

Documentation of Wild Leafy Vegetables of Hassan District, Karnataka

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ABSTRACT

Hassan district is situated at the foothill of Western Ghats of Karnataka and unique in their nature by having rich diversity of wild edible plants. The people of Hassan district mainly rural population depend on wild greens as food supplements. This paper encompasses the information of 45 species of 42 genera of 31 families were tabulated as botanical name, local name, family, habitat, mode of consumption and medicinal uses. Use of wild leafy vegetables may act as alternative food resources other than cultivated vegetables, thus also acting as a multi-valued resource for health and wealth.

Key Words: Wild, Leafy vegetables, Traditional knowledge, Edible, Hassan.

INTRODUCTION

Uses of wild edible plants have played an important role in human life, since time immemorial. Millions of people do not have enough food to meet their daily requirements and are deficient in one or more nutrients^{3, 8} and the similar situation is noticed in India with 70% rural population with rain fed agriculture dependent population. In India most rural inhabitants depend on wild edible plants to meet their additional food requirements as they provide staple and supplement foods to rural communities. The diversity in wild plant species offers variety in family diet and contributes to household food security. The nutritional value of wild plants is higher than several known common vegetables^{8, 14}. India secured second position in the world next to china in vegetable production. However, this is much less than the recommended requirement of 300g/capita/day of vegetables for a balanced diet. Although, 175 major and minor vegetable crops are grown in India including 82 leafy vegetables, there is a challenge to achieve the target of 160 million tons of vegetables to fulfil the recommended requirement by 2020⁹. The World Health Organization (WHO) recommends a daily intake of more than 400g of vegetables per person to protect against diet related chronic diseases¹⁶. Besides, wild edible plants are rich resource of carbohydrates, oils, proteins, minerals, ascorbic acid and the antioxidant phenols¹. There are at least 3000 edible plant species known to man, with merely 30 cultivated crops contributing to more than 90% of the world's calorie intake, and only 120 crops are economically important on a national scale. A total of 1632 edible wild food species were recorded in India from Western Ghats and Himalayan region². Traditional Knowledge of wild food is largely transmitted through participation of individuals helps for future generation to obtain inexpensive food resource⁶.

Wild edible plants are largely ignored in land use planning and implementation, economic development, and biodiversity conservation. Wild edible plants related traditional knowledge is rapidly eroding. Documentation of traditional knowledge regarding wild edible plants limited compared to medicinal plants¹⁵.

In Karnataka, a limited work has been carried out by botanists^{4, 5, 10 and 11}. In Hassan district, the data of floristic composition has been collected by Saldhana and Nicolson. The work of documentation of traditional knowledge of wild edible leafy vegetables remains untouched. Hence the present documentation of traditional knowledge of wild leafy vegetables of Hassan district is to create awareness in the public and further research by scientific community.

STUDY AREA

The study area of Hassan district occupies a western position in the state of Karnataka, and lies between 12°30' and 13°35' North latitudes, and 75°35' and 76°40' East longitudes. Hassan district begins at the base of the steep Western Ghats and continues in to the gently rolling Deccan plateau. There are two physiographic regions to Hassan district the 'Malnad' tract and partly in the southern 'Maidan' tract. The area harbours large number of forest, forest types are tropical wet evergreen, semi evergreen, moist deciduous, dry deciduous and thorn forests in the district. The biodiversity is very diverse at all levels of habitat, species and genetic and with high rate of endemism in flowering plants and rich diversity in plants has produced large number of plants of immense economic value.

Hassan district is noted for its rich diversity of plant species, apart from wetlands and flood plains serving the habitat requirement of several inhabitant communities. This district has different groups of people who are intimately associated with the study area such as Kannada speaking Hindu and Muslim community. Most of the families of rural areas are having the practice of maintaining their own small back yard kitchen gardens.

METHODOLOGY

Ethno-botanical information was documented through semi structured questionnaires; key informant interviews, frequent interactions and discussion with the local villagers, mainly from shepherds, cowboys, farmers and housewives. The questions focused to be primarily on the local name of the plant, knowledge of the uses of plants in the past and present for consumption, collection, mode of food preparations. Sometimes collected plants were taken to old age people of village to authenticate the edibility. The collection of plant specimens from the field along with digital photography and field notes for further processing for herbarium and taxonomical identification. Botanical identification of the collected species has been carried out by using floras^{13, 14} and herbarium specimens of the Institute, which is internationally recognized with acronym RRCBI.

RESULT

The study provides empirical evidence about traditional knowledge and diversity of Wild Edible Plants. The study area is floristically rich and includes various useful wild leafy vegetable species. The present survey encompasses 45 wild leafy vegetable species belonging to 31 family and 42 genera tabulated with botanical name, local name, family and habitat, mode of consumption and medicinal uses of wild edible plants. A maximum of 06 plants from Amaranthaceae, 04 from Fabaceae, 04 from Asteraceae and 02 from Commelinaceae, Malvaceae, Rutaceae, Araceae and Oxalidaceae (Table.1 and Fig. 1).

Table 1: Wild leafy vegetables of Hassan district

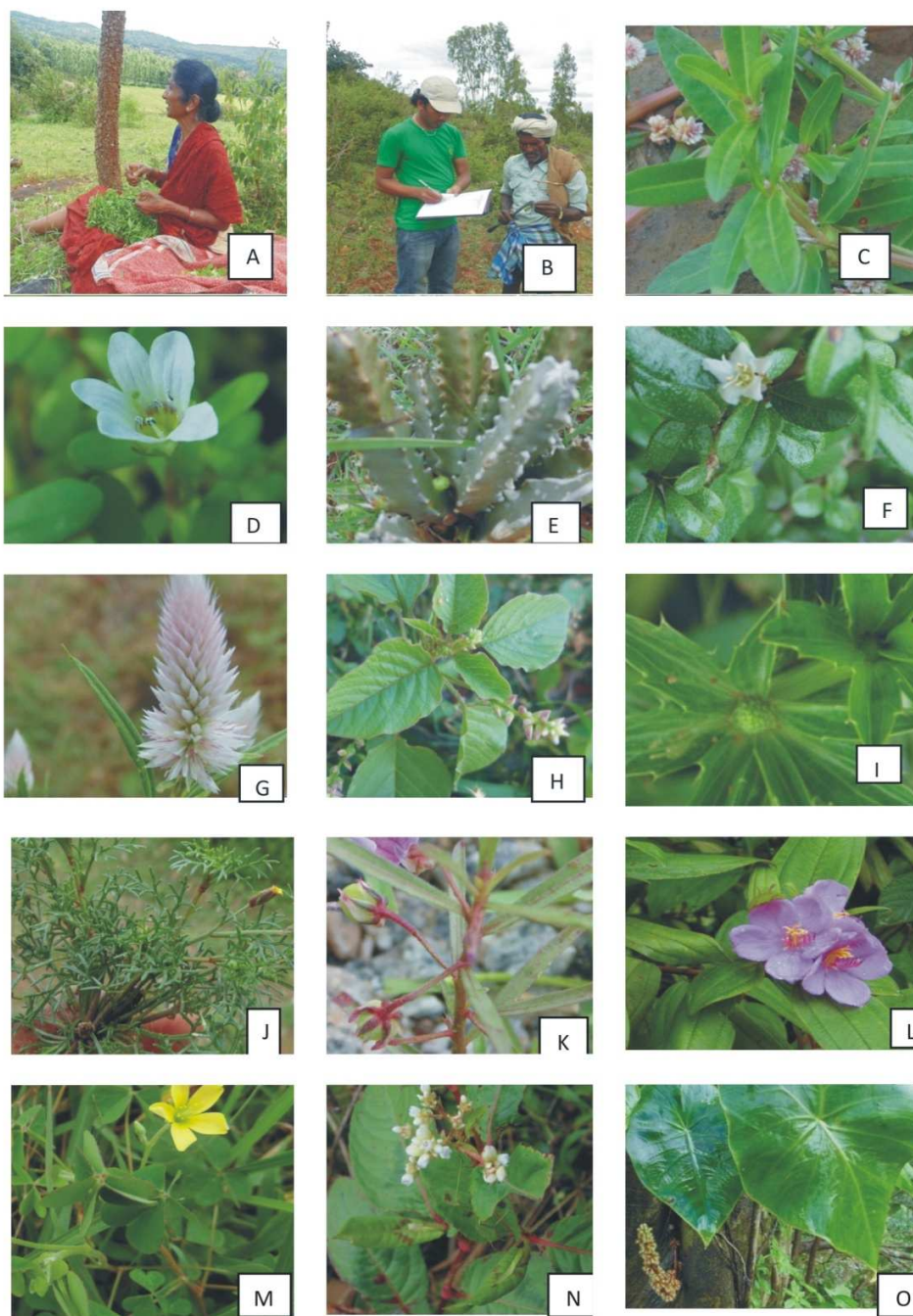
Sl. No	Botanical Name	Family	Habitat	Local Name (Kannada)	Mode of consumption	Medicinal value
1	<i>Acacia pennata</i> (L.) Willd.	Mimosaceae	Forest, road sides	Kaadu seege	Cooked as vegetable	Decoction of leaves used as a febrifuge
2	<i>Achyranthes aspera</i> L.	Amaranthaceae	Road side, open land	Uttaraani	Cooked as vegetable	Used in diseases of head and ear
3	<i>Alternanthera sessilis</i> (L.) R. Br. ex DC.	Amaranthaceae	Common in edges of tank, moist dry tank beds	Honagone soppu	Cooked as vegetable	Used stomach Trouble, skin disorder
4	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Road sides, waste places	Mullu harive soppu	Cooked as vegetable	Used in vitiated condition of Pitta, fever

5	<i>Amaranthus viridis</i> L.	Amaranthaceae	Road sides, waste places	Nayi harive soppu	Cooked as vegetable	Leaves are good against scorpion sting
6	<i>Bacopa monnieri</i> L. Wettst.	Scrophulariaceae	Wet or marshy places	Neeru Brahmi	Cooked as vegetable	Used to increase memory power
7	<i>Basella alba</i> L.	Basellaceae	Fleshy twiners mostly near forest margins.	Basale soppu	Cooked as vegetable	Paste of leaves applied on boils, cuts, and piles
8	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Common in open dry places	Odakalu soppu	Cooked as vegetable	Used in all types of inflammation and cough
9	<i>Caesalpinia mimosoides</i> Lam.	Caesalpiniaceae	Common in open dry places	Kenjurke kudi	A bunch of cleaned, washed young leaves are ground to a coarse paste with a cup of scraped coconut, green chillies, and salt to make <i>chutney</i> .	Used in fever and cough
10	<i>Caralluma adscendes</i> (Roxb.) R. Br.	Asclepiadaceae	A succulent of dry arid zones and waste places	Vaddara megate	Eaten as raw	Used in constipation and indigestion
11	<i>Carmona retusa</i> (Vahl.) Masam.	Ehretiaceae		Yele adike soppu	Eaten as raw	Used in digestive disorders
12	<i>Cassia tora</i> L.	Caesalpiniaceae	Road side, open land	Chagate soppu	Young leaves are cooked as vegetable	Leaf paste is applied on Ring worm.
13	<i>Celosia argentea</i> L.	Amaranthaceae	Common in dry fields.	Anne soppu	Cooked as vegetable	Used in diarrhoea and dizziness
14	<i>Centella asiatica</i> (L.) Urb.	Apiaceae	Common in marshes.	Ondelaga	Cooked as vegetable	Used in dysentery, liver trouble and stomach problems.
15	<i>Chenopodium album</i> L.	Chenopodiaceae	Cultivated fields	Chakravarti soppu	Cooked as vegetable	Used in worm infestation, general debility
16	<i>Cinnamomum malabatum</i> (Burm.f.) J. Presel.	Lauraceae		Yelaga	Leaves are used for <i>pulav</i> preparations	Used in headache, cough, and cardiac disorder
17	<i>Cissus quadrangularis</i> L.	Vitaceae	Tank bunds and road sides	Sandu balli	Cooked as vegetable	Used for muscular-skeletal disorders, burns and wounds
18	<i>Cleome monophylla</i> L.	Capparaceae	A weed along road sides	Kolikalina gida	Young leaves are cooked as vegetable	Juice of leaves is used for swellings
19	<i>Cocculus hirsutus</i> (L.) W. Theob.	Menispermaceae	Forest edges, Open areas	Ginnada soppu	Young leaves are boiled in water and mixed with flour of Ragi to prepare <i>rotti</i> .	Used in cough, sexual debility
20	<i>Colocasia esculenta</i> (L.) Schott.	Araceae	Locally abundant in marshy places	Kesuvina soppu	Cooked as vegetable	Used for blood coagulation
21	<i>Commelina benghalensis</i> L.	Commelinaceae	Weed in wet fields	Kanne soppu	Cooked as vegetable	Used in constipation, indigestion and skin diseases
22	<i>Cyanotis cristata</i> (L.) D. Don	Commelinaceae	Weed in wet fields	Betta kanne soppu	Cooked as vegetable	Used in skin diseases
23	<i>Digera muricata</i> (L.) Mart.	Amaranthaceae	Road side, open land	Chenchali soppu	Cooked as vegetable	Used in constipation and urinary disorder
24	<i>Emilia sonchifolia</i> (L.)DC. ex. DC.	Asteraceae	Commonly cultivated in field	Illikivi soppu	Cooked as vegetable	Juices of leaves used in eye sores
25	<i>Eryngium foetidum</i> L	Apiaceae	Margins of forests, areas	Kadu kottamri soppu	The leaves are specially used in preparation of a <i>pandi</i> curry made from pork.	Used as stomachic

26	<i>Glossocardia bosvallia</i> (L.f.) DC	Asteraceae	Common in dry sandy terrain in scrub forests	Kadu sabsige soppu	Chopped onions and greens along with few curry leaves are mixed with the butter and deep fried in hot oil to make <i>pakodas</i> .	Used as an emmenagogue
27	<i>Hibiscus cannabinus</i> L.	Malvaceae	Waste places near villages.	Pundi soppu	Cooked greens and red gram mixture is tempered with mustard, cooked for 5 minutes on adding grated coconut to make <i>palya</i>	Used in constipation, piles and indigestion
28	<i>Hibiscus sabdariffa</i> L.	Malvaceae	Waste places near villages.	Kempu pundi soppu	Cooked as vegetable	Used in dysentery, fever, dyspepsia
29	<i>Hybanthus enneaspermus</i> (L.) F.v. Muell	Violaceae	Common in dry rock-sandy Terrain.	Hulle kara mevru	Leaves are ground and used in <i>dosa</i> preparation.	Used in urinary infection a
30	<i>Lagenaria siceraria</i> (Molina) standley	Cucurbitaceae	Cultivated in waste places near villages.	Kahi sore soppu	Young leaves are cooked as vegetable	Used in cough, fever and skin diseases
31	<i>Melastoma malabthricum</i> L.	Melastomaceae	Banks of streams in plains	Ankerki	Leaves are cleaned, washed ground to a course paste with a cup of scraped coconut, green chillies, and salt to make <i>chutney</i> .	Leaf powder is used in wounds to prevent marks on the skin
32	<i>Moringa oleifera</i> Lam.	Moringaceae	Cultivated	Nugge soppu	Young leaves are cooked as vegetable	Used in catarrhal affections
33	<i>Murraya koenigii</i> (L.) Spreng.	Rutaceae	Road side, waste and cultivated lands.	Karibevu	The leaves are chopped and fried in oil. They are also often used to garnish many curry dishes.	Used in burning sensation, skin diseases
34	<i>Oxalis corniculata</i> L.	Oxalidaceae	Fresh water swamps, garden soil as a weed, Roadsides	Huli soppu	Eaten as raw	Used in burning sensation and haemorrhoids
35	<i>Oxalis latifolia</i> Kunth	Oxalidaceae	Fresh water swamps, garden soil as a weed, Roadsides	Huli soppu	Cooked as vegetable	Used as a soporific
36	<i>Phyllanthus amarus</i> Schumach & Thonn.	Euphorbiaceae	Road side, open land	Nela nelli	Eaten as raw	The whole plant is used in jaundice. Young Leaves are good for dysentery.
37	<i>Polygonum chinense</i> L.	Polygonaceae	Along slopes of ghats, Rice fields, Road sides	Surle soppu	Cooked as vegetable	Used as antiscorbutic
38	<i>Portulaca oleracea</i> L.	Portulocaceae	Along the edges of open field, cultivated fields and plains	Dodda goni soppu	Cooked as vegetable	Leaf paste is applied to skin diseases,
39	<i>Remustia vivipara</i> (Roxb.) Schot	Araceae	Moist localities, edges of forest	Marakesu	Preparation of <i>pathrode</i> .	Used against itch
40	<i>Solanum nigrum</i> L.	Solanaceae	Road side, waste and cultivated lands.	Ganike soppu	Cooked as vegetable	Used as antiseptic and antidysentric
41	<i>Sonchus wightianus</i> DC.	Asteraceae	Road side, waste and cultivated lands	Kadasanna hogesoppu	Young leaves are cooked as vegetable	Leaves applied to swellings
42	<i>Tamarindus indica</i> L.	Leguminosae	Cultivated in waste places near villages	Hunise soppu	Young leaves are cooked as vegetable	Used in diarrhoea, wounds and fever

43	<i>Toddalia asiatica</i> (L.) Lam.	Rutaceae	Along streams, dry deciduous forest, Open areas	Kadu Mendshi	Cooked as vegetable	Fresh leaves eaten during pain in the bowels
44	<i>Trianthena decandra</i> L.	Aizoaceae	Marshy Areas, Moist localities,	Habbu garaje soppu	Cooked as vegetable	Leaf juices used in asthma, rheumatism
45	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Cultivated fields and Plains, Dry Open areas	Sanna neggilu	Cooked as vegetable	Used in inflammation and general weakness

Fig. 1



A&B: Documentation of wild leafy vegetables from age old people of Hassan district **C:** *Alternanthera sessilis* (L.) R. Br. ex DC, **D:** *Bacopa monneria* L. Wettst, **E:** *Caralluma adscendes*(Roxb.) R. Br., **F:** *Carmona retusa* (Vahl.) Masam., **G:** *Celosia argentea* L., **H:** *Digera muricata* (L.) Mart., **I:** *Eryngium foetidum* L., **J:** *Glossocardia bosvallia* (L.f.) DC., **K:** *Hybanthus enneaspermus* (L.) F.v. Muell, **L:** *Melastoma malabthricum* L., **M:** *Oxalis corniculata* L., **N:** *Polygonum chinense* L., **O:** *Remustia vivipara*(Roxb.) Schott.

CONCLUSION

The people of Hassan district have rich knowledge on use of wild edible plant species. Uses of wild leafy vegetables provide seasonal, staple foods and important alternative to the agriculturally cultivated crops. The study revealed that the distribution, traditional knowledge and importance of wild leafy vegetable species utilization in the past and present in Hassan district. It shows that wild leafy vegetable use is influenced by traditional knowledge, culture, and socio- economic conditions. Many valuable wild food plants are familiar to certain areas or to certain communities but are unknown to others. Wild leafy vegetables are not only sources of food and nutrients to the local communities, but could also be means of income generation, if managed sustainably¹⁵. Several wild leafy vegetables can benefit local people not only as food, but also with their medicinal properties. These multi-valued resources are threatened by several anthropogenic and natural causes such as land-use change, habitat destruction, unscientific harvesting, over-grazing, and invasive species. Therefore, sustainable management of these resources for the wellbeing of the local communities as well as to conserve biodiversity is of the utmost importance and could also contribute to preserve cultural and genetic diversity¹⁵. Inclusion of wild leafy vegetable species in community forest management plans would be the most realistic conservation and livelihood approach for the study areas as most forests are managed by community forest user groups.

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