

3-Days Hands-on Training on Angiosperm Taxonomy with Special Reference to Banana (Sponsored by Department of Biotechnology, Govt. of India)

Date: 28-30, March 2019

Venue: Department of Forestry

North Eastern Regional Institute of Science & Technology

(Deemed to be University u/s 3 of UGC Act, 1956)

P.O. Nirjuli-791109, Papum Pare District, Arunachal Pradesh

Background:

Banana plants (*Musa spp.*) are sources of banana fruits for everyday breakfast while serving as one of the high valued nutritious food not only for adults but also for growing infants across the world. These plants also play important roles in socio-economic growth and cultural activities in developing and underdeveloped countries. Although more than 1000 cultivated varieties of edible banana are reported to be grown in different continents, particularly in the tropical countries, the maximum contribution to global demand of banana is primarily met from the Cavendish, Grand Nain and Gross Michel group of bananas (*Musa acuminata*, AAA types). With the increasing demand of food requirements by rapidly growing human population and decreasing productivity of edible banana due to deteriorated soil health and loss from diseases and pests coupled with effects of global climate changes, there is a fear for the possible scarcity of edible banana in the near future. Crop improvement in banana with enhanced characteristics of stress tolerance, disease resistance, and enhanced nutritional values becomes prerequisite to meet the increasing demand for food supply. Therefore, exploration, characterization, identification, and conservation of banana resources from wild habitats and cultivated varieties become an essential task to provide source materials for the improvement of banana crops. North Eastern Region (NER) with a rich heritage of flora and fauna under Indo-Myanmar Biodiversity area is endowed with diverse species and enormous cultivars of banana plants under wild/natural habitats as well as traditional home gardens and backyards. Despite the large geographical area under natural vegetation of banana, the productivity of banana for human consumption has been lowest in the region. Moreover, diversity of species and cultivated varieties of banana from wild habitat and traditional home gardens have not been documented in detail as well as systematic characterization and identification have not been done so far on banana resources of the region. It is assumed that a large genetic pool of potential traits for crop improvement might be available in the wild and cultivated banana species in the region. However, studying banana taxonomy has been one of the major hurdles in research and development activities of the banana crop due to closely similar morphological characteristics among species and cultivars. Additionally, lack of standard documentation tools, suitable manuals and expertise (manpower and human resources) further hinders in the progress of research works of the banana crops.

Department of Forestry in the North Eastern Regional Institute of Science & Technology (NERIST) has been actively working on exploration, documentation, characterization, identification, and conservation of banana resources in the NER during the last 10 years. Based on the experience in the past, it was observed that there is a need to empower research personals with basic and applied knowledge of taxonomy with the help of experts so as to fulfill various objectives of research activities on banana. Therefore, with the aim of producing skilled manpower to achieve goals of research and development activities on banana, the present hands-on training programme is being organized with the following objectives.

Objectives:

- To make aware of the species diversity of banana in India and NER
- To understand the problems of banana taxonomy
- To understand the techniques of collection and preserving banana species
- To understand the methods of characterization and identification of banana

Training Contents: Lectures (40%) and hands-on training and field-based programme (60%).

Training details

A. Important topics to be addressed during the training:

1. Introduction to plant taxonomy-past and present
2. Taxonomy and diversity of banana, field techniques for sample collection and preservation
3. Methods of data collection during field survey
4. Preparation of herbarium specimens
5. Molecular tools, techniques and data analysis in banana research
6. Field visits, etc.

B. Eligible participants (*Please read on Inner Line Permit & Travel details at the end of this brochure*):

1. Project staff in DBT funded research projects on banana
2. Ph.D. students/ Scholars actively working on banana diversity and conservation
3. Faculty/ Scientists actively working on banana diversity and conservation
4. Ph.D. students/ Scholars/ Faculty actively working on plant diversity and conservation

C. Number of participants:

- A total number of participants will be 30 only (on the basis of first come first serve).

D. Application Form and Contact Details

Application forms in prescribed format must be sent after dully signed by the Project PI/ Coordinator/ Head of the Department of the institute/University to the Training Coordinator on or before 25/03/2019. An advance copy may be sent as a pdf/jpg file by email (sksorokhaibam@gmail.com).

E. Registration Fee/ Fooding / Accommodation / TA of participants:

- There is no registration fee for attending the training.
- All the participants will be provided free training materials, tea/ coffee and fooding (lunch, dinner, and breakfast) for three days.
- Accommodation in the institute CEP-Guest House (Continuing Education Programme) will be provided as per request of participants on payment basis. All rooms in CEP guest house have facilities of double occupancy with attached bathrooms, balcony and kitchen facilities with a room rent of Rs. 1000 per day. However, single occupancy may be provided on requests of the participants subject to availability. Participants may also arrange their own accommodation.
- No Travel allowance (TA) will be provided to training participants. All participants have to bear all expenses of travel between their home town/ institute and training place. However, local travel expenses for field visits will be free for all participants.

Training Coordinator:

Dr. S. Sureshkumar Singh, Associate Professor
Department of Forestry, North Eastern Regional Institute of Science & Technology (NERIST),
P.O. Nirjuli-891109, Arunachal Pradesh.
Phone: 0360-2257 402-409 (extn. 7159) ; Mobile:8837353021/ 9436635137
Email: sksorokhaibam@gmail.com

Training Co-Coordinators:

Dr. Karuna Shrivastava, Professor & Head, Department of Forestry (karuna.nerist@gmail.com)
Phone:0360-2257 402-409 (extn. 7155); Mobile:8837096033/ 9436219543
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Phone:0360-2257 402-409 (extn. 7156); Mobile:8787584190/ 9436222579

(APPLICATION FORM)

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(Sponsored by Department of Biotechnology, Govt. of India)**

Date: 28-30, March 2019

Venue: Department of Forestry

North Eastern Regional Institute of Science & Technology, Nirjuli, Arunachal Pradesh

Application No.....(For Office Use only)

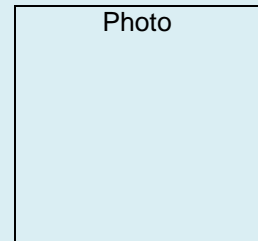
(1) Name :

(2) (i) DoB & Age : .../.../.....(.....years). (ii) Sex: Male / Female

(3) Institutional affiliation & Address :

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(4) Educational Qualification : M.Sc./Ph.D.

Phone: Work place :

Mobile :

Fax :

E-mail :

(5) Current Area of Research :

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(6) Accommodation (Please tick) : (i) Single (ii) Double/Shared (iii) Not Required

(7) Name, designation, and address of the:

Competent authority (PI/
Coordinator / Head of Department)

granting permission
Telephone, (Work and Mobile) :

Fax :

E-mail address. :

Signature of Competent Authority granting permission
(with Seal and Date)

Inner Line Permit (ILP) and Travel Information for Participants

I. Inner Line Permit (ILP) for entry into Arunachal Pradesh

- Participants from other states need to have a temporary Inner Line Permit (ILP) for entry into Arunachal Pradesh. Willing participants may arrange their own eILPs via online portal of Government of Arunachal Pradesh (<http://arunachalilp.com>). In case participants want to make ILPs from Training Organizer, they may send the application form (http://arunachalilp.com/ILPForm/ILP_Application_Form.pdf) with the following documents and information in advance of 1 week to prepare the ILP.
 - i. Details of the participant (as per format above)
 - ii. Proof of identity and address (Pan Card/Aadhar Card/Driving License/Passport/Voter Id)
 - iii. Passport Size Photo (4.5cm Height x 3.5cm Wide with a face size of 3 cm Height)
 - iv. Application fee of Rs. 100/person (may pay in cash on arrival at training place)
 - v. For Local Reference details, the name of the training organizer/ Secretary/ coordinator and their contact number may be used.
- At present ILP on arrival is available at the Naharlagun (Itanagar) Railway Station.

II. Travel Information for Participants

- Nirjuli (Paum Pare District) in Arunachal Pradesh is connected to rest of the states through road, train and air through Assam.
- From Guwahati (ISBT/ Paltan Bazar), Nirjuli is about 400 KM by road via Tezpur and can be traveled by regular Day and Night bus services (Blue Hills Travels, Network Travels, APST Bus Services, Taxi, etc.)
- Train Services are available daily from Guwahati (GHY) to Naharlagun (NHLN). Donyi Polo Inter City Express (15617) runs daily from Guwahati Railway Station at 9.20 pm and arrives at Naharlagun at 4.55 am. The same train (15618) leaves from Naharlagun at 6.45 pm (evening) and arrives at Guwahati at 4.25 am. A Shatabdi Express (12088) also runs on alternate days (Monday, Wednesday, and Friday) from Guwahati (departs 3.20pm) to Naharlagun (arrives at 9.40 pm). The same train (12087) runs next day (Tuesday, Thursday and Saturday) from Naharlagun at 5.00 am and arrives at Guwahati at 11.00 am. Arunachal Express (22412) between Delhi (ANVT) and Naharlagun runs twice a week (Thursday and Sunday). Another Train also runs between Dibrugarh (DBRG) and Naharlagun (TSK Naharlagun Express, 15907) runs 5 days a week except for Thursday and Saturday.
- By air, nearest Airport to Nirjuli is Lilabari (IXI) in Lakhimpur District of Assam (about 60 KM from Nirjuli) and Pasighat (IXT) in Arunachal Pradesh (240 KM from Nirjuli) connected from Guwahati (GAU) and Kolkata (CCU).

III. Climate at Nirjuli during March-April

- At Nirjuli (Itanagar), the climate is pleasant during March and April with moderate temperature (25-30°C) and light rain. A light Jacket/ Sweater may be required in the evening and early morning. An umbrella may be required. No heavy clothing will be required during the period of training.