



Ethnobotanical documentation of medicinal edible tubers used by the Kadar tribe in Kallar, Thiruvananthapuram district, Kerala

P B Smitha^{1*} and J Lohidas¹

¹Department of Botany, Scott Christian College (Autonomous) Nagercoil-629 003 Affiliated to Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli-627 012 Tamil Nadu

* Corresponding author. E-mail: smithapb0106@gmail.com

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ABSTRACT

Edible tubers play a vital role in the human diet, particularly in tropical regions, where root and stem tubers serve as important energy sources next to cereals. These crops are characterized by their bulky nature and high moisture content (60–90%), which results in high transportation costs, short shelf life, and limited market value, despite being predominantly cultivated in developing countries. The Kadar tribe, a small indigenous community of southern India, traditionally inhabits the hilly forest regions between Cochin in Kerala and Coimbatore in Tamil Nadu. A section of this community has migrated and now resides in the Aranakuzhy settlement of Kallar, located along the foothills of the Ponmudi ranges, from where the present information was documented. The Kadar people were found highly dependent on tubers as a major component of their daily diet. While tubers are often regarded as “food of the poor” and commonly consumed varieties include cassava, yams, and taro, the Kadar community follows distinct traditional practices. Notably, they attribute significant medicinal value to edible tubers and deliberately use them not only as food but also as remedies for various ailments, reflecting their rich ethno-medicinal knowledge.

INTRODUCTION

Tubers constitute an essential food of the Kadar tribe, who strongly believe that regular consumption of tubers promotes good health and prevents illness. Nutritionally, tubers are rich sources of carbohydrates and starch and contribute significantly to dietary energy. They also represent extensive plant biodiversity, particularly in forest ecosystems. Many wild edible tubers used by tribal communities are valuable sources of proteins and minerals (Oommachan & Masih, 1988).

The Kadar people carefully conserve these tuber crops owing to their high medicinal value and numerous health benefits. Such plants form an indispensable component of the human diet, supplying essential minerals, vitamins, and certain hormone precursors in addition to protein and energy (Akubugwo *et al.*, 2007). The major objectives of the present study are:

(i) to promote the conservation of tuber crops, (ii) to document the indigenous knowledge of the Kadar people, and (iii) to assess the diversity of tuber crops

in the Aranakuzhy settlement.

MATERIALS AND METHODS

The information for the present study was collected using scientifically structured questionnaires, personal interviews, and direct interactions with key informants. The study aims to highlight the importance of tubers and to identify the most preferred tuber species used by the tribal community. Several field visits were conducted in the tribal villages of the Aranakuzhy settlement, Kallar, Thiruvananthapuram District of Kerala State in the year 2024-2025 (Figure 1) and data were collected through detailed discussions of local informants (Figure 2).



Figure 1. Figure 1: Map of study area



Figure 2. Figure 2: Collection of information from tribal community

Photographs of the plants were taken in the field, and species identification was carried out by comparing floral characters with standard taxonomic literature, particularly Gamble's *The Flora of the Presidency of Madras*.

RESULT & DISCUSSION

The present study documented the wild edible tubers used by the Kadar tribe of the Aranakuzhy settlement in Kallar. The Kadar people commonly utilized several species of *Dioscorea*, including *Dioscorea bulbifera* L., *Dioscorea hispida* Dennst., *Dioscorea oppositifolia* L., *Dioscorea pentaphylla* L., *Dioscorea alata* L., and *Dioscorea wallichii* Hook.f. In addition, members of the family Araceae such as *Colocasia esculenta* and *Amorphophallus paeoniifolius* were found frequently consumed. Apart from these commonly used food tubers, several other tuberous plants were specifically used for medicinal purposes (Table 1).

Table 1: Edible tubers used as medicine by Kadar tribes in Aranakuzhy region						
Botanical name	Family	Local name	Habit	Plant part used	Food value	Ethnobotanical importance
<i>Adenia hondala</i> (Gaertner) de wilde	Passifloraceae	Karimuthukk	Climber	Tuber	Edible	Juice of tuber used in skin problems.
<i>Alocasia fornicate</i> (Roxb.) Schott	Araceae	Ana chemb	Herb	Tuber	Edible	Used in Rheumatism, Dropsy, piles.
<i>Asparagus racemosus</i> Willd.	Liliaceae	Satawari	Creeper	Tuber	Edible	Tubers crushed withturmeric (<i>Curcuma longa</i>) and the filtrate administered for chest pain and stomach pain - 2 spoonful twice a day for 3 days.
<i>Chlorophytum laxum</i> R. Br	Liliaceae	Nerroottikizhangu	Herb	Tuber	Edible	Used for sexual weakness, obesity, Snake bite.
<i>Costus speciosus</i> (Koenig) Sm.	Costaceae	Channa koova	Herb	Tuber	Edible	Tuber extract administered for gastric trouble- 2 spoonful's once a day for 5 days.

<i>Curculigo orchioides</i> Gaertn.	Hypoxidaceae	Nilappana	Herb	Tuber	Edible	Raw tuber eaten for dysentery.
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<i>Cyanotis tuberosa</i> (Roxb)	Commelinaceae	Kuduma neeli	Creeper	Tuber	Edible	Used in skin diseases, vomiting, inflammation.
<i>Cyperus rotundus</i> L.	Cyperaceae	Muthanga	Herb	Tuber	Edible	Crushed tuber powder taken orally as tonic.
<i>Hemidesmus indicus</i> (L.) R. Br	Asclepiadaceae	Naruneendi	Climbing herb	Tuber	Edible	Used in skin diseases, asthma, helminthiasis.
<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Lotus	Herb	Tuber	Edible	Tuber extract given for diarrhoea - 2 spoonful twice a day. Rhizome, seeds and tender petioles used as vegetable.
<i>Pueraria tuberosa</i> (Roxb. ex-Wild) D.C.	Fabaceae	Vidari kand	Climber	Tuber	Edible	Powdered tuber is given in rheumatism, swellings.
<i>Solenia amplexicaulis</i> (Lam.)	Cucurbitaceae	Nerinjam puli	Creepers	Tuber	Edible	Used for spermatorrhoea, thermogenic, diuretics.

The recorded species were belonged to diverse plant families, with representation from Passifloraceae (1 species), Araceae (1), Liliaceae (2), Costaceae (1), Hypoxidaceae (1), Commelinaceae (1), Cyperaceae (1), Asclepiadaceae (1), Nelumbonaceae (1), Fabaceae (1), and Cucurbitaceae (1), as illustrated in Figure 3. Based on growth habit, most of the tuberous plants were documented as herbs (50.0%), followed by creepers (25.0%), climbers (17.0%), and climbing herbs (8.0%), as shown in Figure 4. Commonly used edible tuber by Kadar tribals in study area is illustrated in Plate 1.

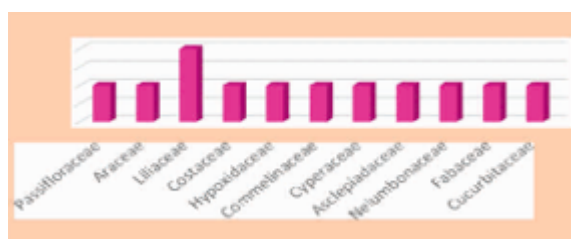


Figure 3. Figure 3: Distribution of edible tuber species across different plant families. The x-axis represents plant families, and the Y-axis represents the number of species recorded in each family.

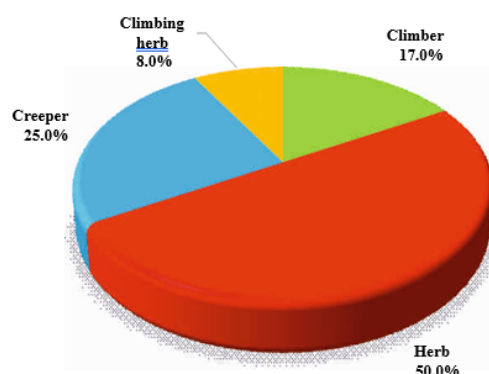


Figure 4. Figure 4: Distribution of tubers based on habit

CONCLUSION

Tuberous plants serve as an integral resource for the Kadar community, contributing significantly to nutrition, healthcare, and livelihood sustainability in the Aranyakuzhy region. Seasonal availability determines their harvesting patterns, and the collected tubers are either incorporated into daily meals or utilized in traditional remedies for specific health conditions. The present study focuses on conserving these valuable plant resources and improving their utilization potential, with the broader objective of strengthening food security and supporting socio-economic development. In addition, the ethno-medicinal knowledge associated

with these tuberous species offers promising prospects for future scientific evaluation and the discovery of novel bioactive compounds.



Figure 5. Adenia hondala Alocasia fornicate Asparagus racemosus Chlorophytum laxum



Figure 6. Costus speciosus Curculigo orchioides Cyanotis tuberosa Cyperus rotundus



Figure 7. Hemidesmus indicus Nelumbo nucifera Pueraria tuberosa Solena amplexicaulis Plate 1: Edible tubers used as medicine by the Kadar tribes of Aranakuzhy in Kallar

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