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Ethno Medico Botanical Survey Study of Tuberous Vegetables in Udupi District of Karnataka, India

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ABSTRACT

Objective: An ethno medico botanical survey was under taken to collect the ethnic information of tuberous vegetables from folklore informers in Udupi District of Karnataka State during the year 2014-16. **Methods:** The indigenous knowledge of the folklore informers and the plants used as tuberous vegetables were collected through the questionnaire and personal interviews during the field trips. **Results:** The medicinal uses of 20 plants belonging to 11 families have been documented for their medicinal properties. **Conclusion:** Tuberous vegetables used in Udupi District form a rich source of indigenous knowledge which can function for nutritional purposes.

KEYWORDS

Ethno Medico Botanical Survey, Tuberous Vegetables, Folklore Informers



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INTRODUCTION

Among ancient civilizations, India has been known to be rich repository of medicinal plants. The forest in India is the principal repository of large number of medicinal and aromatic plants, which are largely collected as raw materials for manufacture of drugs and perfumery products. In the Ayurvedic system of medicine. Unfortunately, much of the ancient knowledge and many valuable plants are being lost at an alarming rate. With the rapid depletion of forests, impairing the availability of raw drugs, Ayurveda, like other systems of herbal medicines has reached a very critical phase because of this scarcity.

These plants are well understood by the tribals, they are in general, special groups sharing common language and culture. They are living under varying geo-ecological setting of hills and forest areas far away from modern convenience of life. They are the economically backward ethnic group. They are food gatherers, hunters, forest-land cultivators, and minor forest produce collectors. They live in isolation, near to Nature. They have vast knowledge of plants in which they apply their daily life. In the name of civilization, commercial propaganda, busy lifestyle the knowledge of the surrounding plants are declining day by day and only few exotic plants are

highlighted by mass cultivation and marketing.

According to *Acarya Vagbhata* the drug, which is grown in the same region in which a person lives, will be ideal for that person. That drug which possesses properties similar to the properties of the land, in which a person is born, is suitable for use even while residing in other regions¹. Such healthy advises are included as religious customs and since we are not following this rule and following the modern diet regimen we are landing up in varied types of disorders.

Though we have lost much information about the native plants, still they are used in rural villages of India, the folk and ethnic people are well aware about such rare, medicinal, nutritionally rich and seasonally available plants. They use naturally available plants, judiciously for the need of diet and health with the thorough knowledge about its cultivation, propagation, collection, processing, preparations and preservation.

Many vegetables are surrounded by a long and colorful history of symbolic meaning and mythical tales. In the olden days, people used to have the plants as it is without baking roots and tubers but as the course of the civilization developed, it has changed to delicious dishes. The ethnic



people use many tubers as nutritive vegetables.

As the knowledge of medicinally prized plants is declining even in rural area, there is a emergency to accumulate all the possible important information about these plants by repeated field surveys thus it is the prime work of *Ayurveda* scholars as they can interpret the information given by folk informers in a better way.

So there is a definite requirement of documentation of the ethnic information related to the plants to encourage the utility

and preservation of the plants simultaneously. Hence this study is aimed to gather the traditional information of tuberous vegetables available in Udupi district.

STUDY AREA:UDUPI DISTRICT²

Udupi is one of the District of Karnataka which is bounded by Northcanara district on the north, Shimoga and Chikmagalur districts on the east, Southcanara on the south and Arabian Sea on the west as shown in Figure 1.

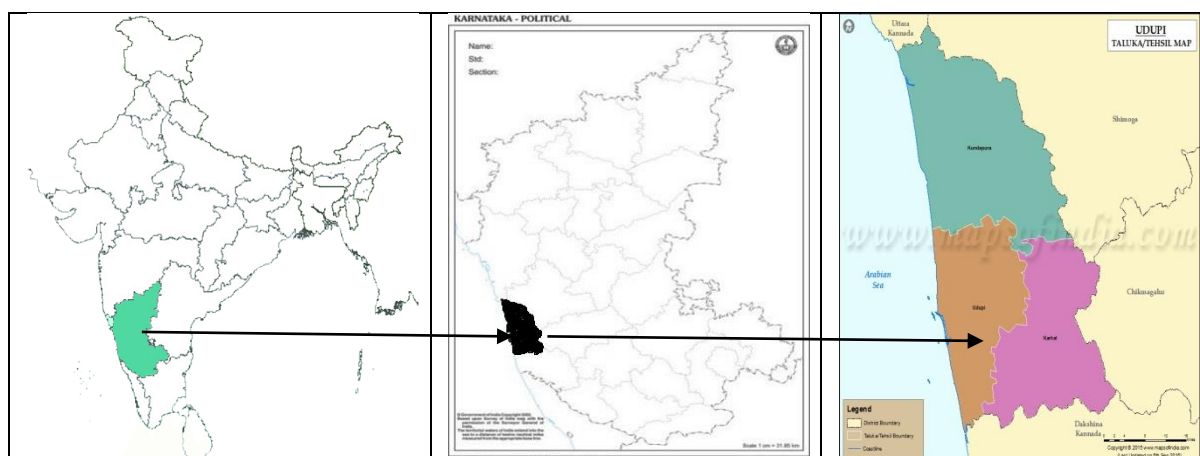


Figure 1 Map of Study area

Physiographically, this area can be divided into 2 regions¹. The sandy low land adjoining the coast.². An undulating plateau which covers more than 2/3 of area. The climate in general is of a humid tropical type. Mean maximum temperature in summer is about 35°C. Minimum temperature in winter is about 25 °C. The weather is hot and humid in most of the time of the year. Two types of vegetation seen 1. Coastal and Mangrove vegetation.

2. Vegetation along the Coastal Belt and in the Inland Plateau. We can classify the soil of Udupi district into 3 types - 1. Red soil, 2. Laterite soil, 3. Coastal sands: Population and density: Udupi had a population of 11,77,908 where Males constituted 49% of the population and females 51%. The average literacy rate was 83%, higher than the national average of 59.5%; male literacy was 86% and female literacy 81%.



An ethno medico botanical survey was under taken to collect the ethnic information of tuberous vegetables from folklore informers in Udupi District of Karnataka State during the year 2014-16. The indigenous knowledge of the folklore informers and the plants used as tuberous vegetables were collected through the questionnaire and personal interviews during the field trips.

MATERIALS AND METHODS

The survey was conducted in 3 Taluk of Udupi district of Karnataka. Where prominent and well-experienced 20 local *Vaidyas* and folklore informers (tribal medicine men without any formal training in any codified system of medicine) statements were recorded by filling the questionnaire in pre prepared proformas. For each plant the following information was requested.

1. Local name of plant and habitat
2. Preparation
3. Dosage
4. Administration
5. Precaution
6. Storage condition (if any)
7. Period of collection of plant
8. Method of collection
9. Medicinal / culinary Uses of the plant.
10. Cultivation techniques.

Collected information is confirmed by cross-checking with other folklore informers and authentication of plants was done by the help of renowned taxonomist. The plant information was compared with already existing literature.

DISCUSSION & RESULTS

Repeated field surveys were carried out in Udupi, Kundapura and Karkala taluks of Udupi District, met the folk informers and collected the detailed information as per the pre prepared proforma. Then the plants were identified with the help of botanist and systematically documented all the ethno medico botanical information of the tuberous vegetable plants and correlate them classically.

During the survey gathered the information of uses of 20 plants belonging to 11 families has been documented for their medicinal properties.

Among the collected twenty tuberous vegetables 12 are Among them 12 tuberous vegetables are seen in cultivation out of which *Alocasia macrorrhizos* (L.) G. Don Figure 2. and *Dioscorea esculenta* (Lour) Burkill. Figure 3. are recently seen in markets of Udupi District, but the rest 8 tubers like *Amorphophallus commutatus* (Schott) Engl , *Cissus elongata* Roxb, Figure 4.



Figure 2 Plant and tubers of *Alocasia macrorrhizos* (L.) G. Don



Figure 3 Plant and tubers of *Dioscorea esculanta* (Lour) Burkill



Figure 4 Plant and tubers of *Cissus elongata* Roxb
Dioscorea alata L. Figure 5., *Dioscorea bulbifera* L., *Dioscorea oppositifolia* L. Figure 6., *Dioscorea pentaphylla* L., *Dioscorea*

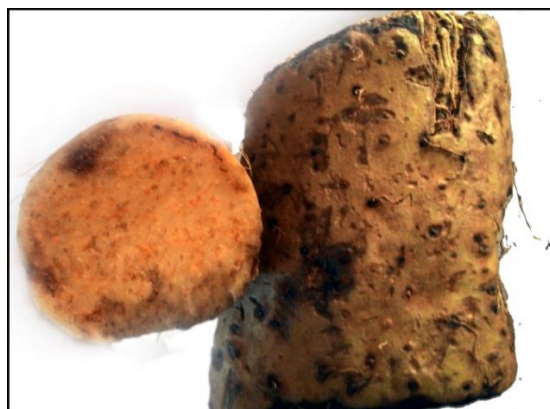
hispida Dennst., *Flemingia tuberosa* Dalzell. and *Brachystelma edule* Collett & Helmsi. are collected from wild itself.



Figure 5 Plant and tubers of *Dioscorea alata* L.



Figure 6 Plant and tubers of *Dioscorea oppositifolia* L.



Utility of these 8 species are not much explored, hence these plants need encouragement for their cultivation and propagation. Out of the eight which are collected from wild are not known by much of the people needs some encouragement for their preservation and cultivation. Some

plants The Species like *Cissus elongata* Roxb., *Dioscorea hispida* Dennst, *Flemingia tuberosa* Dalzell. *Brachystelma edule* Collett & Helmsi are becoming very rare because of deforestation. The information about the tuberous vegetable is explained in Table No 1.

Table 1 Description of the tuberous vegetables used by the folklore people of Udupi district.

S.NO	Botanical name	Family	Local Name	Sanskrit Name	Uses as per folk informers
1.	<i>Amorphophallus paeoniifolius</i> var. <i>campanulatus</i> (Decne.) Sivadasan	Araceae	<i>Soorna/suvarna gedde</i>	<i>Soorana</i> ³	It is a best Diet. Improves strength. Increases blood qualities
2.	<i>Alocasia macrorrhizos</i> (L.) G.Don	Araceae	<i>Marasanige / marsangadde</i>	<i>Maanakaan da</i> ⁴	Improves strength. Increases digestive fire
3.	<i>Amorphophallus commutatus</i> (Schott) Engl.	Araceae	<i>Keenegedde</i>	-	Used especially in rainy season as a tonic.
4.	<i>Colocasia esculenta</i> (L.) Schott.	Araceae	<i>Kesu</i>	<i>Aaluki</i> ⁵	Used specially in rainy season as a tonic , also to maintain the health.



5.	<i>Coleus rotundifolius</i> (Poir.) A. Cheval & Perr.	Lamiaceae	<i>Sambranigedde</i>	-	Increases muscle bulk Improves strength Enhances the taste
6.	<i>Cissus elongata</i> Roxb.	Vitaceae	<i>Kirmbelgedde</i>	-	Used as blood purifier.
7.	<i>Asparagus racemosus</i> Willd.	Liliaceae	<i>Halavumakkala taayiberu</i>	<i>Shatavari</i> ⁶	Improves strength. Improves quality and quantity of breast milk.
8.	<i>Zingiber officinale</i> Roscoe	Zingiberaceae	<i>Shunti</i>	<i>Shunti</i> ⁷	Indigestion and <i>vata</i> related diseases
9.	<i>Curcuma amada</i> Roxb.	Zingiberaceae	<i>Kukkushunti</i>	<i>Amragandi haridra</i> ⁸	Indigestion and increases the taste
10.	<i>Ipomoea batatas</i> (L.) Lam.	Convolvulaceae	<i>Genasu/Sihigen asuGireng</i>	-	Nutritive, increases the strength
11.	<i>Manihot esculanta</i> Crantz	Euphorbiaceae	<i>Maragenasu</i>	-	Increases Vata, nutritive
12.	<i>Dioscorea esculenta</i> (Lour) Burkill.	Dioscoreaceae	<i>Tuppagenasu/Dakh genasu/Bole gireng</i>	-	Improves strength. Nutritive
13.	<i>Dioscorea alata</i> L.	Dioscoreaceae	<i>Hedigenasu/Toonagenasu</i>	<i>Aluka</i> ⁹	Improves strength. Nutritive
14.	<i>Dioscorea bulbifera</i> L.	Dioscoreaceae	<i>Heggenasu/Kurudagadde</i>	<i>Varahikanda</i> ¹⁰	Improves strength. Nutritive
15.	<i>Dioscorea oppositifolia</i> L.	Dioscoreaceae	<i>Kaadu genasu Chaayi gedde</i>	-	Nutritive, increases the stamina
16.	<i>Marrubium arundinaceum</i> L.	Marantaceae	<i>Aararoot / Koove</i>	<i>Tavaksheeri</i> ¹¹	Supplement during the diarrhea nutritive
17.	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	<i>Toona gedde</i>	---	Tubers used as tonic
18.	<i>Dioscorea hispida</i> Dennst.	Dioscoreaceae	---	---	Reported as tubers are edible after cooking.
19.	<i>Flemingia tuberosa</i> Dalzell.	Fabaceae	<i>Nosulu gedde</i>	---	Tubers are reported as edible and used in dysentery.
20.	<i>Brachystelma edule</i> Collett & Helmsi	Apocynaceae	<i>Devaragedde</i>	---	It is nutritious

CONCLUSION

The ethno- medico- botanical survey is well established in Ayurveda. We can observe many references where *Acharyas* explain to collect the information from the folklore informers on the basis of Ayurvedic principles and also encourages regional survey.

Udupi District is one of the best areas in the vicinity of Western Ghats with good vegetation and many folklore informers and tribal peoples with good knowledge about the rational utility of plants were noted in this present study. about the plant are available for the study.

The study affirmed that tuberous vegetable have great potentials for increasing the



immunity and a good source of nutritional requirements. The study also revealed that there was high diversity of medicinal plants and traditional knowledge about the use, preparation and applications of these plants in Udupi district.

With the help of this study further detailed studies of these less explored tuberous vegetables can be taken up and its cultivation and propagation can be encouraged.



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