration	Beneficiaries
<b>Forest Research Institute, Dehradun</b>			
1.	Butterfly Monitoring & Butterfly Inclusive Eco-tourism as a Source of Livelihood	3 to 4 December and 16 to 18 December 2019	stakeholders and graduate and post graduate level science students
2.	Insect Pest Management in Forest Nurseries, Plantation and Natural Forests	25 to 29 November 2019	IFS Officers



Training on Butterfly Monitoring and Butterfly inclusive Eco-tourism as a Source of Livelihood



Training on Insect Pest Management in Forest Nurseries Plantation and Natural Forests

**Institute of Forest Genetics and Tree Breeding, Coimbatore**

3.	Forest Genetic Resource Management	9 to 13 December 2019	IFS officers from different states
4.	Biofertilizers and Biocontrol Agents in Forestry	18 to 20 December 2019	college students, teachers and research scholars



Training on Forest Genetic Resource Management

**Institute of Wood Science and Technology, Bengaluru**

5.	Sandal-wood: seed handling, nursery and plantation Technology	9 to13 December 2019	farmers and entrepreneurs
6.	Field identification of certain important timbers	10 to 13 December 2019	students of college of Forestry

**Tropical Forest Research Institute, Jabalpur**

7.	Bamboo Nursery and Management	2 to 7 December 2019	farmers and Students
8.	Value Addition- Bamboo Technologies	16 to 21 December 2019	farmers, artisans and students
9.	Sustainable harvesting/ collection and processing of <i>Aegle marmelos</i> (Bael) fruits	18 December 2019	NGOs and forest officials

**Himalayan Forest Research Institute, Shimla**

10.	Preparation of Detailed Project Report for Rejuvenation of Sutlej, Bear and Ravi River Basin through Forestry Intervention	3, 4, 6, 7, 9 & 11 December 2019	DFO, ACFs, range officers, forest guards and other official staff Ferozepur, Amritsar, Jalandhar, Nawanshahr, Ludhiana, Mohali/ Siswan Range
11.	Application of Biofertilizers and Biopesticides in Forestry Practices	18 to 20 December 2019	students, teachers, members of Eco-task force & ITBP, Panchayat NGOs, etc.



Meeting on Preparation of Detailed Project Report for Rejuvenation of Sutlej River

**Arid Forest Research Institute, Jodhpur**

12.	Integrated Approach for Sustainable Development of Fragile Desert Ecosystem	16 to 20 December 2019	IFS officers from different cadres
13.	Nursery & Plantation Technique	25 December 2019	forest Guard from forest training center, Jodhpur

**Institute of Forest Productivity, Ranchi**

14.	Demonstrating field Data Collection under DPR Preparation of Mahanadi river	2 to 5 December 2019	SFD, NGOs, agricultural officers, Stakeholders, & Panchayat
15.	Bamboo Nursery and Management	16 to 20 December 2019	farmers and officials of SFD, Jharkhand, Bihar & Odisha



Field visit under BTSG training on Bamboo Nursery and Management

**Memorandum of Understanding**

- MoU was signed on 27 December 2019 between Dr. Bimal Borah, Principal of Jaganath Baruah College (Autonomous), Jorhat and Dr. R.S. C. Jayaraj, Director, RFRI, Jorhat to establish the term & conditions under which both the parties agree to engage in an effort to promote academic & research activities by expending the mutual relationship.
- MoU on licence agreement for transfer of quality planting material of bamboo was signed on 30 December 2019 between Dr. R.S.C. Jayaraj, Director, RFRI, Jorhat and Ms. Dimpri Borah, Dy. Mission Director, State Bamboo Development Agency, Govt. of Assam.

## Prakriti Programmes

- Two groups of 106 students of KV Bathinda & Jalandhar (Punjab) led by their teachers visited Forest Research Institute, Dehradun under "Prakriti" programme on 3 and 6 December 2019. Brief introduction about the institute and its contribution to the environment and society was given. Then students were also taken visit to Botanical gardens, Bambusetum and various museums viz. Forest Pathology museum, Silviculture museum and Timber Museum in FRI.
- Two groups of 98 students of KV Roorkee (Uttarakhand) led by their teachers were visited FRI, Dehradun under "Prakriti" programme on 20 December 2019. Students were also taken visit to Botanical gardens and various museums viz. Forest Pathology museum, Silviculture museum and Timber Museum in FRI.
- A group of 25 students of KV Raipur, Dehradun (Uttarakhand) led by their teachers were visited FRI, Dehradun under "Prakriti" programme on 27 December 2019.
- "Prakriti" training programme was conducted at IFGTB, Coimbatore during December 2019. 911 of school students including teachers from 1<sup>st</sup> to 10<sup>th</sup> standards from 39 educational institutions belonging to Arasur, Tirupur, Coimbatore district and 1485 college students from Mumbai, Coimbatore, Palakkad, Jhansi participated in the activity.
- FRC-SD, Chhindwara organized training under "Prakriti" programme on "Environment Awareness and Biodiversity Conservation" for the 161 students of class IX and X standards of Jawahar Navodaya Vidyalaya, Singodi, Chhindwara District. During the period students were updated about the various plant diversity including trees/shrubs/herbs etc. available in the school campus.
- RFRI, Jorhat, conducted a Scientist-Student interaction programme at Jawahar Navodaya Vidyalaya, Kohima, Nagaland on 4 December 2019 under the "Prakriti" programme of ICFRE. A presentation on the topic "Forest, Biodiversity and Its Conservation" was also made during the interaction programme.
- Under the "Prakriti" program lecture and exhibition was organized by AFRI, Jodhpur on 27 December 2019 at Jawahar Navodaya Vidyalaya, Jaswantpura (Jalore). At the beginning of the programme, a talk on the topic "Forest and Environment" was delivered to the students of class 9<sup>th</sup> and 10<sup>th</sup>.
- प्रकृति कार्यक्रम के अंतर्गत निम्नलिखित केन्द्रीय विद्यालयों ने हिमालयन वन अनुसंधान संस्थान, शिमला का शैक्षणिक दौरा किया।
  - 2 दिसम्बर 2019 को केंद्रीय विद्यालय, सेक्टर-47, चंडीगढ़ के 50 विद्यार्थी व उनके साथ आए 5 अध्यापक
  - 4 दिसम्बर 2019 को केंद्रीय विद्यालय, 3 बी आर डी व सेक्टर-31, चंडीगढ़ के 50 विद्यार्थी व उनके साथ आए 5 अध्यापक
  - 6 दिसम्बर 2019 को केंद्रीय विद्यालय, सेक्टर-29, चंडीगढ़ व केंद्रीय विद्यालय, मोहाली के 50 विद्यार्थी व उनके साथ आए 5 अध्यापक
  - 9 दिसम्बर, 2019 को केंद्रीय विद्यालय न. 1, पटियाला, केंद्रीय विद्यालय न. 2, पटियाला व केंद्रीय विद्यालय न. 3, पटियाला के 50 विद्यार्थी व उनके साथ आए 5 अध्यापक
  - 11 दिसम्बर, 2019 को केंद्रीय विद्यालय, हाई ग्राउंड, चंडीगढ़ व केंद्रीय विद्यालय, जीरकपुर के 50 विद्यार्थी व उनके साथ आए 5 अध्यापक



Students of KV, Bathinda, Punjab



Students of KV, 3 BRD, Chandigarh



Students of KV, S-29, Chandigarh

## Activities under Van Vigyan Kendras

- FRI, Dehradun organized three days training programme on "Agroforestry and Wood Technology for Livelihood Improvement" for farmers, frontline staff of state forest department and other stake holders at SFRI, Ladowal, Ludhiana (Punjab) from 9 to 11 November 2019 under VVK. 47 participants including farmers, forest officials and other stakeholders from different part of the Punjab state were participated.
- RFRI, Jorhat, organized a training on Artificial induction of Agarwood, management of Parkia mortality and Bamboo propagation, cultivation and management under VVK at Forest Training School, Mantripukhuri, Imphal on 6 December 2019. 50 forest guards participated in this training programme.



- RFRI, Jorhat, organized training programme on Artificial induction of Agarwood, management of Parkia mortality and Bamboo propagation, cultivation and management under VVK at FEEDS, Senapati, Manipur on 7 December 2019. 16 foresters participated in this training programme.

### Awareness and Demonstration Programmes

- Research and development activities of RFRI, Jorhat such as Nursery Management, Bamboo Cultivation, Propagation, preservation & Value addition techniques of bamboo, Biotechnology and Tissue Culture, Management of Botanical garden, identification of wild edible Mushroom, conservation of orchids of N-E region and production technique of vermicompost etc. on 5 and 18 December 2019. 23 B. Sc. (Horticulture) students of AAU, Jorhat and 37 trainees of Forest Guard School, Makum participated in this programme.
- IFP Ranchi conducted exposure visit for the students and teachers of Gossner College, Ranchi, who were demonstrated various research activities on 13 December 2019. 77 students and teachers attended the programme.

### Rajbhasha News

- Hindi workshop for ministerial staff was organized on 13 December 2019 at IWST, Bengaluru.

### Miscellaneous

Institute	Special Day	Duration
IFGTB, Coimbatore	World Soil Day 2019	5 December 2019
	International Mountain Day 2019	11 December 2019



IFGTB, Coimbatore observed World Soil Day 2019



IFGTB, Coimbatore observed International Mountain Day 2019

### HR News

#### Retirement/ VRS

Name of Officer	Date
Dr. Harish Kumar, Sci-E, FRI, Dehradun	2.12.2019
Sh. P.K. Das, Sci-D, IFP, Ranchi	31.12.2019

#### Patron:

Dr. Suresh Gairola, Director General, ICFRE, Dehradun

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