

Ethnic Knowledge System on Wild *Dioscoreas* (yams) by the Kanikkars of Southern Western Ghats, Kerala

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Indigenous people with historical background of traditional resource utilization and management possess a vast assemblage of various knowledge systems on the complex behavioral pattern in relation to the ecological systems existing in their own localities. *Kanikkar*, a group of South Indian tribes found in the extreme southern end of Western Ghats has a traditional knowledge base transmitted from generation to generation. They acquired a sound knowledge on the various aspects including uses of cultivated crops and their wild allies. They use a wide array of wild yams for food. In this paper, an overview of the classification of these wild yams and their traditional uses by these indigenous people are summarized. A good relationship exist between the folklore etymology and taxonomic epithets of all the wild yams of the locality.

Key Words: *Dioscorea*, Ethnobotany, Indigenous Technical Knowledge, *Kanikkar*

Kanikkar popularly known as *Kani* is a South Indian tribe found in extreme South Kerala, around Agastyarkudam and Mahendragiri peaks of the Western Ghats in Kerala and nearby areas of the state of Tamil Nadu (Madhava Menon, 1996). They were nomadic agriculturists, but owing to diminution of edible roots and game, they practice settled agriculture, which enables them to live in one place and accumulate the necessities of life (Sashi, 1994). Rice, cassava, aroids and edible fruits form their staple food.

Generally, these tribals establish their dwellings in the semi-evergreen and moist deciduous forests of the southern Western Ghats at an elevation ranging from 90 m to 700 m and the habitat is mountainous. Climate is hot and humid in the plains with little variation throughout the year. Their dwellings are called 'Kanikkudi' and are mostly situated near water sources. Even though many of the settlements are trying to cope up with the development outside their traditional dwelling, they still, to a great extent, lead the traditional life in which many of the wild relatives of cultivated crops are used for their food requirements.

In the past, livelihood of the *Kanis* was totally forest based. Shifting cultivation, collection of Non-wood forest products (NWFP), hunting and fishing were their economic activities for survival and for obtaining a surplus for exchange and trade. The NWFP collected by these tribes are marketed through the Girijan Service Co-Operative Societies, because of the restrictions imposed in collection.

The areas of investigation included various 'Kani settlements' at the foothills of southern Western Ghats

at an altitude of about 120 m to 330 m. Each settlement comprises a minimum of 10 families and it varies up to 45 having different literacy status. They have a better type of dwelling and bamboo forms the main building material. The area comes under the mountainous zone of Trivandrum district. The soil is forest loam of varying depth and of black colour. The area receives both South West and North-East monsoons. The average rainfall is about 1874 mm.

Materials and Methods

As a part of the exploration conducted in the extreme southern end of Western Ghats, five representative 'Kani settlements' in Thiruvananthapuram forest division between 8° 34' 995" and 8° 49' 178" N latitude and 77° 02' 960" and 77° 10' 083" E longitude have been surveyed for the traditional knowledge on tuber crops. The settlements include Chonampara in Kottur reserve, Potomav in Sanghili, Mottamood in Kallar, Chathankode and Chemmankala in Agastyavanam Biological Park. Informants from these settlements include local vaidyas and housewives. A survey was made around the settlement areas to assess the diversity and frequency of occurrence of wild yams. The wild yams have been recognized as NWFP under the section 'Kattukachil' of the group edible products. Information was collected from the tribe on the folk system of identification, classification and traditional uses of yams.

Results and Discussion

The area surveyed is a potential site for variability in wild relatives of crop plants especially, yams, *Piper*, *Vigna*, *Curcuma* and medicinal and aromatic plants. This

floristically rich area is relatively less explored for wild relatives.

Of the different wild allies of cultivated crops, much diversity and variability was noticed among wild yams (Prain and Burkill, 1936). Out of the 14 species of wild yams reported from southern region (Velayudhan *et al.*, 1998), seven different species occurred in this area showing much variation in their distribution. Among the seven different species of *Dioscorea* that have been collected (Table 1), *D. oppositifolia* was rare, while, *D. wallichii* and *D. tomentosa* were uniformly distributed. Others were found in occasional situations. Intra-specific variability was maximum in *D. pentaphylla* and *D. tomentosa*.

Identification and Classification of Wild Yams by Kanikkars

Traditional people have their own system for identification and classification of plant groups based on the uses and characteristics of resources. Kanikkars identify the genus *Dioscorea*, designated as *Kattukizhangu* or *kattukachil* by the nature of stem and leaves. Based on the external morphology of stem, colour, spininess and nature of leaves, they distinguish 7 different groups in wild yams (*Dioscorea*). The method of grouping and naming of the wild yams have been given in Table 1.

Table 1. Traditional grouping and naming of wild yams

Species	Traditional name	Frequency	Uses
<i>Dioscorea wallichii</i>	Neduvan	Uniform	Edible
<i>Dioscorea pubera</i>	Nadunooli	Occasional	Edible
<i>Dioscorea tomentosa</i>	Nooli	Uniform	Antidote for insect bite
<i>Dioscorea oppositifolia</i>	Kavalakizhangu	Rare	Edible
<i>Dioscorea hispida</i>	Thekizhangu (Naykuttykachil)	Occasional	Poisonous
<i>Dioscorea bulbifera</i>	Thampakizhangu	Occasional	Medicinal
<i>Dioscorea pentaphylla</i>	Nooran, Keerinooran	Occasional	Edible/for swelling

They classify each group by a different name and naming signifies the nature specific to the group. Their system of grouping and characters that forms the baseline of this grouping are summarized below:

Kattukizhangu/Kattukachil – Genus *Dioscorea*

I. Neduvan (*Dioscorea wallichii*)

Distinction of this group is identified by the shining, dark, smooth stem and simple glabrous cordate leaves with purple petiole. Tubers elongated, highly coiled, thin, hairy and fibrous. Because of the long thin tubers, they call this *Neduvan* (Neduvan = elongated) (Coll No.: AM/99-22; AM/99-62; Voucher Herb. Accn. No. 2027).

II. Nadunooli/Pulayankadan (*Dioscorea pubera*)

The identification of this group is effected by the green, highly pubescent aerial parts, dark green, cordate, highly pubescent leaves, very deep yellow tubers and with ovate aerial bulbils (Coll. No: AM/99-3; AM/99-27; AM/99-61)

III. Nooli (*Dioscorea tomentosa*)

They identify this group by the tomentose nature of aerial parts combined with simple to penta-foliolate leaves. The distinctive feature of this group is the exudation of mucilage while breaking the tuber, which later forms a net, hence, the name 'nooli' (Coll. No.: AM/99-2; AM/99-24; Voucher Herb. Accn. No. 2029).

IV. Kavalakizhangu (*Dioscorea oppositifolia*)

Generally, the identification of this group is by the distinction of opposite leaves and the presence of smooth stem. This is the most precious edible tubers for the Kanis. They distinguish two different forms of this species:

- (1) Kavalakizhangu – Having dark green leaves and black stem (Coll. No.: AM/99-37).
- (2) Pinnankizhangu (Parakizhangu) – With purple stem and green leaves (Coll. No.: AM/99-58; Voucher Herb. Accn. No. 2035).

V. Thekizhangu (Naykuttykachil): (*Dioscorea hispida*)

Identification of this species is by the large, green trifoliolate leaves and thick, spiny stem. The tubers are highly poisonous. The tubers are spherical to amorphous, flesh yellowish and are harvested in bulk. The name *Naykutty* is from the shape of the tuber resembling a mild puppy. (Coll No.: AM/99-10; AM/99-31; AM/99-46).

VI. Thampakizhangu: (*Dioscorea bulbifera*)

The angular wiry stem with very large cordate dark green leaves with numerous large aerial bulbils, form the identifying features. The name finds its origin by the fact of formation of numerous, large, warty, round

aerial bulbils on kampu (Thampu = stem). The tubers are spherical and brown (Coll. No.: AM/99-10A; AM/99-43).

VII. Nooran and Keerinooran (*Dioscorea pentaphylla*)

They distinguish two different types within this species.

- a. Nooran: The tubers of these are edible and its leaves varied from simple to trifoliate (mainly 3-foliate). (Coll. No.: AM/99-45).
- b. Keerinooran: The tubers are not edible, causes irritation and itching. Leaves are trifoliate. The food is a favourite one for Keeri (Mongoose), hence, the name *Keerinooran* (Coll. No.: AM/99-23; Voucher Herb. Accn. No. 2028).

Traditional Uses

1. *D. bulbifera*: Eaten as vegetable at times of scarcity; dried, powdered and applied to ulcers; also used for piles and dysentery. Tubers are used for liver ailments. These tubers are eaten by those who propose to become saints because of the development of hatred towards food.
2. *D. hispida*: Food at times of scarcity. The tubers are poisonous and are consumed after detoxification
3. *D. oppositifolia*: Tubers are ground and applied to swellings. This is the most favoured edible tuber.
4. *D. pentaphylla*: Tubers used for swellings and flowers are consumed as vegetable. Tubers of one form designated by them as 'Nooran' is edible and the other form, viz., Keerinooran is not edible.
5. *D. pubera*: Tubers and aerial bulbils are edible and are used only after detoxification in boiling water.
6. *D. wallichii*: Tubers are edible.
7. *D. tomentosa*: Tubers are not edible but used for medicinal purpose. The extract from the leaves are used as an antidote for insect bite, especially by bees.

It is vital that the value of the knowledge-practice belief complex of indigenous peoples relating to conservation of biodiversity is fully recognized, if ecosystem and biodiversity are to be managed sustainably (Gadgil, 1993). Moreover, conservation of traditional knowledge would be most appropriately accomplished through promoting the community based resource management system of indigenous people.

The societies with considerable dependence on hunting

and gathering in their immediate neighborhoods are most likely to have accumulated long series of historical observations of relevance to sustainable resource use and conservation of biodiversity. Moreover, self-regulatory mechanisms tend to evolve in such societies when they are faced with resource limitations.

As *Kanikkars* were nomadic agriculturists and have considerable dependence on hunting and gathering from the ancestral period, they might have faced with resource limitations. Such a scarcity period might have forced them for search of more and more edible products. That may be the reason for the utilization of most of the *Dioscoreas* as edible ones. As a result of shifting cultivation, colonization of new territories occur. This may also have contributed for the use of most of the species of *Dioscorea* as edible ones. As far as the safeguarding and sustainable utilization of wild yams are concerned, some of the types like *Nadunooli* and *Kavalakizhangu*, which they prefer for their food, are being grown by them near their settlements or they preserve the plants in its natural habitat so that they can harvest the tubers in a sustainable manner during the next growing season.

Traditional way of classification based on the above ground morphology by these tribal people was found to tally with the taxonomic delimitation of the species in this genera. Even the distinction of two different forms in *D. pentaphylla* and *D. oppositifolia* by these people is an indication towards varietal classification for these species.

Even though much of the knowledge acquired by the pre-scientific societies are qualitative and based on observations on a rather restricted geographical scale, most of these diachronic observations (traditional knowledge transmitted from generation to generation) form the baseline for the synchronic observations of modern science.

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