

**DOCUMENTATION OF WILD PLANT TUBERS AS FOOD RESOURCES IN HASSAN DISTRICT,  
KARNATAKA**Prashanth Kumar, G M<sup>1</sup> and Shiddamallayya N \*

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**ABSTRACT:** Hassan district is noted for its rich diversity of plant species apart from wetlands to flood plains serving the habitat requirement of several inhabitant communities and is unique in its nature by having rich diversity of wild edible plants. A number of cultivated food plants having their wild relatives such as Black pepper, Cardamom, Cinnamon and Curcuma etc. are present in the district. The present survey encompasses documentation of 29 wild tuberous plant species belonging to 15 family and 24 genera tabulated with botanical name, local name, and family, habit and habitat, mode of consumption and medicinal uses of the same.

**Key Words:** Wild Edible, Food, Hassan, Tubers

**INTRODUCTION**

Plants provide food and medicine besides protecting the environment and are very important for survival of peoples. Human beings have adapted to the present life style of crop cultivation for food from hunting gathered nearly 10,000 years ago, probably due to population explosive, climate change, over hunting may be as simple disserve for more food (Cohen, 1977; Wadley and Martin, 2000). Wild edible plants are important in the livelihood strategies of local people, and forest dwellers in many developing countries (Johns and Kokwaro, 1991). India is rich in the floral diversity of roots and tubers. It harbours two of the richest global biodiversity hot spots in the Western Ghats and the North eastern regions. The hotspot contains a large number of wild relatives of cultivated tuber crops as well as many under- exploited tuber crops known to tribals. Major portion of the genetic diversity of wild species and land races existing in the tropical forests and remote villages are yet to be explored, collected and conserved (Edison *et al*, 2005). Wild edible plants as alternative to staple food during deficit are valuable supplements for a nutritionally balanced diet (Shrestha and Dillion, 2006). The wild tuber plants characteristically have a storage organ may be as true bulb, corm, tuber, tuberous root and rhizome. Carbohydrates and nutrients reserve are stored in these organs to support growth of plants. Nutritional profile of many wild edible plants have found comparable and sometime better to many cultivated varieties (Sundaral and Sundaral, 2002; Rana *et al*, 2007; Ali, 2009). Wild plants provide the medicines cheaply and readily available to the vast majority of the rural population, as is the case in many other developing countries in the world. They are also a source of some of the active ingredients in modern pharmaceuticals. However, the active compounds, proper methods of preparation, dosages, effectiveness and side effects of medicines prepared from these plants have not yet been studied extensively (Christopher *et al*, 2002).

**STUDY AREA**

Hassan district is located between 12° 13' and 13° 33' N and 75° 33' and 76° 38' E. A west to east cross section of south India through the Hassan district from the Arabian sea to the Bay of Bengal would show a low, narrow, alluvial plain, the sudden rise of Western Ghats to a slight drop to the Deccan plateau, a long gradual dip to the Eastern alluvial plain ending at the Bay of Bengal. Hassan district begins at the base of the steep Western ghat and continues into the gently rolling Deccan plateau. The biodiversity is very diverse at all levels of habitat, species and genetic also with high rate of endemism in flowering plants and this rich diversity has produced large number of plants of immense economic value. A number of cultivated food plants have their wild relatives are present in the district. Hence the present study comprises the documentation of wild edible tuberous plants consumed in Hassan district, Karnataka.

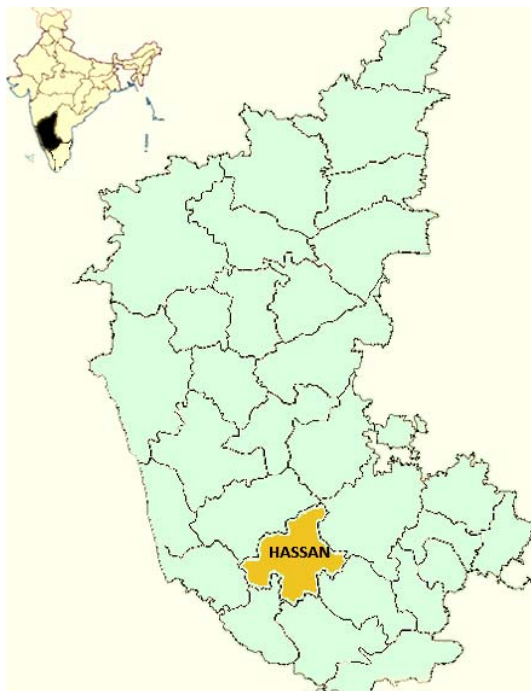


Fig.1. Karnataka map showing Hassan district



Fig.2. Hassan district map showing eight taluks

## METHODOLOGY

Ethno botanical survey with respect to wild edible tuberous plants was carried out during December 2013 to January 2014. The study area was frequently visited, local informants were used to locate and collect the plants. The uses of plants and its parts and method of usage were obtained through semi structured questionnaires, frequent interaction and discussion with local villagers, which included farmers, housewives and herdsmen. Live specimens and available photographs were shown to them for local identification. Standard methods were followed with regards to collection of plant materials, drying, mounting, preparation and preservation of herbarium sheets and museum sample (Jain and Rao, 1967). Botanical identification of the species were done with the help of floras (Saldhana and Nicolson, 1976; Saldhana, 1984, 1996) and also the herbarium collection maintained in RRCBI, NADRI, Bangalore.

## RESULT AND DISCUSSION

The study provides empirical evidence about traditional knowledge and diversity of Wild tuberous plants. The study area is floristically rich and includes various useful wild tuberous plant species. The present survey encompasses the documentation of 29 wild tuberous plant species belonging to 15 family and 24 genera tabulated with botanical name, local name, and family, habit and habitat, mode of consumption and their medicinal uses. A maximum of 05 plants from Araceae, 05 from Dioscoreaceae, 03 from Liliaceae, 03 from Asclepiadaceae and 02 from Zingiberaceae 02 from Fabaceae and 01 from Passifloraceae, Aponogetonaceae, Costaceae, Hypoxidaceae, Commelinaceae, Cyperaceae, Euphorbiaceae, Nelumbonaceae, Alismataceae were reported along with photographs (Table.1 and Fig.3-11). Wild tuberous plants have dual significance for their food value and some pharmaceutically active constituents. Most of the tuberous plants grow in shady and moist places due to habitat destruction and overexploitation for food and medicine. The wild tuberous plants are facing the threat of extinction e. g. *Ceropegia*, the fleshy underground parts of most of the species are eaten by animals apparently wild boars in the district and this probably accounts for the scarcity of these attractive plants. Therefore, proper and organized documentation of these plants and identification of potential species for prioritization of conservation through sustainable management is finding essential so that the resources and knowledge can be preserved, managed and utilized. The little emphasis made for the promotion of wild species were of significant importance to local farmers, recently there had been increased concern for the need to domesticate promising wild species as a long term source of income to the rural people.



**Fig.3. *Amorphophallus campanulatus* (Roxb.) Bl.ex Decaisne**



**Fig.4. *Asparagus racemosus* Willd.**



**Fig.5. *Ceropegia tuberosa* Roxb.**



**Fig.6. *Costus speciosus* (Koenig) Smith**



**Fig.7. *Curculigo orchoides* Gaertner**



**Fig.8. *Dioscorea oppositifolia* L**



**Fig.9. *Iphigenia indica* (L.) A. Gray ex Kunth**



**Fig.10. *Nelumbo nucifera* Gaertner**



**Fig.11. *Zingiber montanum* (Koenig) Link ex A Dietrich**

Table.1. Documentation of Wild Edible Tubers Plants in Hassan District, Karnataka

S. No.	Botanical name	Family	Local name (Kannada)	Habit and Habitat	Mode of Consumption	Medicinal Uses
1	<i>Adenia hondala</i> (Gaertner) de Wilde	Passifloraceae	Vidari	Climbing herb, frequent in forests	Tuber eaten cooked	Juices of roots used in skin troubles
2	<i>Alocasia fornicata</i> (Roxb.) Schott.	Araceae	Dumparase	Perennial herb, occurs abundant along fast stream in ghat	Tubers are eaten cooked with much acidic fruit like tamarind	Used in rheumatism, dropsy, swellings, constipation, piles etc
3	<i>Amorphophallus bulbifer</i> (Roxb) Bl	Araceae	Kadu suvaragedde	Cormous herb, occasional in shade on clayey soil in forest	Corms eaten cooked	Used in piles, worm infestation, liver and splenic diseases
4	<i>Amorphophallus campanulatus</i> (Roxb.) Bl.ex Decaisne	Araceae	Kadu suvaragedde	Cormous herb, occasional in shade on clayey soil in forest	Corms eaten cooked	Used in elephantiasis, tumours, haemorrhages, vomiting, seminal weakness
5	<i>Aponogeton echinatus</i> Roxb	Aponogetonaceae	Kotigedde	Submerged, tuberous herb, common in stagnant water	Tuber eaten cooked	Used in skin diseases, leucorrhoea
6	<i>Arisaema tortuosum</i> (Wall) Schott & Endl. var. <i>tortuosum</i>	Araceae	Haavumari gida	Cormous herb, occurs in westerns plains	Corm eaten cooked	Roots used to kill worms, brain tonic
7	<i>Asparagus racemosus</i> Willd.	Liliaceae	Shatavari	Woody climber, common in shade on thin soil of plain	Tuber eaten cooked	Used in nervous disorders, acidity, dyspepsia, diarrhea, burning sensation, hypertension
8	<i>Ceropegia tuberosa</i> Roxb.	Asclepiadaceae	Guttalu	Erect herb, occurs in scrub forest	Tubers eaten either in raw or in cooked form	Used as seminal debility and general debility
9	<i>Chlorophytum laxum</i> R.Br	Liliaceae	Nelatengu	Scapigerous herb, locally common in hill tops	Tuber eaten cooked	Sexual weakness, obesity, leucorrhoea
10	<i>Colocasia esculenta</i> (L.) Schott.	Araceae	Kesavina beru	Rhizomatous herb, locally abundant in marshy places	Tuber eaten as a vegetable after cooking	Used in somatalgia, alopecia, haemorrhoids and congestion of the portal system
11	<i>Costus speciosus</i> (Koenig) Smith	Costaceae	Pushakara moola	Perennial, creeping tuberous herb, fairly common in ghats	Rhizome eaten cooked	Rhizome juice is used as medicine for treatment of Jaundice, dysentery, skin diseases
12	<i>Curculigo orchioides</i> Gaertner	Hypoxidaceae	Nela tengu	Tuberous herb, common in the exposed grassland	Roots are used for preparation of Local drinks	Used in spermatorrhoea, piles, jaundice, gonorrhoea

13	<i>Curcuma neilgherrensis</i> Wight	Zingiberaceae	Kadu harshina	Perennial herbs, Common on exposed areas and on hill slopes, in Western ghats	Rhizome used to flavor cooked food	Cardiac diseases, abdominal disorders
14	<i>Cyanotis tuberosa</i> (Roxb)	Commelinaceae	Yemme gedde	Creeping, tuberous herb, common in sandy soil of plains	Tuberous root eaten cooked	Used in inflammation, skin diseases, verminosis, vomiting
15	<i>Cyperus rotundus</i> L.	Cyperaceae	Konnari gedde	Herb, in plains, as weed of cultivation	Tuberous root eaten cooked	Used in stomach and bowel complaints
16	<i>Decalepis hamiltonii</i> Wight & Arn.	Asclepiadaceae	Makali beru	Climbing herb, found in rocky places	Roots made into pickles	Used in polyuria, haemorrhage, jaundice
17	<i>Dioscorea belophylla</i> Voigt	Dioscoreaceae	Navane genasu	Perennial climbers, common in forest	Tubers are cut in to small pieces and boiled in water, water is decanted, cooked and used as food	Tuber powder form applied to ulcer
18	<i>Dioscorea bulbifera</i> L.	Dioscoreaceae	Heggenasu	Perennial climbers, wet deciduous forest	Tubers are cut in to small pieces and boiled in water, water is decanted, cooked and used as food	Paste of tuberous root is applied on erysipplas, swellings, syphills, etc
19	<i>Dioscorea hispida</i> Dennst	Dioscoreaceae	Halu genasu	Perennial climbers, occurs in wet forest	Tubers are cut in to small pieces and boiled in water, water is decanted, cooked and used as food	Used in piles and dysentery
20	<i>Dioscorea oppositifolia</i> L.	Dioscoreaceae	Hakki genasu	Perennial climbers, common in forest	Tubers are cut in to small pieces and boiled in water, water is decanted, cooked and used as food	Tubers used as tonic and in swellings
21	<i>Dioscorea pentaphylla</i> L	Dioscoreaceae	Kaadu gumbala	Perennial climbers, wet deciduous forest	Tubers are cut in to small pieces and boiled in water, water is decanted, cooked and used as food	Tubers used as tonic and in swellings
22	<i>Hemidesmus indicus</i> (L.) R. Br.	Asclepiadaceae	Sogade beru	Climbing herb, common in wettest places	Root powder is used as an additive in preparation of tea	Used in burning sensation, skin diseases, asthma, fits, dyspepsia, helminthiasis
23	<i>Iphigenia indica</i> (L.) A. Gray ex Kunth	Liliaceae	Kadu bellulli	Cormous herb, fairly common in shade on grassy soil of hills	Corm eaten cooked	Corms used in colic
24	<i>Manihot esculenta</i> Crantz	Euphorbiaceae	Maragenasu	Small tree, occurs in ghat forest	Tubers eaten cooked	The juice of tubers to treat constipation

25	<i>Nelumbo nucifera</i> Gaertner.	Nelumbonaceae	Tavare beru	Aquatic, perennial, stoloniferous herb, Common in open tank	Roots eaten cooked	Used in pharygopathy, dysentery, smallpox, cough
26	<i>Pueraria tuberosa</i> (Roxb. ex Wild.) D.C.	Fabaceae	Gummadi balli	Climber, stream beds, dry tracts, Hill forests and in Waste lands	The tuber is fleshy, tastes liquory and eaten cooked	Powered roots is given in sprue, rheumatism, swellings, prostrate problems
27	<i>Sagittaria sagitifolia</i> L	Alismataceae	Kere gende	Rooted, scapigerous herb, occurs in large ponds	Roots eaten cooked	Used as discutient; also given to arrest flow of milk in nursing mothers.
28	<i>Vigna vexillata</i> (L.) Rich.	Fabeceae	Kaadu taguni	Climbing herb, occurs in ghat forest	Tuberous roots are eaten cooked	Paste of tuberous root is applied on swellings
29	<i>Zingiber montanum</i> (Koenig) Link ex A Dietrich	Zingerberaceae	Kadu shunti	Herb, Moist, sandy, loose soil in shady places	Roots made into pickles	Used in cough, stomachache, asthama and also as a vemifuge

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