



# Indigenous Traditional Knowledge (ITK) on Tuber Crops Practiced by Nicobar Tribes in Andaman and Nicobar Islands, India

The Nicobarese are the dominant tribe among the 7 tribes living in Andaman and Nicobar Islands and their prime source of livelihood is based on plantation crops and fishing. With regard to food crops, they consider the tuber crops such as greater yam, colocasia, tannia, sweet potato, cassava, arrow root and tacca as the staple food and main source of carbohydrate. As per 1999 census, 30,000 Nicobarese are scattered in twelve inhabited Islands and about 60 per cent (19,336) are concentrated in 127 sq km area of Car Nicobar (Dagar and Singh, 1999). The population of Nicobarese represents about 85 per cent of the total tribal population of Andaman & Nicobar Islands. The Nicobarese are mainly horticulturist and pig-herders inhabiting large permanent villages mostly close to the sea shore. The Nicobarese tribal community is generally conservative as far as food resources are concerned. The customary practices (they share among each other) of “local control” towards food resources is not only appreciable but also worth to emulate. They mainly rely on coconut, tuber crops, pigs and marine fisheries for their livelihood. Root and tuber crops have traditional place in the daily diet of the Nicobari tribes who are fond of tuber crops and the forest is rich in wild tubers which are used for food and medicinal purposes. The present study was conducted at Car Nicobar Island and Little Andaman during February-September 2013 under the All India Coordinated Research Project on Tuber Crops funded by Indian Council of Agricultural Research. The Car Nicobar is located at 92° 42' to 92° 50' E longitude and 9° 72' to 9° 152' N latitude in the Bay of Bengal. The team interacted with the local people to get acquainted with their traditional and cultural aspects and to study the harmonious bond these islanders have established with the nature. Fifteen villages from (Car Nicobar) and Harminder Bay village of Little Andaman were chosen for the study. The data on tuber crops cultivation was obtained through Key informants (KI), transect walk,

group discussion and also from the secondary sources. The documented information are given below.

## i. Documentation of tuber crops biodiversity in Car Nicobar

During the survey, documentation was made on biodiversity of tuber crops such as *Colocasia* sp., *Dioscorea* sp., *Tannia* sp., and *Amorphophallus* sp. They conserve only edible species of the above mentioned tuber crops. *Dioscorea alata* (Nicobari Aloo) is one of the major tubers being consumed throughout the year. The local varieties such as “Achin & Paltu” (Fig. 1) of *Dioscorea*

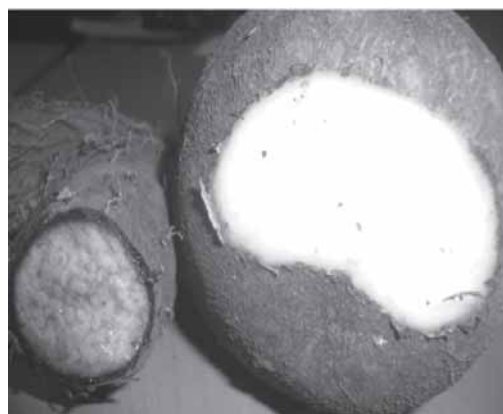


Fig. 1. Greater yam varieties- *Achin* and *Paltu*

*alata* and Tumik of *Dioscorea esculenta* are very popular among Nicobari Tribes (Edison et al., 2006)

## ii. Ash treatment in tuber crops

Application of ash on the cut pieces of elephant foot yam (Fig.2) and greater yam as well as to the pit (Fig. 3) before planting suffocates the eggs and larvae of insects and prevents the contact of adult insect pests on the leaves. These enhances the productivity of the crop. In most of the villages, in hilly areas, farmers use dry cow dung and wood for fuel purpose and the ash obtained is sprayed over the soil and around the tuber crops and other



Fig. 2. Ash application on the cut surface of tuber



Fig. 3. Ash application in the pit

vegetables with hands. Sometimes farmers sieve the ash before putting or spreading. This ITK, which is cheap and eco-friendly, is practiced in most of the villages in

hilly mountain terrain of Himachal Pradesh since time immemorial. (Verma, 2003 )

iii. Traditional methods of cultivation of tuber crops

The Nicobari tribes clear the forest ground before planting and then plant the tuber crops such as greater yam, colocasia, tannia, cassava, arrow root at the same time in the field during March-April every year. They clear the trees and shrubs in the field. A portion of the wood or dried coral is used for making strong fence to protect the crops from animals especially pigs and cattle. This fence can stay for 4-5 years and it is also used to demarcate the individual “tuhet” land. The branches and shoots gets dried up and subsequently incorporated in the soil which becomes the source of nutrition after decomposition. The dried branches are used for spreading of the greater yam vines (Fig. 4) and it also provides partial shade for the aroids (taro, elephant foot yam, tannia and arrow root) and the dried leaves supply the required nutrients to the crops. The tuber crops are harvested at various intervals based on their life span and the biomass is again incorporated in the soil and the harvested produce is distributed among the tuhet (joint family). This is entirely different from the shifting cultivation practiced by the



Fig. 4. Dried branches and shoots for vine climbing tribes of North Eastern States. The alder based farming practice is very common among the indigenous communities of Meghalaya. This multipurpose tree species is grown with sweet potato, elephant foot yam and colocasia. (Ninan, 1992 and Murtem et al., 2008).

iv. Yam storage in bamboo bin

The Nicobari tribes consume greater yam throughout the year and they celebrate the festival called “ *Bada din*” where they display the varieties of different tubers of which greater yam is the major tuber crop popular among Nicobari tribe. This particular greater yam is otherwise called as “Nicobari Aloo”. It is generally stored in a bamboo bin with ring walls made up of vertical pieces of bamboo, each 5-8 cm in diameter, 80-90 cm height and about half meter diameter (Fig 5). The individual tubers are put inside the bin, vertically or arranged in such a way to allow maximum air circulation.



Fig. 5. Bamboo basket/bin storage

This structure reduces the termite attack and enhances the storage life significantly. The products are kept safely without foul

smell up to 8 months. Old fishing nets are used for storage and transportation of greater yam (Fig. 6). This was also reported by Anon (2012).



Fig. 6. Fishing nets for transporting greater yam

v. Petiole intact corms for transport

The Nicobari tribes have unique system of sharing of harvested produce within their “Tuhet” (Joint family).



Fig. 6. Petiole intact tannia corms

They transport the surplus produce of bunda type taro and alocasia from one island to other island by covering them with gunny bags. They also keep atleast 50 per cent of the petiole intact for easy transport and it also enhances the shelf life of the tubers (Fig. 6).

In case of colocasia and tannia, the whole

plant along with corms are harvested and transported from the field, and there after the leaves and petioles are separated and the corms are stored in bamboo baskets (Fig. 7).



Fig. 7. Transportation of *Alocasia* corms

vi. Balanced diet

The tribals consumes tuber in boiled and fried form along with pandanus cake, shredded coconut, tender coconut, coconut toddy and different fish dishes (Fig 8 & 9). They meet the carbohydrate, fat and protein requirement from



Fig. 8. Traditional food of Nicobari tribes



Fig. 9. Boiled tubers, plantain and pandanus

boiled tubers, pandanus cake, rice cake, and coconut. The nutritive value of tuber crops varies with each other and their utilization is region specific (Gopalan et al., 1977; Savitri and Bhalla, 2003)

vii. Coconut leaf for marking the pit

Leaves from the coconut fronds, are separated individually and sharpened at the base. The hard midrib is inserted in to the cut tuber of taro/tannia (planting material) and planted vertically Fig. 10. This technique is used to identify the pit where the tuber is planted as an inter crop in Greater yam plot.

Indigenous traditional knowledge are the nature's gift for the human welfare and livelihood. The processing and preparation of ethnic foods not only demonstrate the





Fig. 10. Hard midrib inserted in the tubers

creativity and treasure of food heritage of tribals but also their incremental learning to sustain their life and ecosystem as a whole. ITK on tuber crops are the tools that help to improve the socio- economic status of the rural people, in general and the tribals, in particular. The study has generated an outlook into role of the tuber crops in the diet of Nicobari tribes and their in maintaining the tuber crops biodiversity and cultivation. Further, studies conducted in this respect (resource management) would give an insight and awareness for maintaining the treasure. The willingness of the *Nicobari* has enabled them to acquire knowledge with time and has made them acquainted with the existing scenario.

## References

- Anonymous, 2012. Innovations and ITK's in Andaman & Nicobar Islands. CARI, Port Blair, 65 p.
- Dagar, JC and Singh, NT. 1999. *Plant Resources of the Andaman & Nicobar Islands* **1**, 987 p.
- Edison, S., M Unnikrishnan, B. Vimala, Santha. V. Pillai, M. N. Sheela, M. T. Sreekumari and K Abhraham. 2006. In: Biodiversity of Tropical Tuber Crops, National Biodiversity Authority, Chennai, Tamil Nadu.
- Gopalan, C, B. N. Rama Sastri and C. Balasubramanian, 1977. In *Book* Nutritive Value of Indian Foods, Published by the National Institute of Nutrition, Indian Council of Medical Research, Hyderabad, India.
- Murtem G, Sinha, G.N. and J. Dopum, 2008. Jhumias view on shifting cultivation in Arunachal Pradesh. *Bulletin of Arunachal Forest Research* **24** (1 & 2) : 35-40.
- Ninan, K. N. 1992. Economics of Shifting Cultivation in India. *Econ Political Weekly*, March 28, A2-6.
- Savitri and Bhalla, T C. 2007. Traditional foods and beverages of Himachal Pradesh. *Indian J. of Traditional Knowledge* **6** (1): pp 17-24
- Verma, LR. 2003. Wood ash as pesticide for tuber crops. In: Inventory of Indigenous Technical Knowledge in Agriculture, ICAR, New Delhi.

<sup>1</sup> Division of Horticulture and Forestry,  
Central Island Agricultural Research Institute,  
Port Blair 744 101, Andaman & Nicobar Islands, India

<sup>2</sup> Project coordinator, AICRP on Tuber Crops, ICAR-Central Tuber Crops  
Research Institute, Sreekariyam, Thiruvananthapuram 695 017,  
Kerala, India

\* Corresponding author: M. Sankaran,  
e-mail: kmsankaran@gmail.com

Received: 01.03.2015; Accepted: 20.03.2015

M. Sankaran<sup>1\*</sup>  
James George<sup>2</sup>  
V. Damodaran<sup>1</sup>  
S. K. Zamir Ahmed<sup>1</sup>  
S. Dam Roy<sup>1</sup>