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Knowledge and Use of Wild Edible Plants in Two Communities in Malai Madeshwara Hills, Southern India

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Abstract: The current study aims to explore the local community knowledge on the uses of Wild Edible Plants (WEPs) and assess their aid to the food security; dietry diversity and revenue of households in Malai Madeshawara (MM) Hills reserve forest. A comprehensive inventory of ethno-botanical knowledge of the forest dependent communities in MM Hills Reserve Forest has been documented. Data were composed through: (1) A survey of 120 households aimlessly chosen from a total of 355 households in four villages. (2) Focus group discussion and personal observations. Ninety-two plant species were found to be used as source of supplementary food, medicine and beverages. Fourteen of the WEPs were collected by 95% of the households. WEPs are as important as farm produce in the annual food supply. Eighty-nine of the WEPswere collected only for their own consumption. Of the ninety two WEPs, 58 species (62%) are collected from the forest and the remaining is found as weed in agricultural lands. Commuity discerns that use of WEPs is declining due to the intervention of social and food security schemes, driven dietry shift and lifestyle change. The results revealed that WEPs are of high importance to the local commuities in terms of food security, dietry diversity and cultural identity. The findings suggest further investigation of nutritional profiles, cultural values and conservational study of the reported wild edible plant species.

Key words: WEPs, soliga, lingayat; MM hills

INTRODUCTION

"WEPs refers to non-cultivated edible plants seen in the natural forest, fallow land and agriculture land" (Harisha, 2012). MM Hills Reserve Forest in Southern Karnataka, India, is adjoining the Cauvery Wild life Sanctuary (WLS) and Biligiri Ranga Swamy Temple Tiger Reserve (BRT) which has a greater biological diversity. Communities such as Soligas (tribal people) and the Lingayats (non-tribals) have been residing for a long time in these forests. These forest dwelling communities depend on WEPs as supplementary food, especially during droughts and in the shortfall of agriculture produce (Harisha, 2011). These WEPs resources also provide essential nutrients vitamins and impart cultural identity to these communities (Harisha, 2012).

Since human civilization, rural communities possess rich repository knowledge on WEPs and their utilization (Scoones *et al*., 1992; Heywood, 1999; Jain, 1991). WEPs uses have been studied extensively in India by various researchers (Jain, 1991; Ayyanar and Ignacimuthu, 2005; Grover *et al*., 2002). More than thousands species of WEPs are used as food and medicine by rural communties, particularly tribal communities in India (Handa, 1998). Across the globe several authors have been exploring and documenting indegenous knowledge as part of the global intiative (Lambert *et al*., 1997; Pieroni 2001; Dovie *et al*., 2007; Ayyanar and Ignacimuthu, 2005; Bhattarai *et al*. 2009). WEPs play a vital role in their food system (Ghosh 2003; Sheldon *et al*., 1997) and are evolved over generations (Jain, 1991). WEPs use is declining rapidly due to the intervention of social and food security schemes (Harisha, 2011), change in food habit (Bussmann, 2006) and change in occupation (Shaanker *et al*., 2004).

The present study is a first ever attempt to explore, identify and document the wild edible plant resources and the indigenous traditional knowledge associated with these plant resources at MM Hills of Karnataka. The study has documented the various ethnic uses of plants which also provide an additional nutrient supplement to their daily consumption.

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MATERIALS AND METHODS

Study area: The Malai Madeshwara Reserve Forest (MM Hills) is located in the Chamarajanagara district of Karnataka in South India, between latitude 12° 13' and 11° 55' N and longitude 77° 30' and 77° 47' E (Fig. 1). The area of reserve forest is 291 km^{-2} and located on the eastern edge of the Karnataka State bordering the Tamil Nadu State. The forest forms continuumwith BiligiriRangaSwamy Temple (BRT) Wildlife Sanctuary at the south-west and with Cauvery Wildlife Sanctuary at the north-east. It serves as an important elephant corridor between these sanctuaries (Fig. 1). MM Hills receives an average annual rainfall of 1100 mm. September to November is the wettest months in MM hills with average rainfall during these months touching 900 mm. December, January and February are winter months. Summers are dry and are from mid March till May, when often the mercury level rises more than 40°C. There are about 16 settlements (villages) scattered within the reserve forests that also exert tremendous pressure on the forests for agriculture, NTFP harvesting, fuel wood collection, stone quarry and tourism (Shaanker *et al.*, 2004).

Vegetation structure: MM Hills Reserve Forest comprises of different types of vegetation such as dry deciduous forest (64.34%), Scrub woodland (20.50%), scattered patches of moist deciduous and riparian forest (2.47%). The most common tree species are *Anogeissus latifolia*, *Chloroxylon swietenia*, *Canthium dicoccum*, *Albizia amara*, *Ziziphus mauritiana*, *Pavetta indica*, *Erythroxylon monogynum*, *Memecylon umbellatum*, *Scolopia crenata* and *Schleichera oleosa* (Murali *et al.* 1998; Aravind *et al.*, 2010).

Forest dependent communities at MM Hills

Soligas: The Soligas are the indigenous people of this area who have traditionally resided in the forested regions of MM Hills. Soligas stopped practicing shifting cultivation prior to the year 1901 and are now settled in different hamlets, which were notified as revenue land in 1913, Karnataka Forest Department (KFD) 2000. The Soligas are known for their rich traditional knowledge and cultural life linked with their natural surroundings. In and around MM Hills there are 48 villages of which 23 are inhabited by Soligas. They practice agriculture in their small land-holdings and commonly grow finger millet (*Eleusine coracana*), Jowar (*Sorghum* species) and Hyacinth bean (*Dolichos lablab*) for their own consumption. They have been harvesting Non-Timber Forest Product (NTFPs) and working in stone quarries (Shaanker *et al.*, 2004).

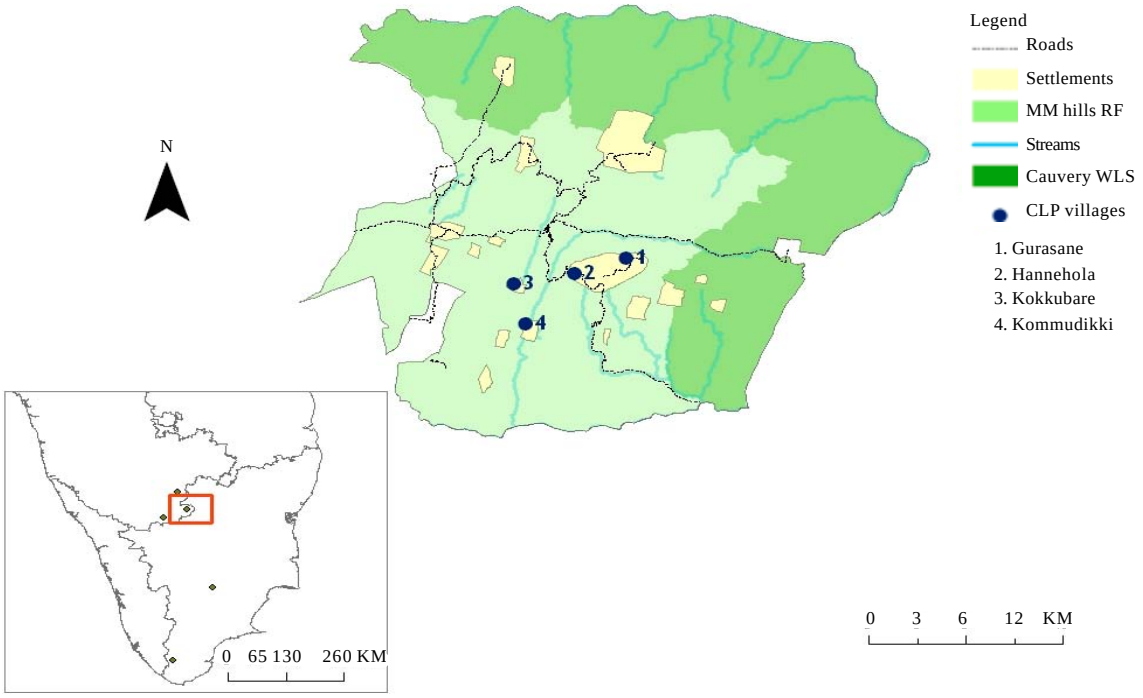

Fig. 1: Map showing the villages sampled in MM Hills

Lingayats: The other community living within the reserve forests is the Lingayats. Lingayats migrated to MM Hills around 600 years ago from the plain areas of Mysore district and they were mainly brought to the MM hills as local priests (History of Saluru Mutt). Though the Lingayats were brought here as priests, they have been practicing agriculture as a livelihood option. They grow finger millet (*Eleusine coracana*) and Hyacinth bean (*Dolichos lablab*). Unlike Soligas, their land-holdings are larger. Lingayat also practice NTFP collection for cash income as well as for domestic consumption. As a result of their long term dependence and links with the forest, their traditional ecological knowledge is still rich and extensive (Shaanker *et al.*, 2004).

Methods: Using open ended questionnaire (Jain, 1991), information was collected from 120 households which were randomly chosen from four villages. Equal number of households was chosen to interview from both the communities. During interview collected information on family size, literacy, occupation, source of income and on plant based material consumed. The plant based food purchased from the local shops was also documented. Information on WEPs collected from farms and forests were documented separately. Additionally, frequency of different foods eaten, common diseases occurred, traditional healing methods and expenses incurred on allopathic medicine was gathered. Ethno-botanical data was collected from November 2011 to March 2012. The household interviews were usually 1-3 h long. Information was also collected on wild plants gathered, preparation, use and their marketability. At the end of each interview, specimens of the plant material used were collected and identified. During the course of the study, each informant was visited two-three times. Repeated visits helped us to get information that was missing from previous interviews and also helped in verifying the reliability of the data obtained. Preliminary identification and documentation (using scientific and vernacular names) was done by examining fresh plants procured by the villagers. The plant materials were identified with the help of standard local floras (Gamble, 1957; Saldanha and Nicholson, 1976). The identification of plant materials was also confirmed at Foundation for Revitalization of Local Health Traditions (FRLHT) Bangalore. A clear expression of consent was also obtained before each interview. Through this field study, the ethical guidelines adopted by the International Society of Ethno biology were observed.

Data analysis: The percentage of species used from the forest and farm lands was calculated. Further, the percentage of different parts used for food was calculated. The Use Index (UI) was calculated for each species using the equation UI = Us/N, where Us is the number of households which uses a particular species 's' and N is the total number of households that were interviewed in the research area (De Laucena *et al.*, 2007; Phillips and Gentry, 1993).

RESULTS

Diversity of edible plant species: Local communities are depending more on WEPsin addition to their regular cultivation.Natural forest and farm lands are the main sources of communities'for day to day requirements such as fruits and vegetables (92 species), medicine (68 species), agriculture implements and household tools (45 species)and spirituals (16 species) (Table 1). Of the 92 wild edible plant species which are used as food, belongs to 68 genera and 38 families. A complete list of wild edible plant species is given in appendix 1. Of the 92 wild species 58 (62%) were collected exclusively from the forest and 28 species (30%) were collected from their cultivated lands and remaining 7 species (8%) were collected from both forest and their cultivated lands (Fig. 2).

Plant habit and parts used: Among the different species, 43.5% of vegetables are from herbs (Fig. 3), while 72.4% of the fruits are from tree species. Climbers and shrubs are also used as vegetables and fruits but in smaller proportions (Fig. 3). Among the different plant parts, leafy vegetables constitute of 37 species (40%), fruits 43 species (47%), shoots 6 species (7%), tubers 4 species (4%) and flowers 2 species (2%) (Fig. 4). Among the plant families, 13% of species from Amaranthaceae, 10.5% from the Solanaceae and 3% from Dioscoraceae were used as leafy vegetable, fruits and tubers, respectively (Appendix 1).

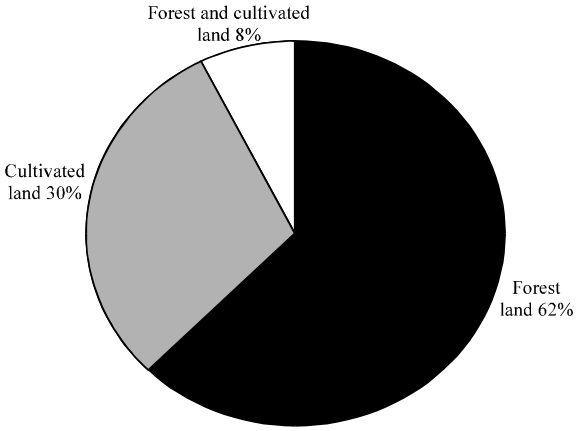

Fig. 2: Occurrence of wild vegetables in forest and cultivated land

Appendix 1: Plant species used by forest dependent people in Malai Mahadaeshwara Hills Reserve Forest

Scientific name	Folk name	Habit	Use index (UI)	Parts used	Usage	Occurrence
Amaranthaceae						
Alternanthera sessilis (L.) R. Br.	Angone soppu	Herb	0.04	Young stems and leaves together	Vegetable	F
Celosia argentea L.	Anne soppu	Herb	1.00	Young stems and leaves together	Vegetable	C
Amaranthus tristis L.	Bilikeere soppu	Herb	0.57	Young stems and leaves together	Vegetable	C
Amaranthus polygonoides L.	Dagalikeere soppu	Herb	0.47	Young stems and leaves together	Vegetable	C
Digera arvensis Forssk.	Gorji soppu	Herb	0.07	Young stems and leaves together	Vegetable	C
Gomphrena celosioides L.	Kalluanne soppu	Herb	0.20	Young stems and leaves together	Vegetable	F
Amaranthus caudatus L.	Kempukeere soppu	Herb	0.48	Young stems and leaves together	Vegetable	C
Amaranthus spinosus L.	Mullkeere soppu	Herb	0.07	Young stems and leaves together	Vegetable	C/F
Amaranthus paniculatus L.	Musugukke soppu	Herb	0.19	Young stems and leaves together	Vegetable	F
Amaranthus viridis L.	Silkere soppu	Herb	0.93	Young stems and leaves together	Vegetable	C
Amaranthus gangeticus L.	Thuppa kere soppu	Herb	0.45	Young stems and leaves together	Vegetable	C
Achyranthes aspera L.	Uthrani soppu	Herb	0.58	Young stems and leaves together	Vegetable	F
Anacardiaceae						
Buchanania lanzan Spr.	Dodda murki	Tree	0.28	Mature fruits	Fruit	F
Semecarpus anacardium L.	Geru	Tree	0.14	Mature fruits	Fruit	F
Buchanania axillaris (Desr.) Ramam	Murki	Tree	0.08	Mature fruits	Fruit	F
Annonaceae						
Miliusa velutina (Dunal) J.	Hesare	Tree	0.20	Mature fruits	Fruit	F
Apocynaceae						
Wrightia tinctoria R. Br.	Aale soppu	Tree	0.01	Young stems and leaves together	Vegetable	F
Arecaceae						
Phoenix sylvestris Roxb.	Eechalu	Shrub	0.37	Mature fruits/roots	Fruit/vegetable	F
Asclepiadaceae						
Gymnema sylvestre (Retz.) R.	Makali	Climber	0.24	Roots	Vegetable	F
Holostemma annulare (Roxb.) K.	Muste soppu	Climber	0.73	Young stems and leaves together	Vegetable	F
Basidiomycetes (Fungi)						
Agaricus species (Larger body)	Dodda Anabe	Herb	0.44	Whole plant	Vegetable	C/F
Agaricus species (Small body)	Chicka Anabe	Herb	0.45	Whole plant	Vegetable	C/F
Boraginaceae						
Ehretia canarensis (C.B. Clarke) Gamble	Chele hannu	Tree	0.03	Mature fruits	Fruit	F
Cordia wallichii G. Don, Gen.	Solle kudi	Tree	0.27	Young stems and leaves together	Vegetable	F
Cactaceae						
Opuntia dilleni (K.G.) Haw.	Kalli	Herb	0.08	Mature fruits	Fruit	F
Caesalpinaceae						
Tamarindus indica L.	Hunase	Tree	1.00	Young stems, leaves/young and mature fruit	Vegetable	C/F
Cassia tora L.	Sagase soppu	Climber	0.56	Young stems and leaves together	Vegetable	C/F
Cassia auriculata L.	Thangadi	Shrub	0.28	Young stems and leaves together	Vegetable	F
Cappariaceae						
Capparis sepiaria L.	Huligotti	Climber	0.03	Mature fruits	Fruit	F
Commelinaceae						
Commelina diffusa Burm.	Kanne soppu	Herb	0.06	Young stems and leaves together	Vegetable	C
Cruciferaceae						
Brassica rapa L.	Sasive soppu	Herb	1.00	Young stems and leaves together	Vegetable	C
Cucurbitaceae						
Momordica charantia L.	Agalkai	Climber	0.05	Mature fruits	Vegetable	C
Cocculus hirsutus Diels.	Kadu thonde	Climber	0.20	Mature fruits	Vegetable	F
Cucrbita maxima Duch.	Kumbla	Climber	1.00	Mature fruits	Vegetable	C
Trichosanthes cucumerina L.	Padaval kai	Climber	0.65	Mature fruits	Vegetable	C
Cucurbita pepo Dc.	Soore kai	Climber	0.79	Mature fruits	Vegetable	C
Dioscoreaceae						
Dioscorea wallichii Hk.	Benne	Climber	0.73	Tubers	Vegetable	F
Dioscorea oppositifolia L.	Kalbenne	Climber	0.30	Tubers	Vegetable	F
Dioscorea pentaphylla L.	Noore	Climber	0.82	Tubers	Vegetable	F
Ebanaceae						
Diospyros montana Roxb.	Jagalganti kudi	Tree	0.10	Young stems and leaves together	Vegetable	F
Diospyros melanoxylon Roxb.	Thupre	Tree	0.10	Mature fruits	Vegetable	F
Erythroxylaceae						
Erythroxylon monogynum Roxb.	Chumbulse	Tree	0.26	Mature fruits	Fruit	F
Euphorbiaceae						
Euphorbia heyneana Spreng.	Narbele soppu	Herb	0.57	Young stems and leaves together	Vegetable	C/F
Phyllanthus emblica L.	Nelli	Tree	0.83	Mature fruits	Vegetable	F
Fabaceae						
Indigofera tinctoria L.	Marali kudi	Tree	0.20	Young stems and leaves together	Vegetable	F
Lablab purpureus L.	Nelaware	Climber	0.92	Mature fruits	Vegetable	C

Appendix 1: Countinue

Scientific name	Folk name	Habit	Use index (UI)	Parts used	Usage	Occurrence
Pterolobium hexapetalum (Roth) S. and W.	Sundrase	Climber	0.10	Mature fruits	Fruit	F
Flacourtaceae						
Scolopia crenata (W. and A.) Clos.	Doddgejjalike	Tree	0.19	Mature fruits	Fruit	F
Flacourtia indica (Burn.) Merr.	Gejjalike	Tree	0.11	Mature fruit	Fruit	F
Menispermaceae						
Cissampelos pareira L.	Ambuthotti	Climber	0.05	Mature fruits	Fruit	F
Basell alba L.	Basale soppu	Climber	0.90	Young stems and leaves together	Vegetable	C
Cocculus hirsutus (L.) Diels	Javne soppu	Herb	0.16	Young stems and leaves together	Vegetable	C/F
Anredera vesicaria(Lam.) C.F. Gaertn	Kadu basale	Climber	0.05	Young stems and leaves together	Vegetable	F
Mimosaceae						
Acacia farnesiana (L.) Willd.	Seege soppu	Shrub	0.74	Young stems and leaves together	Vegetable	F
Moraceae						
Ficus glomerata Roxb.	Hathi	Tree	0.02	Mature fruits	Fruit	F
Moringaceae						
Moringa concanensis Nimmo	Kadunugge soppu	Tree	0.16	Young stems and leaves together	Vegetable	F
Moringa olefera Lam.	Nugge soppu	Tree	1.00	Young stems and leaves together	Vegetable	C
Myrtaceae						
Syzizium cumini (L.) Skeels	Nerale	Tree	0.36	Mature fruits	Fruit	F
Nyctaginaceae						
Boerhavia diffusa L.	Avane soppu	Herb	0.56	Young stems and leaves together	Vegetable	C/F
Boerhavia repanda Willd.	Katte soppu	Herb	0.47	Young stems and leaves together	Vegetable	C/F
Oleaceae						
*Jasminum trichotomum*Heyne ex Roth.	Kaddi soppu	Shrub	1.00	Young stems and leaves together	Vegetable	F
Carissa carandas L.	Kevali	Shrub	0.40	Mature fruits	Fruit	F
Poaceae						
Bambusa arundinacea Retz.	Bamboo	Tree	0.76	Shoot	Vegetable	F
Dendrocalamus strictus (Roxb) Nees	Chit bidaru	Tree	0.94	Shoot	Vegetable	F
Rhamnaceae						
Zizyphus rugosa Lam.	Elachi	Tree	0.75	Mature fruits	Fruit	F
Zizyphus xylopyrus Willd.	Gotti	Shrub	0.04	Mature fruits	Fruit	F
Zizyphus oenoplia Miller.	Sodli	Climber	0.29	Mature fruits	Fruit	F
Rubiaceae						
Canthium parviflorum Lam.	Kare soppu	Shrub	1.00	Young stems and leaves together	Vegetable	F
Pavetta indica L.	Pavatige	Tree	0.25	Mature fruits	Fruit	F
Rutaceae						
Feronia elephantum Corr.	Byala	Tree	0.06	Mature fruits	Fruit	F
Murraya coinigi Spr.	Curry leaves	Tree	1.00	Mature leaves	Vegetable	C/F
Citrus reticulata Blanco.	Kadu kithale	Tree	0.37	Young and mature fruit	vegetable/Fruit	F
Toddalia asiatica (L.) Lam.	Kadumensau kudi	Climber	0.16	Young stems and leaves together	Vegetable	F
Salvadoraceae						
Azima tetracantha Lam.	Batsodli	Climber	0.15	Mature fruits	Fruit	F
Sapinadaceae						
Dimocarpus longan Lour.	Gudagan jagadi	Tree	0.17	Mature fruits	Fruit	F
Schleischera oleosa (Lour.) Oken.	Hulijagadi	Tree	0.12	Mature fruits	Fruit	F
Sapotaceae						

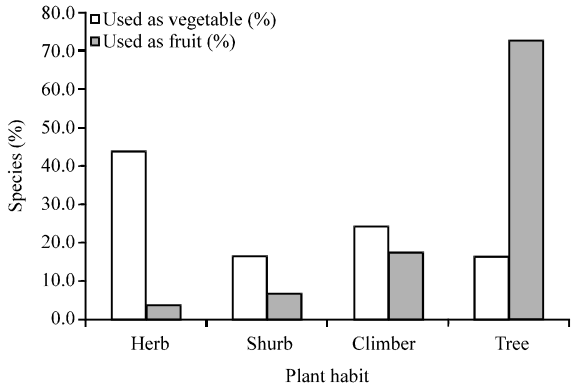

Fig. 3: Percentage of species used from each category of plant habit

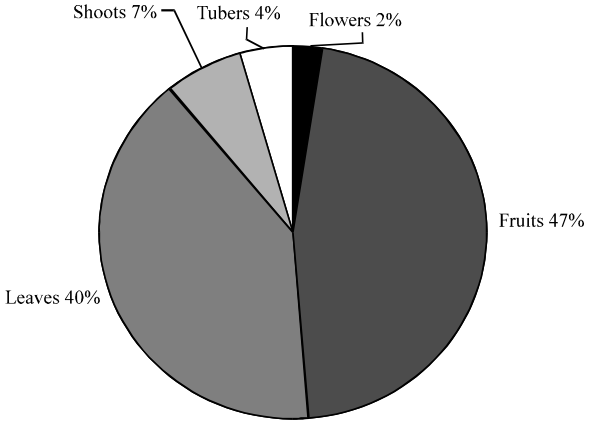

Fig. 4: Percentage of plant parts used for food

Frequency of usage and seasonality of wild vegetables: A total of 64 species are used by these communities as vegetables. Species such as *Celosia argentea* (Amaranthaceae), *Solanum anguivi* (Solanaceae) are collected from farm land, where as *Jasminum trichotomum* (Oleaceae) is collected from the forests (Appendix 1). A mixture of 8-10 species (*Toddalia asiatica*, *Cassia auriculata*, *Indigofera tinctoria*, *Cordia wallichii*, *Diospyros montana*, *Commelina diffusa*, *Boerhavia diffusa*, *Euphorbia heyneana*, *Amaranthus viridis* and *Alternanthera sessilis*) is used as vegetables for preparing sambar and side dish along with the meal. The 10 most frequently used wild vegetable species, are based on the data obtained from open ended questionnaire with local people are listed in Table 2. Most of the wild vegetables displayed distinct seasonal patterns. The 75 species out of 92 that are used as vegetables are found during rainy season (from May to November). Highest

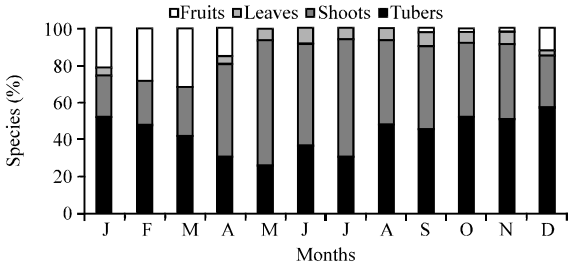

Fig. 5: Availability calendar for wild vegetable used by forest dependent community

Table 1: Commodity groups of useful plants in MM hills

Commodity group	No. of plant species	Percent/total (%)
Wild vegetables	92	41.6
Medicine	68	30.8
Sacred	16	7.2
Household and agriculture implements	45	20.4

number of wild fruits and leafy vegetables are available in the month of August and are lowest in the month of March (Fig. 5).

Importance of wild plants for the forest dependent community: The Use Index (UI) varies widely (Appendix 1), from 0.01 to 1.0; the UI value indicates the number of households actually used a particular plant species. For instances, *Premna tomentosa* (0.1) and *Wrightia tinctoria* (0.1) where only 1% of the sampled households use them. Other plants such as *Celosia argentea* (1.0) *Jasminum trichotomum* (1.0) where all the sample households are used every alternative day, until the season gets over. Plant species those who have a UI higher than 0.9 as do some leafy wild vegetables such as *Celosia argentea* (Amaranthaceae), *Jasminum trichotomum* (Oleaceae), *Solanum nigrum* and *Solanum anguivi* (Solanaceae) have are important as onion, garlic, chili etc., (Table 3). Wild vegetables such as *Solanum anguivi*, *Celosia argentea*, which have high UI, are abundantly found throughout the year. However, species such as *Premna tomentosa* and *Wrightia tinctoria*have low UI which are available only during the spring season.

DISCUSSION

Knowledge on wild vegetables use: Knowledge of using wild vegetables has been traditionally passed on for generations from time to time. There is no significant difference in knowledge of using WEPs between two

Table 2: Frequently used top 10 wild vegetable species

Botanical name	Local name	Frequency	Season	Part used
Mixed leafy vegetables	Berake soppu	Once in 3 days	All months	Whole plant
Celosia argentea L.	Anne soppu	Once in 4 days	Apr-Jan	Whole plant
Amaranthus viridis L.	Silkeere soppu	Once in 4 days	May-Feb.	Whole plant
Solanum anguivi Lam.	Ganake soppu	Once in 5 days	Apr-Nov	Whole plant
Jasminum ritchiei Cl.	Kaddi soppu	Once in 5 days	April-Nov	Leaves
Holostemma annulare (Roxb.) K.	Muste soppu	Once in 6 days	May-Nov	Leaves
Solanum torvum Sw.	Sunde kai	Once in 6 days	July-Jan	Fruits
Capsicum annum L.	Menasina kai	Once in 4 days	All months	Fruits
Murraya coinigi L.	Karibevu	Once in 3 days	All months	Leaves
Solanum nigrum L.	Gulakai	Once in 6 days	All months	Fruits

Table 3: Important wild vegetables and their use index (UI)

Scientific name	Family	Use index*
Celosia argentea L.	Amaranthaceae	1.00
Jasminum ritchiei Cl.	Oleaceae	1.00
Canthium parviflorum Lam.	Rubiaceae	1.00
Solanum nigrum L.	Solanaceae	1.00
Solanum anguivi Lam.	Solanaceae	0.98
Dendrocalamus strictus (Roxb) Nees	Poaceae	0.96
Amaranthus viridis L.	Amaranthaceae	0.93
Mixed species	Mixed	0.93
Dioscorea pentaphylla L.	Dioscoreaceae	0.82
Acacia farnesiana (L.) Willd.	Mimosaceae	0.74
Bambos arundinacea Retz.	Poaceae	0.74
Holostemma annulare (Roxb.) K.	Asclepiadaceae	0.73
Solanum xanthocarpum L.	Solanaceae	0.60
Cassia tora L.	Caesalpinaceae	0.56

De Laucena, R.F.P, E. de Lima Araujo and U.P. De Albuquerque (2007), Does the local availability of woody Caatinga plants (Northeastern Brazil) explain their use value? Economic Botany., 61: 347-361, Phillips, O. and A.H. Gentry (1993). The useful plants of Tambopata, Peru: I. Statistical hypotheses tests with a new quantitative technique. Economic Botany., 47: 15-32

communities. Old age people have more knowledge on the use of WEPs than young people. Similarly, women have more knowledge on leafy vegetables than men, visa versa in wild fruits. Similar findings are found in many studies across the globe (Ayyanar and Ignacimuthu, 2005; Dovie *et al*., 2007; Pieroni, 2001). The knowledge of using wild plant resources was critical for the older generation for survival while it is not so in the present younger generation since their food habit and life style has been changing very rapidly (Jain, 1991). Several studies across the globe revealed and discussed the importance of such knowledge in scientific studies (Donovan and Puri, 2004; Eyong, 2007)

Seasonality of wild vegetables: The usage of wild plants was related to seasonal plant availability and their phenological status (Harisha, 2011). Rural communities consume more tubers in summer (Rashid *et al*., 2008), procure more fruits and leafy vegetables during rainy season (Acharya and Acharya, 2010). The women who gather most of the wild vegetables from both the communities were able to predict which species and which part is available in which season. While the dependence on fruits and leaves is more during the rainy season, the communities depend on tubers during the dry season. Further, the communities also seem to know where to collect a particular species. The communities are able to predict the availability of wild vegetables with respect to the micro-climatic requirements (Jain, 1991). Despite the changing lifestyles, both the communities use a wide variety of WEPs in their food. Knowledge on sesonal availability, processing and preparation of recipes are gained from practical experience and most of the time passed on to next generation from their ancestor.

Foods security of forest dependent community: Wild vegetables can be procured fresh every day from the forest or the cultivated land. Gathering wild vegetable is often cost effective both with respect to the amount and time spent. Therefore local community prefers to procure vegetable from the wild than purchasing from the shops which are often far from the village. Economic condition of the household and time requires procuring WEPs which are the deciding factor in poor rural households. These factors are well studied in Nepal (Acharya and Acharya, 2010), in South Africa (Dovie *et al*., 2007). Community consumes wild leafy vegetables and fruits in rainy season when there is an acute shortage of agriculture produce.

Farm land and fallow lands are rich source of leafy vegetables which are collected when they go to work in farm land. Community people collect wild vegetables from forest when they go for grazing, fuel wood collection or while being employed by the forest department. Landless households depend more on forest for wild vegetables than land holding households in rainy season. However, in summer landless households are depending more on local market for vegetables than landholding households. The wild vegetables also substitute food crops such as finger millet (*Eleusine coracana*) and Hyacinth bean (*Dolichos lablab*) during extremes droughts. Therefore, wild vegetables form an important component for their survival (Dovie *et al*., 2007).

CONCLUSION

Wild plants form an important source of food for forest dependent community in MM Hills. Till date there

has been no systematic study about the wild edibles consumed by local communities in this area. Therefore an attempt has been made here to catalogue the local knowledge of WEPs used by the Soligas and Lingayat communities in MM Hills. Both the communities possess rich knowledge on the usage of plants for food which were evident in the number of species and the plant parts used. This study contributes significantly to the database of traditional indigenous knowledge of plants of the country, which have not been documented earlier. The findings suggest further investigation into nutritional profiles, cultural values, processing methods, cultivation techniques and conservational studies of the reported plant species.

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