
ASCON NADI CONVERSATION SERIES II

Ethno-Botanical Practices
and Conservation of
Endangered Plants in the
North East: A Discussion

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ASCON NADI Conversations Series-2

Ethno-botanical practices and conservation of endangered plants in the North East: A Discussion

Moderator



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Panellists



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The conservation of ethnobotanical resources and the wild variants of crop plants, floricultural species, and medicinal plants would be of importance while formulating future plant breeding programs with an emphasis on discovering a native germ pool and its conservation as also to create a germ plasm library through which related information from surrounding lands can be added and shared to promote socio-economic improvement and interactive stability in the region. Through this conversation we would aim to understand the different ethno botanical practices in the North East and how it would help in the process of conservation and rejuvenation of this endangered flora.



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Key Takeaways

- The bio cultural landscape of the North East is as diverse as the plant biodiversity
- The need to protect and conserve these plants can only be achieved through the support of the government i.e. the monetary support.
- Monoculture is not the solution for conservation. Instead intercropping can be very important for this process
- The population is the custodian of the plants growing in this region and their cultivation or conservation is much dependent on the land holding or forest holding capacity of the region
- Incentivization of cultivation is very important. Limited market intelligence is one of the major reasons(packaging, advertising etc.) why one hasn't been able to sell the projects
- In order to conserve and propagate the RET plants it is important that the planting material is readily made available
- Traditional healthcare practices are still being followed in Manipur and North East India. This is the major or the only medical facility available in some rural and remote areas of Manipur. Cross- cultural ethno-pharmacological showed traditional healthcare practices followed by Maiba-Maibi(male-female traditional healthcare practitioners) of Manipur
- Another way to perpetrate and introduce ethno-cultural practices is to encourage homestays where the visitors would live and enjoy local living with the people of that area.

INDEX

KEY TAKEAWAYS	2
INDEX	3
BACKGROUND	4
AGENDA	6
CONVERSATION PROCEEDINGS	7

Background

The North-Eastern region of India is home to almost 50% of the flowering plants recorded from India and exhibits a phenomenal diversity. The region is also home to many wild variants of the current day cultivated plants like those belonging to the banana, orchid, citrus, and ginger families to name a few.

The region is also home to more than 250 tribes of different ethnic groups speaking over 200 dialects while following distinct cultural and ethnic practices. Agriculture is the main occupation of this region and the different tribes follow various indigenous and traditional practices while tilling their lands. There exists a rich and unique coffer of unique and traditional means of agricultural practices making this area a paradise for ethno-botanists and anthropologists.

It is also documented that the people of the region made a deep and strong attachment to nature which is reflected in their daily and religious practices. The traditional conservation practices such as establishing and maintaining the sacred groves and plants are also a reflection of their reverence for nature.

Ethno-botany is the scientific study of the traditional knowledge and customs of a people concerning plants and their medical, religious, and other uses.

The natural and native vegetation composition and their combined relative ethnobotanical importance with species conservation index have shown that native plants provide many ecological and socio-economic services including provisioning of food, medicine, and energy.

Though a wide variety of plants with high resistance to important diseases have been reported, a large number of folk medicines and their subsequent applications have remained restricted to certain tribal pockets only. Gaining knowledge with practical implications involved in the multi-propagation of such important crop/medicinal plants would be of immense importance and added practical value.

Study of ethno-botanical practices in the region may show us the way for the promotion and best utilization of traditional herbal, medicinal plants and wild races of crops with high resistance to insects and other damaging diseases for the benefit of mankind.

The conservation of ethno-botanical resources and the wild variants of crop plants, floricultural species, and medicinal plants would be of importance while formulating future plant breeding programs with an emphasis on discovering a native gene pool and its conservation as also to create a germplasm library through which related information from surrounding lands can be added and shared to promote socio-economic improvement and interactive stability in the region.

Through this conversation we would aim to find answers to the following questions:

1. Could you tell us about the native medicinal and floricultural plants with significant economic importance that is being grown in this region?
2. How will the knowledge of ethno-botany and studies related to native practices of growing these plants help in the conservation and rejuvenation of the otherwise endangered and almost close to extinction plant variety in this region?
3. How can the existing knowledge of traditional cropping practices be perpetrated amongst the common people while encouraging them to follow these methods?
4. Can these methods be used to introduce micro-propagation of important and relatively unknown plants to a level where it can be turned into a cottage industry?
5. Since the climatic conditions are ambient for using and promoting plastic house/ greenhouse cultivation of plants do you envisage this as a possibility to promote economic stability?

Agenda

3:00-3:05 PM: Introductory Address

3:05-3:20 PM: Dr Vincent T Darlong Vice Chancellor Martin Luther Christian University, Shillong

3:20- 3:45 PM: Dr Ashiho A Mao, Director of Botanical Survey of India, Government of India.

3:45- 4:05 PM: Professor Potsangbam Kumar Singh Professor, Centre of Advanced Study in Life Sciences, Ethno-Botany and Plant Physiology Laboratory, Department of Life Sciences, Manipur University

4:05-4:30 PM: Discussion and Question-Answers.

Conversation Proceedings

Dr. Vincent T Darlong, Vice-Chancellor Martin Luther Christian

University, Shillong

- Water is an important resource which is available to all of us and NADI is the connector that joins us to the other countries.
- Can the use of ethno-botanical sciences is not only restricted to the growing of medicinal crops and food crops?
- People's expectation is to turn these into economic assets in terms of finance
- Another drawback is the overreliance on subsidies.
- The challenges faced by the research and development faces have not been very encouraging
- The piracy of resources is also a major threat.
- While designing projects for the rural population in the North East it is noticed that their interest is not so much about commercializing the plants they have around for medicine.
- For many of them, these plants are meant for them to be used as vegetables, not for its medicinal purposes.
- The experience with the communities, and the designing and implementing the programs in the North East one sees that their interest is not to use these plants which have medicinal importance as vegetables and can be cultivated in a manner that allows the communities to consume fewer medicines.
- The nutritional analysis of these plants and the consumption of these plants can be proved beneficial for the communities.
- **Oxalis** is a commonly grown herb that has a very sour taste and is said to be very high in its iron content and also a good source of vitamin C. Children and ladies are often advised to consume this to circumvent anemia.
- To identify plants with medicinal properties their names should be correctly verified before proceeding with the research. The example of **Croton caudatus** was mentioned which is used as an important medicinal plant. The decoction from the roots, dried bark, and dried and powdered young leaf buds are used to treat fever and stomach disorders to name a few.

Dr. Ashiho A Mao, Director of Botanical Survey of India, Government of India.

- A lot of work on the ethno-botanical practices and their conservation has been published from the North-Eastern region between the years 2015-2016
- From 2000-2015 about 2000 research articles were written on the ethno-botany of the North East in which Assam was the highest followed by Meghalaya Manipur. These have been published by universities and different institutions.
- These research articles show the availability of large data from the region.
- The documentation of the research has been mostly on the medicinal plants
- But the benefits from this documentation have not been received by the local ethno-medical practitioners.
- In a way, it was difficult to explain to the local people as to why and how these plants should be conserved. As a part of the Botanical Survey of India mandate, one important aspect is to find the ways and means to protect these endangered plants of the North East
- Botanical Gardens have been established in Shillong, Gangtok as well as all around the country. One of the programs of BSI is to collect and grow these threatened and endangered plants under protected conditions,
- It is difficult for the local people to practice conservation of these rare endangered plants unless there is financial support from the government
- When these places are visited where these plants grow interaction with the locals reveal their in-depth knowledge about the importance and use of these plants
- On being requested to conserve and protect these plants the locals show reluctance as they do not derive any economic benefits out of such ventures.
- The other reason is that since agriculture is the mainstay for economic survival, a number of such plants of ethno-botanical importance are lost as the land is prepared and tilled for growing major cash crops.
- It is next to impossible to get the local people to conserve and grow these important plants unless and until the government provides definite plans with financial incentives to carry out these practices.

- North East has the richest biodiversity with 50% of the plant resources of the country but when it comes to benefit sharing the results are not so desirable.
- The medicinal plants are mostly found in the wild and if one were to begin collecting them from such terrains then in about a year or two one could completely destroy the entire collection of medicinal plants from their natural habitat.
- Medicinal plants do have a number of species but if one is dependent on the geographical area and the landholding available it is very small.
- Unless and until means are made available for the mass multiplication or mass propagation conservation of these are endangered and threatened species is going to be very difficult.
- It is also important to do a lot of planning and imparting training of conservational procedures to the locals. This has to be compounded with the training of harvesting and post-harvesting procedures as well as value-added processes
- Medicinal plants are cultivated for specific purposes and if there is no market then the entire process is a failed one.
- It is necessary to look at the demand and market potential before going on to cultivate.
- What is required is a lot of research. One needs to popularize these plants first as food supplements and for cosmetic purposes.
- Developmental research prospects and value-added features like packaging etc. is the way if the North East has to get any benefit from cultivation and conservation of medicinal plants.
- Once economic benefits are derived, people will automatically turn towards propagational and conservational practices.
- The biggest problem in the North East is that the critical value of these plants have not been worked out which gives an idea about how much of these plants need to be cultivated. The amount, however, be the value needs to be consistent with quality control (chemical component content+ size of plant etc.+ competitive value of plants)
- Landholding is very small for large or mass scale propagation. Unless and until self-help groups or co-operative societies farmer groups, NGO's are formed, cultivation of substantial amounts of solid plants is not going to be possible

- To look for potential buyers and marketing challenges need to be researched. Planning for long and short time cultivation needs to be looked in.
- This has to be done in tandem with the cultivation of conventional crops like turmeric, cinnamon, citrus, kiwi, passion-fruit, etc. along with non-conventional plant crops which are found in the wild.
- Barring a few areas where conservation of such plants is governed by local and religious taboos in the rest of the North East area, there are no major means of conservation
- The setting up of botanical gardens with the principle objective of preserving rare, endangered, and threatened plants including economically important and medicinal plants.
- One of the applications of GOI made through the signing of the Convention on Biological Diversity (CBD) is to prevent the Rare, Endangered, and Threatened (RET) species is active conservation of such agricultural-horticultural development in the North East.
- One of the biggest bottlenecks is that in most cases the people involved only needed subsidy from the Government and once the grant or the finances are made available the resources don't get translated into serious work.
- What is required is the availability of dedicated, serious, trained, and goal-oriented personnel to carry on with this kind of work involving conservation.
- One needs young people to begin start-ups to carry the work forward. One cannot expect people from other parts of the country to come in and begin work. The onus is on the local people to take up the cause. The government needs to support such people. People who know the region well in every respect can be involved then possibly something can be done.
- It is of great importance and relevance to spread knowledge through advocacy amongst people particularly targeting the young students and encouraging interest in the said field.
- Some of the questions related to the ethno-botanical practices and RET plants can be answered through reflections on cultural practices followed in the North East. For instance, a plant called **Iris lavigata** also known as the **Japanese Iris** is an important flower which is offered on the New

Year's Day irrespective of the cost on that day. They are extracted from the wild marshlands and sold particularly on that day.

- A good introduction of such plants has to be done at the local level to raise awareness about their existence
- It is however being seen that in remote areas the conservation of germ-plasm is still effectively done.
- The government should provide incentives to these people living in local remote areas to encourage the cultivation of RET plants as well as to generate knowledge about their importance amongst the younger generation through active advocacy.
- In recent times it has been noted that children today often do not eat the vegetables and fruits that their parents, grandparents used to eat which were also locally grown. These had high nutritional and medicinal value.
- It has now become imperative as also the responsibility of the parents and communities at large to reintroduce these high nutritional value products into their everyday diet.

**Professor, Potsangbam Kumar Singh Professor, Centre of Advanced Study
in Life Sciences, Ethno-Botany and Plant Physiology Laboratory,
Department of Life Sciences, Manipur University**

- North East is very rich in terms of communities SC/ST/General in Manipur have different culture and identities.
- From 33AD onwards kings ruled the land of Manipur. The first crowned king was Nongda Lairen Pakhangba. In 1714 a king named Pamheiba adopted Hinduism and encouraged practice of Maiba-Maibi which were the traditional healthcare forms.
- The healthcare system was particularly adopted to break the body stones called Nung by using decoction of plants e.g. Alhagi spp, Tribulus spp, Lobaria spp etc.
- There are many plants with fungicidal, germicidal and insecticidal properties which as a ritual are burned inside a newly constructed house. The smoke that emanates is known to kill insects and germs (e.g. Goniothalamus spp). It has also been noted that the burnt plants when dissolved in organic solvents can be used to treat human pathogenic fungus.

- Some of the cultural, religious, and socio-economically important plants can be used to extract active medicinal properties by dissolving them in organic solvents. But these need to be subjected to scientific validation before use.



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