



Indigenous Traditional Knowledge on Tuber Crops in Bihar

Indigenous traditional knowledge is gaining importance nowadays as they form the basis for many scientific knowledge. Farmers growing tuber crops do have many indigenous knowledge as these crops are mainly grown by marginal farmers and tribal community. Sweet potato, Yam bean, *Colocasia* and *Dioscorea* are the important tuber crops grown in Bihar since the time immemorial. The supremacy of sweet potato was due to the damage of maize, rice and millet crops grown during *Kharif* season by recurrent floods. Only local cultivars of taro such as Red Gauria and other land races were grown for vegetable purpose. Unlike other vegetables, its cormels are stored for 2-3 months, therefore, provided a better option for flood affected areas.

Indigenous traditional knowledge regarding cultivation, utilization and use on tuber crops in Bihar is based on the information collected by interviewing about hundreds of farmers between the age group of 70 to 80 years belonging to different districts viz; Samastipur, Muzaffarpur, Vaishali, East Champaran, Saran, Gopalganj districts of North Bihar and Barh, Lakhisarai, Munger districts of South Bihar.

The information collected about the indigenous traditional knowledge revealed that the practices adopted by the farmers over the years still holds beneficial for cultivation of tuber crops in general and location specific stress environmental conditions in particular. Indigenous knowledge about tuber crops in Bihar have been collected and categorised as follows.

Food and Medicine

- It was reported that sweet potato was used as staple food by two-third population of North Bihar for five to six months before 1965, due to less competition with more remunerative crops. Sweet potato was a life saving crop for both human beings as well as cattle (used as fodder) due to high tonnage in 80-100 days of planting after recedes of flood water.
- Boiled sweet potato mixed in skimmed milk was generally taken as food by middle class people, as a relief for constipation. Roasted sweet potato tubers were mainly used by poor people during winter. Gulabjamun prepared from the paste of red skinned sweet potato tuber is very common and cheap, which is served during marriage ceremony.
- Only local cultivars of taro such as Red Gauria and other land races were grown for vegetable purpose. Its leaves are cut into small pieces and mixed with besan, green chilli, onion, turmeric powder, salt and deep fried for making pakoda, which was very common among rural people in Bihar. Its leaves and cormels are also used as vegetable. Unlike other vegetables, its cormels are stored for 2-3 months, therefore, provided a better option for flood affected areas.
- The tuber of local varieties of yam bean having high fiber content and was used by the poor people. Eating of raw yam bean tubers after peeling helps in minimising diseases like Jaundice in the growing child due to its cooling effect.
- Dried powder and chutney prepared from elephant foot yam corm is used to control piles and constipation.

Use during festivals

- Boiled tuber of sweet potato and lesser yam (*Dioscorea esculenta*) are commonly used by men and women during “Ekadshi” in different districts of Bihar. These are easily digestible when consumed after prolonged fasting.
- “Chhath”, the festival of Sun God, is the most important festival of Hindus in Bihar, Jharkhand and other states in the cities, towns and villages situated along the banks of river Ganges or other rivers. During this festival, elephant foot yam, lesser yam, *Colocasia* (taro), sweet potato, sugarcane sets, ginger, turmeric, coconut, sweet lemon and other fruits propagated asexually are especially offered to Sun God. It is a general belief that these fruits are creation of God who bless the devotees profusely due to these offerings.

- Yam bean tubers are mainly used as Prasadam during “Sarasawati Puja”. It is a general opinion that the Goddess Saraswati likes fruits having white fleshed.
- Serving vegetable of kanda (bunda) is must in different districts of Bihar during feasts.

Soil health

- Harvesting of tubers is done by spade which makes the upper surface of soil loose, thereby, improving aeration and water holding capacity.
- Dried leaves of sweet potato, yam bean, *Dioscorea* etc. at maturity add organic carbon in the soil.
- Winged bean crops and its bushy foliage on burying, add nitrogen in the soil reducing the cost of cultivation of succeeding crops.

Reduces insect pests and diseases intensity

- Harvesting of sweet potato by spade exposes the soil to sunlight and air for long time.
- The women folk search for the left over tubers at least two times after first harvesting.
- Harvesting of sweet potato using spade exposes the soil to sunlight and air which results in the reduction of insect pests.
- Yam bean grown for seed purpose intercropped between the rows of Pigeon pea or kharif maize produces bold seed resulting in more seed yield due to minimum pod borer attack.

Easy cultivation

- Cultivation of tuber crops is first choice for less resourceful farmers due to minimum cost incurred on fertilizers, irrigation, plant protection measures and different cultural practices in comparison to other food crops.
- Wide range of pulses, oilseeds, vegetable crops and spices can be intercropped with elephant foot yam, yam bean and sweet potato. The farmers of villages

around Dhohi centre of AICRP, follow an easy method of planting of Elephant foot yam.

- Earlier, most of the farmers were using side cormel as planting material of taro, which increases the cost of planting material.
- The method of planting of sweet potato in Diara area of Lakhisarai and Munger districts are quite different than upland. A hole of 45cm depth and 5cm width is made by soil gauge. Vine cutting of 50cm is inserted into the hole leaving 5cm outside. The planting is done in the month of November after the flood recedes. The crop is harvested in the month of March-April. Big size of tubers (more than 800g to 1.0kg) is produced by this method of planting.

Rural storage

- The farmers store the cormels of taro in the pits to keep them fresh till next sowing season. The pits are dug in well ventilated rooms having thatched roof and covered by dried turmeric leaves spread all over and cormels are kept in such a manner that it could not come in contact with soil. Pits are sealed by leaves on the top and well plastered with mud paste.
- Cormels of taro or tubers of *Dioscorea* are stored in the big bamboo woven baskets kept in airy thatched roofed room. The sides of the basket are sparsely covered by dried turmeric leaves and tubers are kept inside the basket. The top of the basket is also covered by leaves and plastered by mud.
- The tubers of yam bean could also be stored for a week in the bamboo baskets all side covered by fresh green banana leaves.

Indigenous traditional knowledge developed over years regarding method of cultivation, way of consumption and utilization of tubers during festivals and other things related to tuber crops helps in providing the importance of of tuber crops in the life style of the rural people.

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