Wild edible plants (WEPs) are the plant species that don’t seem to be cultivated or domesticated however they are accessible from varied natural habitats and used as food. WEPs are commonly gathered from assorted habitats, viz., forests, arable fields, and even anthropogenically disturbed zones like roadsides and wastelands by totally different traditions throughout the planet. An immense number of ethnic communities and native public residing within the developing countries draw...
a major part of their subsistence and bread and butter from the wild plants. Wild edible plants play a major role in supply food for poor communities principally for tribals and rural individuals, since it's freely offered among the natural habitats and that they have information on the way to gather and prepare food products from these wild plant resources. Wild plants, besides being used by poor communities, are commonly used today as a supplement for healthy diets in even the most developed region of the world (Redzic, 2006). About one billion people in the world use wild foods (mostly from plants) daily basis (Aberoumand, 2009). Ethnobotanical investigations on wild edible plants suggest that more than 7,000 species have been used for food in human history (Grivetti and Ogle, 2000).

In countries like China, India, Thailand and Bangladesh, hundreds of wild edible plants are still consumed along with domesticated species (Mazhar et al. 2007). India is a vast country where nature has bestowed rich botanical wealth and many diverse types of plants growing wild in different parts. India is one of the world’s mega diversity centers with 47,147 plant species, including all lower groups (BSI, 2012), and is divided into 20 agro-ecozones. About 800 wild plants are consumed as food chiefly by tribal communities (Singh and Arora, 1978). In India, the presence of fluctuated climatic zones and natural variety makes a reason for rich phytodiversity, and This reality is firmly upheld by different investigations completed on WEPs by different scientists all through India. Rashingam (2012) conducted ethnobotanical studies on wild plants He, listed 38 wild edible fruit species belonging to 24 families used by Irula tribes of Coimbatore district of Tamil Nadu. Bramha et al. (2013) recorded 32 species of wild fruits belonging to 23 families that is used by Bodo tribes of Kokrajhar in Assam. Arora and Anjula have given a detailed account of WEP species occurring in India, while Rathore reported 600 WEP species from India. Bora and Pandey have explained 08 unreported food resources along with habitat, flower, fruiting season, partly used from Assam. Joshi and Tiwari have enumerated 108 wild edible plants with botanical name, family, habit, flowering and fruiting period, and parts of the plant used as edibles at different altitudes of Uttar Pradesh.

In the Southern part of India, the Western Ghats zone marked as massive and hotspot for various wild edible species due to rich and varied soil, climate and continued and discontinued new life forms. Karnataka state is well known for a unique, precise habitat and distribution of wild edible plant resources observed in and around the forest zones. The exceptional dietary habits of tribal and rural people will promote beneficial and gratified life for the urban populace.

No such study is available in the Male Mahadeshwara Hills region particularly with reference to wild edibles. Therefore the present paper throws a beam of light on the use of wild edible plants for the benefit of humankind by documentation, identification, and enhancement of use of wild edible plants species in the family diet and to validate the ancient traditional knowledge found in the elder generation of the tribal populace of Male Mahadeswara Betta (MM Hills) Reserve Forest which is located Chamarajanagara district of southern Karnataka, India. The study is intended to investigate the wild edibles present in MM Hills and to explore the scope of conserving and utilizing wild edibles for their economic and socioecological upliftment. Proposing approach level mediations to the Government would empower it to make an important move for protection of WEP and improvement of neighborhood economy through appropriate utilization of WEP while at the same time guaranteeing long haul sustenance. In this regard, a training program was also conducted with objectives to acknowledge the farmers about wild edibles and to assist them in value addition using mechanical techniques.

Marketing wild edible plants with success in rural areas dependson developing centralized process facilities. These facilities may handle, wash, dry, grade, and sift wildcrafted plants in bulk to feature worth to the product. The facilities also could be used to process and market local and regional farm crops and provide educational opportunities (Clements, 1998). The current demand of organic and healthy food can be met by conserving and promoting value-adding to the wild edibles found in the study region. Focus should be done on bringing market channel near to villages for the transfer of products directly to the world.
During study area investigation, we found that there are many wild edible trees growing fruits in adequate quantity, but it is not being utilized by the local people; hence it's being recycled in nature ultimately. The tribal community is interested in conserving and cultivating the wild edibles. They can be acknowledged with the importance and potential of WEP to uplift their socio-economic status.

MATERIALS AND METHODS

Study area

The Male Mahadeswara Betta (MM Hills) Reserve Forest which is located in Chamarajanagara district of Karnataka, India. The study area reclined latitude 12° 13’ and 11° 55’ N and longitude 77° 30’ and 77° 47’ E 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. This area is adjoining the Cauvery Wild life Sanctuary (WLS) and Biligiri Ranga Swamy Temple Tiger Reserve (BRT), which has a greater biological diversity. It forms a connecting corridor between the BRT Wildlife Sanctuary to its west, and the Cauvery Wildlife Sanctuary to the northeast. MM Hills was notified as a reserve forest in 1913, with an area of 703 sq km, but with the formation of Cauvery Wildlife Sanctuary in 1992, an area of 310 sq km was transferred from MM hills, reducing the reserve forest jurisdiction MM Hills is a crucial elephant passageway between the Western and Eastern Ghats.

Vegetation structure

The Forest type in this Reserve are Dry deciduous (64%). This is the prominent forest type. Dominant tree species are Anogeissus latifolia, Boswelia serrata, Chloroxylon swietenia, and, at some places, Dendrocalamus strictus. Scrub forests which are about (20.5%), Moist deciduous and riparian forests (2.45%). Common species are honne (Pterocarpus marsupium), teak (Tectonagrandis), and Terminalia tomentosa species. There is a sparse distribution of Dalbergia latifolia and Tectona grandis, and patches of Shola.

Indigenous tribe residing at Male Mahadeswara Betta

Tribals constitute an essential segment of the Indian Population. In our study area, tribal Communities such as Soligas and the Lingayats 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). Soligas and Lingayats are the predominant communities in the MM Hills. Soligas are the indigenous community who shifted here from the adjacent BR Hills and Sathyamangalam. They are a hunter-gatherer tribe who practiced shifting cultivation till they were settled in hamlets, on lands allotted by the government. The Lingayats are temple priests who came here originally from Mysore. Lingayat families take turns to working in the temple once a year. Temple festivities draw about one million pilgrims every year, creating a wake of income for the Lingayat and Soliga families. Non-timber forest products (NTFP) are an essential source of income for both communities.

METHODOLOGY

Site selection and sampling

A systematic and synchronized study was taken in the study area of Chamarajanagara district of Male Mahadeshwara Hills of Karnataka from the month of January 2018 to September 2019. The study area consists atotal of eight villages spread inside and periphery of Male Mahadeshwara Hills i.e., four peripheral villages (Kanchalli Buddhipadga, Gundapura, Pacchtedoddi) and four inside villages (Chikkamarur, Gorsane, Medaganane, Palar). Our study covered an altitudinal range of 914 m from Mean sea level.

Method of data collection and analysis

A review of forest working plans and past taxonomic surveys of the region provided background information on the occurrence of wild fruit plants...
in the region. Fieldwork was done in two phases i.e. Household survey and Habitat survey. The fruit plant species were identified in consultation with local floras and by matching with authentic herbarium specimens. Also, field trips to each village were undertaken with some collectors in order to locate wild fruit plants and totally the local vernacular names of plants with their botanical name.

**Household survey**

A framed questionnaire was prepared, and oral interviews were conducted among the local inhabitants of the area. Depth interviews were carried out to gather information on frequency, the season of collection, preference, attitude, and quantity of fruits collected, consumed, or sold. Regular field visits were carried out in different seasons during the study period in villages and nearby forests to observe the phenological pattern of the wild edibles and market fluctuation in price. Gathered mostly the people engaged either in domestic consumption or marketing of the wild edibles.

**Habitat survey**

The quadrat studies were undertaken within the selected three forest ranges in MM Hills located near the villages, as villagers usually resort to harvest wild edibles present in and around their locality. Each selected range has made into grids (the length of a grid is around 1.8 Kms), and the entire study area is divided into a total of 358 grids. Out of 350 grids, 180 grids are in the three ranges, and among them, habitat survey has been done for 34 grids. Three quadrats for Phyto-sociological assessment were randomly laid in each grid following standard methods. Quadrats were undertaken as 1m × 1m for herbs, 5m × 5m for shrubs, and 10m × 10m for trees present in the study site.

**VALUATION OF WILD EDIBLES**

All information was collected with the help of forest watchers, and forest dwellers assisted in all the field visits. There are eight local markets identified where from locals either buy or sell the wild edibles. The per kg market rates of the value-added products were collected from collectors, local shopkeepers, middlemen, and buyers. After documentation and analysis of data of wild edibles, it was compared with commercially sold products to assess its potential.

The per kilogram market rates of these value-added products were collected from the local collectors, middleman and sellers. After the documentation and economic assessment of the wild edible fruits, a separate framed questionnaire was prepared to compare the same with the commercially sold fruits. This was done to assess the strengths and weakness of both the fruit sources i.e., wild and commercial ones.

**Workshop on value addition**

To give a better outlook to the farmers about the value addition and market scenario of processed products as well as to provide such a platform to tribal peoples where they can acknowledge some techniques and types of machinery to develop processed products from the wild edibles indigenous to their lands. A two-day workshop covering both theoretical and practical aspects of value addition of wild edibles was organized in Central Food Technological Research Institute (CFTRI), Mysuru.

There were several sessions held to have hands-on demonstrations about food processing equipments. Members took a keen interest in practical work to accumulate active expertise in the use of servicing equipment for making the pickle, lemon-honey juice, wood apple spread, amla candy, amla flakes etc. The workshop also covered theoretical aspects of raw materials quality, and maturity standards, processing and packaging of value-added products. Demonstration of food processing appliances/equipment and envisioned future technological development in the marketing sector was also included. The participants were provided hands-on practice on the use of fruit pulper, fruit mill, dryer, slicer, grinder, etc.

The long term expected result of the training program is to enhance good service practices in NTFP marketability hence improve their economy and become self-dependent. The training program will also assist the tribals to switching over to the cultivation and value addition of wild edibles rather than work as labor for daily wages.
RESULTS AND DISCUSSION

Diversity of wild edible plants

A total of 80 wild edible plants were documented. These wild edible plants included 35 species of trees (belonged to 21 families), 14 species of shrubs (belonged to 12 families), 15 species of herbs (belonged to 9 families), 15 species of climbers (belonged to 10 families) and 1 species of algae (belonged to 1 family) found respectively in our study area.

In the case of trees 3 species each belong to Rutaceae, Fabaceae, Poaceae and 2 species each belongs to Moraceae, Combretaceae, Meliaceae, Anacardiaceae, Rhamnaceae, Ebnaceae, Moringaceae and 1 species each belongs to the remaining families. In the case of shrubs 2 species each belongs to Fabaceae, Solanaceae, and 1 species each belongs to other remaining families. In case the of herbs 6 species belongs to Amaranthaceae family, 2 species each belongs to Nyctaginaceae, and 1 species each belongs to other remaining families. In the case of climbers 4 species each belongs to Dioscoraceae, 2 species each belongs to Menispermaceae, Fabaceae, and 1 species each belongs to other remaining families. Trees and shrubs made up the highest proportion of edible wild fruit species.

Usages of wild edible plants

Fruits: Fruits are principally consumed raw. a number of the foremost common fruits consumed by the locals were Phyllanthus emblica, Tamarindus indica, Syzygium cumini, Limonia acidissima, Artocarpus heterophyllus, etc. Products of Phoenix sylvestris, being calorie-rich and having various crucial and reviving mixes, are devoured around the world. Fruits like Phyllanthus emblica are preserved for months or even years in the form of a local preparation called murabba (local jam) prepared by boiling whole or sliced fruits followed by conceal drying and putting away in impenetrable holders containing sugar or sugar syrup. The Mangifera indica fruits are dried and used as pickles.

The majority of species have only edible fruits, while both flower and fruits of Moringa olefera, Moringa concanensis, leaves, and fruits of Limonia acidissima, are eaten by locals. Murraya koenigii (leaves), are added to pulses and vegetables as toppings and flavors in the study area. Many of the species have other uses, satisfying the communities’ needs for timber (Toona ciliata, Erythroxylum monogynum, Syzygium cumini, Diospyrous montana), fuelwood (Acacia nilotica, Mangifera indica), medicine (Wrightia tinctoria, Canthium parviflorum, S. cumini, Flocourtia indica, Solanum anguivi), Rhizomes (Bambusa arundinacea, Dendrocalamus strictus and cooking oil (Schlechiera oleosa), Mangifera indica dried and powdered and used them as souring agent while Terminalia chebula and Terminalia bellirica were powdered mainly for the digestive purpose. Terminalia bellirica has many uses in the treatment of diseases, the seed of this eaten by the local people for curing gastric problems and stomach disorders Tapan seal (2011). Syzygium cumini is used in Toothache (Sathyavati and Janardhanan 2011).

Average annual Fruit Production of Wild edible available in our study Area

The average annual fruit production per tree was calculated for some important wild edibles on the basis of local expertise and forest officials’ estimation on fruits production by the individual tree in one periodic year.

The highest fruit - producing tree is tamarind (Tamarindus indica), bearing 300kg of fruits annually, followed by jamoon (Syzygium cumini) of 150 kg, and the least amount of edible shoot production is found in bamboos (Bambusa arundinacea) bearing 6 kg of edible shoots annually.

Utilization analysis of Wild Edible Plants

The production of wild resources decreased as a significant portion (75.03%) of the overall fruit production of all the nine wild edible plants having economic potential was wasted. The wastage was the highest (96%) for Bambusa arundinacea (Rhizome) which was followed by Syzygium cumini (94.59%) and Carissa carandas (94.42%). The most productive wild edible was Tamarindus indica which yielded 300 kg of fruit per tree annually. It was followed by Phyllanthus emblica (35 kg per tree/annum).

Value addition experience from our training

The workshop was very encouraging and very centric on the topic of “value addition of wild edibles”. The manual and other training material
Fig. 1: Study area and selected forest fringe villages

Fig. 2: Habitat survey Map of different Forest ranges
Table 1: List of Wild Edible Plants available in the Study Area

| Sl. No. | Habit  | Name of species         | Family       | Parts consumed         |
|---------|--------|-------------------------|--------------|------------------------|
| 1       | Tree   | Artocarpus heterophyllus| Moraceae     | Matured fruits         |
| 2       |        | Terminalia chebula      | Combortaceae | Fruit                  |
| 3       |        | Limoniaacidissima       | Rutaceae     | Fruit                  |
| 4       |        | Azadirachta indica      | Meliaceae    | Whole plant            |
| 5       |        | Cordia wallichii        | Boraginaceae | Fruits                |
| 6       |        | Toona ciliata           | Meliaceae    | Leaves                |
| 7       |        | Acacia nilotica         | Fabaceae     | Fruits                |
| 8       |        | Cassine glauca          | Celasteraceae| Fruits                |
| 9       |        | Magnifera indica        | Anacardaceae | Fruits                |
| 10      |        | Naringi crenulata (ROXB)| Rutaceae  | Fruits                |
| 11      |        | Terminalia bellerica    | Combortaceae | Fruits                |
| 12      |        | Zizipus jujube          | Ramnaceae    | Fruits                |
| 13      |        | Wrightia tinctoria      | Apocyanaceae | Young stem & leaves  |
| 14      |        | Bambusaarund inacea     | Poaceae      | Shoots                |
| 15      |        | Diospyros melanoxylon   | Ebanaceae    | Leaves and fruits     |
| 16      |        | Bambusa bambos          | Poaceae      | Matured shoot         |
| 17      |        | Erythroxylum monogynum  | Erythroxylaceae| Stems & fruits     |
| 18      |        | Dendrocalamus strictus  | Poaceae      | Young shoot           |
| 19      |        | Grewia tiliaefolia      | Tiliaceae    | Fruit                 |
| 20      |        | Phoenix sylvestris      | Arecaceae    | Fruit/Leaves          |
| 21      |        | Ziziphus rugosa         | Ramnaceae    | Fruits                |
| 22      |        | Flocourtia indica       | Flacourtaceae| Fruit                 |
| 23      |        | Ficus glomerata         | Moraceae     | Fruits                |
| 24      |        | Schleichera oleosa      | Sapindaceae  | Fruits                |
| 25      |        | Tamarindus indica       | Fabaceae     | Fruit                 |
| 26      |        | Diospyros montana       | Ebanaceae    | Young stem & leaves   |
| 27      |        | Moringa concanensis     | Moringaceae  | Young stem & leaves   |
| 28      |        | Murrayacoinigi          | Rutaceae     | Matured leaves        |
| 29      |        | Buchanania latifolia    | Anacardaceae | Seeds                 |
| 30      |        | Phyllanthus emblica     | Phyllanthaceae| Fruit                |
| 31      |        | Syziziumcummini         | Myrtaceae    | Fruit, bark           |
| 32      |        | Moringa olefera         | Moringaceae  | Young stem & leaves   |
| 33      |        | Acacia fariniana        | Fabaceae     | Leaves                |
| 34      |        | Cordia wallichii        | Boraginaceae | Fruits                |
| 35      |        | Scolopia crenata        | Flacourtaceae| Matured fruits        |

1     Shrub       Albizia amara | Fabaceae       | Leaves        |
2     Quercus infectoria | Fagaceae | Fruits        |
3     Jasminum trichotomum | Oleaceae | Young stem & leaves |
4     Morus australis | Moraceae | Fruits        |
5     Sapindus laurifolia | Sapindaceae | Leaves, latex & dry fruits |
6     Ximenia americana | Olacaceae | Fruits        |
7     Manihot esculenta | Euphorbiaceae | Tubers        |
8     Acacia sinuata | Fabaceae       | Dry fruits    |
9     Zizyphusxiphoporus | Rhamnaceae | Fruit        |
10    Solanum nigrum | Solanaceae   | Matured fruits|
11    Canthium parviflorum | Rubiaceae | Young stem & leaves |
12    Carissa carandas | Apocyanaceae | Fruit        |
13    Solanum anguivii | Solanaceae   | Matured fruits|
14    Atlantia monophylla | Rutaceae | Roots & Fruits & leaves |
|   | Name of plant                  | Family          | Type                          |
|---|-------------------------------|-----------------|-------------------------------|
| 1 | **Herbs**                     |                 |                               |
| 2 | *Solanum indicum*             | Solanaceae      | Leaves                        |
| 3 | *Zingiber zerumbet*           | Zingiberaceae   | Rhizomes                      |
| 4 | *Tephrosia purpurea*          | Fabaceae        | Flowers                       |
| 5 | *Opuntia stricta*             | Rutaceae        | Fruits                        |
| 6 | *Celosia argentea L.*         | Amaranthaceae   | Leaves                        |
| 7 | *Boerhavia diffusa*           | Nyctaginaceae   | Young stem & leaves           |
| 8 | *Dioscorea esculenta*         | Dioscoreaceae   | Tubers                        |
| 9 | *D. arvensis*                 | Amaranthaceae   | Leaves                        |
| 10| *Alternanthera sessilis (L)*  | Amaranthaceae   | Leaves                        |
| 11| *Cocculus hossutus*           | Nyctaginaceae   | Young stem & leaves           |
| 12| *Boerhavia repanda*           | Amaranthaceae   | Young stem & leaves           |
| 13| *Amaranthus caudatus*         | Amaranthaceae   | Young stem & leaves           |
| 14| *Amaranthus spinosus*         | Amaranthaceae   | Young stem & leaves           |
| 15| *Brassica rapa*               | Cruciferaceae   | Young stem & leaves           |
| 16| *Alternanthera sessilis (L)*  | Amaranthaceae   | Stems & leaves                |
| 17| *Ipomea batatas (L)*         | Convolvulaceae  | Tubers                        |
| 18| *Dioscorea aculeata L.*       | Dioscoreaceae   | Tubers                        |
| 19| Decalepis hamiltonii          | Apocynaceae     | Root                          |
| 20| *Cissus repens LAM*           | Vitaceae        | Leaves                        |
| 21| *Dioscorea wallichii*         | Dioscoreaceae   | Tubers                        |
| 22| *Momordica charantia*         | Cucurbitaceae   | Fruit                         |
| 23| *Besella alba*               | Menispermacae   | Young stem & leaves           |
| 24| *Todalia asiatica*           | Rutaceae        | Young stem & leaves           |
| 25| *Anredera vesicaria*          | Menispermacae   | Young stem & leaves           |
| 26| *Dioscorea*                   | Dioscoreaceae   | Tubers                        |
| 27| *Holostemma annulare*         | Asclepiadaceae  | Leaves                        |
| 28| *Lablab purpureus*           | Fabaceae        | Matured fruits                |
| 29| *Dioscorea lata*              | Dioscoreaceae   | Tubers                        |
| 30| *Ziziphus oenoplia*           | Rhamnaceae      | Fruits                        |
| 31| *Pterolobium hexapetalum*     | Fabaceae        | Matured fruits                |
| 1 | **Climber**                   |                 |                               |
| 2 | *Ipomea batatas (L)*         | Convolvulaceae  | Tubers                        |
| 3 | *Dioscorea aculeata L.*       | Dioscoreaceae   | Tubers                        |
| 4 | Decalepis hamiltonii          | Apocynaceae     | Root                          |
| 5 | *Cissus repens LAM*           | Vitaceae        | Leaves                        |
| 6 | *Dioscorea wallichii*         | Dioscoreaceae   | Tubers                        |
| 7 | *Momordica charantia*         | Cucurbitaceae   | Fruit                         |
| 8 | *Besella alba*               | Menispermacae   | Young stem & leaves           |
| 9 | *Todalia asiatica*           | Rutaceae        | Young stem & leaves           |
| 10| *Anredera vesicaria*          | Menispermacae   | Young stem & leaves           |
| 11| *Dioscorea*                   | Dioscoreaceae   | Tubers                        |
| 12| *Holostemma annulare*         | Asclepiadaceae  | Leaves                        |
| 13| *Lablab purpureus*           | Fabaceae        | Matured fruits                |
| 14| *Dioscorea lata*              | Dioscoreaceae   | Tubers                        |
| 15| *Ziziphus oenoplia*           | Rhamnaceae      | Fruits                        |
| 16| *Pterolobium hexapetalum*     | Fabaceae        | Matured fruits                |
| 1 | **Algae**                     |                 |                               |
| 2 | *Parmelia perlata*            | Permeliaceae    | Flower                        |

**Fig. 3:** Average annual fruit production per tree of selected wild edibles of MM Hills
Table 2: Scale index of some important wild edible species

A total of 20 species of wild edibles was selected according to people perception and scaled from 0 to 10 on the basis of their availability in the region, feasibility in terms of making products and producing good economic returns.

| Sl. No | Local Name       | Scientific Name        | Availability | Feasibility | Market Value | Total Average |
|--------|------------------|------------------------|--------------|-------------|--------------|---------------|
| 1      | Nerale Hannu     | Syzygium cumini        | 8            | 8           | 8            | 7             |
| 2      | Belada hannu     | Limonia acidissima     | 6            | 6           | 7            | 5.6           |
| 3      | Hunase hannu     | Tamarandus indica      | 10           | 10          | 10           | 10            |
| 4      | Halasinakaayi    | Artocarpus heterophyllus | 4           | 7           | 7            | 6             |
| 5      | Limbe hannu      | Citrus limon           | 7            | 7           | 8            | 6.3           |
| 6      | NelliKaayi       | Phyllanthus emblica    | 9            | 9           | 8.3          | 5.6           |
| 7      | Drum stick       | Moringa Olefera        | 8            | 8           | 9            | 6.6           |
| 8      | Bidiru gala      | Bambusabambos          | 10           | 10          | 10           | 10            |
| 9      | Ajjigida         | Asparagus racemosus     | 5            | 4           | 8            | 5.6           |
| 10     | Medikalugadde    | Curculigo orchioides   | 7            | 4           | 8            | 6.3           |
| 11     | Makali beru      | Decalepis hamiltonii   | 4            | 4           | 9            | 4.6           |
| 12     | Maavu            | Magnifera indica       | 5            | 5           | 7            | 5             |
| 13     | Ganake soppu     | Solanum indicum        | 3            | 3           | 2            | 4.6           |
| 14     | Kaulihannu       | Carissa carandas       | 4            | 4           | 3            | 4.3           |
| 15     | Eachalu          | Phoenix sylvestris     | 5            | 5           | 3            | 4.3           |
| 16     | Basale soppu     | Besella alba           | 4            | 4           | 3            | 4.6           |
| 17     | Genasu           | Dioscorea aculeata L   | 6            | 6           | 6            | 5.3           |
| 18     | Yelasihannu      | Zizipus jujube         | 4            | 4           | 4            | 4.6           |
| 19     | Kari bevu        | Murrayacoignigi        | 8            | 8           | 8            | 5             |
| 20     | Kambalihannu     | Morus australis        | 9            | 7           | 6.3          | 5             |

*SCALE: 0-3 (POOR), 4-6 (AVERAGE), 7-10 (GOOD)
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Table 3: Cost-benefits analysis of the top 10 wild edibles prioritized for value addition

According to some important criteria like ease of availability in the vicinity of the tribal people, the feasibility of WEP for making products, traditional knowledge among tribals of WEP from the past, ease of producing value added products, optimum abundance and density of WEP in the forest, good economic returns from the processed products we prioritized ten wild edibles for value addition and did cost-benefit analysis.

| Sl. No | Local name       | Scientific name          | Habit  | Parts used | Products made       | Cost of products (₹) | Density | Abundance |
|-------|------------------|--------------------------|--------|------------|---------------------|----------------------|---------|-----------|
| 1     | Nerale Hannu     | Syzygium cumini          | Tree   | Fruit      | Juice, Powder       | 350/500ml, 85/100gm  | 1.578947 | 22.5      |
| 2     | Beladahannu      | Limonia acidissima       | Tree   | Fruit      | Jam, Powder         | 80/450gm, 200/100gm  | 2.526316 | 24        |
| 3     | Hunasehannu      | Tamarandus indica        | Tree   | Fruit      | Candy, Juice, Sauce, Powder | 150/400gm, 90/250ml, 45/200gm, 200/100gm | 3.157895 | 20        |
| 4     | Halasinakaayi    | Artocarpus heterophyllus | Tree   | Fruit      | Jam, Chips, Juice, Pickle, Juice, Flakes, Candy, Juice, Powder | 160/300gm, 400/500gm, 22/100gm, 70/250ml, 195/200gm, 150/400gm, 210/1000ml, 60/100gm | 1.894737 | 27        |
| 5     | Limbe hannu      | Citrus limon             | Tree   | Fruit      | Pickle, Juice       | 22/100gm, 70/250ml   | 1.894737 | 18        |
| 6     | NelliKaayi       | Phyllanthus emblica      | Tree   | Fruit      | Flakes, Candy, Juice, Powder | 195/200gm, 150/400gm, 210/1000ml, 60/100gm | 4.736842 | 45        |
| 7     | KouliHannu       | Carissa carandas         | Shrub  | Fruit      | Juice, Pickle       | 400/500ml, 200/500gm | 1.263158 | 18        |
| 8     | Bidiru gala      | Bambusa bambos           | Shrub   | Young shoots | Pickle, Canned     | 125/100gm, 182/250gm | 34.73684 | 123.75    |
| 9     | Ajjigida         | Asparagus racemosus      | Herb   | Root       | Powder              | 200/100gm            | 0.631579 | 18        |
| 10    | Medikalu gadde   | Curculigo oderoides      | Herb   | Tuber      | Powder              | 210/100gm            | 23.68421 | 450       |

were translated into local language and faculties were also using the local language for lecture and demonstration classes, which help them for better understanding the importance of wild edibles. They felt enlighten to know about the scenario of the market for wild edibles and economic benefits of value-added products. It was requested to conduct more such training program on different species in coming future.

CONCLUSION

Hunger, one in all the foremost crucial issues of this generation, is supplemented, to a good extent, by the inclusion of WEPs within the diet. The present study disclosed that the indigenous knowledge concerning the use of WEPs continues to be in follow among the ethnic communities of the study zone. Conservation of traditional knowledge, wild edible plants requires relevant management and utilization. Lack of scientific understanding of the conservation of wild edible and strict forest policies on the collection, utilization of these economically important species leads to the wastage of Wild edible plant community. During our study period, it has been noticed that the indigenous population has significantly shifted their livelihoods from wild edible collection to other agricultural and allied activities. We found that this area has a reservoir of a variety of wild edibles that have the potential to sustain the rural livelihood but there deprive of harnessing it, as it was declared as wildlife sanctuary in 2013. In this way, the need of great importance is that the public and worldwide specialists perceive the commitment of rural communities to the broadening of human nourishment and work.
in cooperation for the reappraisal of indigenous knowledge on WEPs.

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PICTURES

Plate 1: Habitat survey in the study region

Plate 2: Discussion and data collection during Household survey

Limonia acidissima (Woodapple)

Tamarindus indica (Tamrind)
Annona squamosa (Custard apple)  
Ziziphus jujuba (Jujube)

**Plate 3:** Some Wild edibles found during the habitat survey
Plate 4: Active participation of farmers during training programme

Tamarind candy

Lemon juice blended with honey

Wood apple spread

Amla candy

Plate 5: Final products prepared during workshop from wild edibles