

Original Article

EXPLOITATION OF EDIBLE WILD PLANTS AS MEDICINAL PROPERTIES FOR PRIMARY HEALTH CARE SYSTEM IN BIDAR DISTRICT, NORTH KARNATAKA, INDIA

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ABSTRACT

Objective: Plants since times immemorial have been used practically in all societies as a source of medicine and food. The huge data of medicinal plants are available in the different geographical regions of India. Most of the knowledge and awareness about plants are found in the ethnic community and villages. The present paper tried to explore of medicinal plant property used in the study region with the help of ethnic communities.

Methods: A perspective documentation and cross-sectional studies of edible wild plants used as medicinal properties for various diseases of Bidar district. Surveys were undertaken in January 2018-July 2019 in villages, ethnic people community and medicinal healers or local herbal practitioners in the study area.

Results: Total 42 medicinal healers' interviews were undertaken by the help of questioners or a standard survey datasheet. During the survey, a description of, 63 edible wild plant species belonging to 40 families and 53 genera was recorded. Total 63 edible wild plants are used as medicine to cure different diseases by local medicinal practitioners of the district. Among 63 edible wild plants, the plant parts leaf (31 species) is most abundantly used, followed by fruits (22 species) and other plant parts are with less than 5 species i.e. 4, 3, 2 and single species.

Conclusion: However, day by day people will be attracted towards herbal medicine for the treatment of diseases. Many of the herbal plants have no side effect. So far, the present paper has been communicated to give more and more medicinal properties of edible wild plants.

Keywords: Medicinal plants, Edible wild plants, Diseases, Bidar district, North Karnataka

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INTRODUCTION

Since many years' importance of, wild food plants have been used for food supplements during drought and famine. So, the consumption of such plants is called "wild food plants" or "famine foods" [1]. Plants, since times immemorial, have been used practically in all societies as a source of medicine and food. About 45,000 angiosperm plants have been used as food or nutritive value and medicinal value [2]. According to the world health organization (WHO), 1998 as many as 80% of the world's population depend on traditional medicine for their primary healthcare. India is one of the mega-diversities of the world. Traditional systems of medicines are still very effective, particularly in rural areas of India for the treatment of various diseases [3, 4]. Although the rate of medicinal plant utility is increasing day by day. But very little knowledge about medicinal plants is passing generation to generation used as medicine for health care. However, the present investigation includes the exploitation of edible wild plants with respect to

medicine by tribals and rural people of the different socioeconomic communities of the district.

MATERIALS AND METHODS

Study area

Bidar district is situated in the North-Eastern part of Karnataka in India. The district is also called as crown of Karnataka state. The district is covering an area of 5448 sq. km., within 17°35' and 18°25' North latitudes and 76°42' and 77°39' East longitudes (fig. 1). The vegetation of forest division is classified into two sub-groups, namely, Southern tropical dry deciduous forests and Southern tropical thorn forests [5]. The district occupies various ethnic groups and socio-cultural communities. The main tribes are Lambani, Halakki and Kaadu kuruba scattered in both village and near forest areas of the district. Except these other tribes are Gond, Naikpod, Rajgond, Koli Dhor, Tokre Koli, Kolcha, Kolgha Koya, Bhine Koya, Rajkoya, Maha Malasar and Rathawa [6].

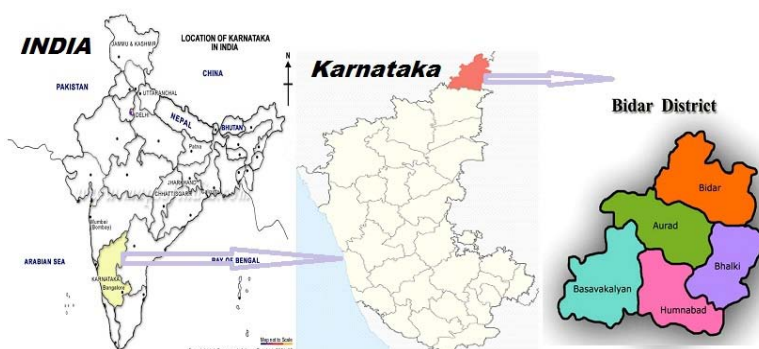


Fig. 1: Location map of Bidar district, Karnataka and India

Survey and documentation

Surveys were undertaken at January 2018-July 2019 in villages, in ethnic people community and medicinal healers or local herbal practitioners in the study area. 42 medicinal healers' interviews were undertaken by the help of questioners or standard survey datasheet [7]. Through interviews and discussions, information about edible wild plants used for medicine to cure various diseases gathered. Plants were collect and herbarium specimens prepared. Plant specimens were identified with the help of floras and internet sources [8-11].

RESULTS

During the survey, a description of 63 species belonging to 40 families and 53 genera was recorded (fig. 2). The information was collect from different 42 medicinal healers by ages between 30-80 y old (fig. 3). The description provides an account of these 63 species enumerate with regards the botanical name, family, Bidar local name/s, available season, part/s used preparation or dosage of

medicine, precautions (if present) and ailments or diseases (table 1). Among 63 edible wild plants the plant parts used leaf (31 species) is most abundantly used followed by fruits (22 species) and other plant parts are with less than 5 species i.e. 4, 3 2 and single species (fig. 4). Plant materials were bringing from the forest in available seasons and make as tablet or other forms to treat the diseases. Sometimes fresh materials are used to treat for particular diseases.

Habit-wise distribution of medicinal, edible wild plants is shown in fig. 5. Herbs (22) are found to be the most used plants followed by trees (18), climbers (14) and shrubs (09) in descending order.

Cucurbitaceae and Amaranthaceae were found to be the most common families with 7 and 6 species each, respectively. Other important families were Euphorbiaceae (4 species), Leguminaceae (4 species, in this family, 2 species of subfamily Caesalpinoioideae and 2 species Mimosoioideae), Aracaceae, Araceae, Chenopodiaceae, Ebenaceae, Moraceae, Portulacaceae, Rhamnaceae, Rutaceae and Solanaceae (2 species each) and rest of the 24 families had one wild edible medicinal species each (fig. 6).



1. *T. portulacastrum* L. 2. *A. sessilis* (L.) R. Br. ex DC. 3. *A. hybridus* L.



4. *D. muricata* (L.) Mart., 5. *C. orchoides* Gaertn. 6. *H. indicus* (L.) R. Br.,



7. *G. bosvallea* DC. 8. *D. melanoxylon* Roxb. 9. *F. leucopyrus* Wild.

Fig. 2: Photographs of some reported plants of edible wild plants used as medicine



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Fig. 3: Few local traditional health practitioners in bidar district

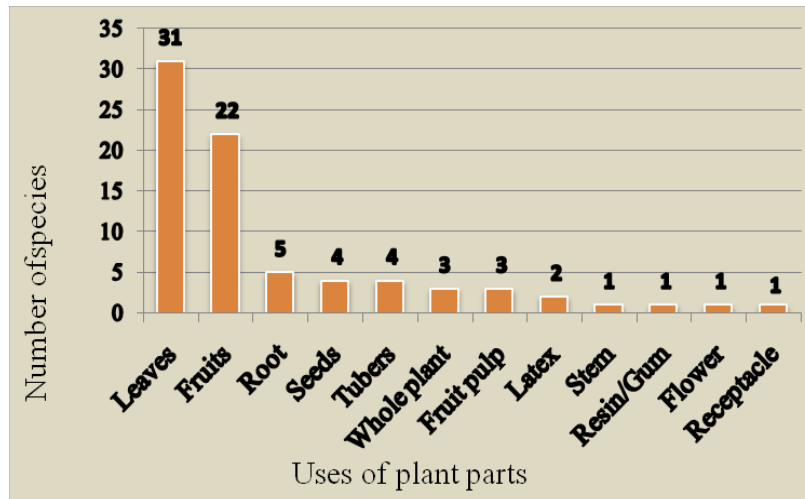


Fig. 4: Parts of the edible wild plants used as medicine in Bidar district

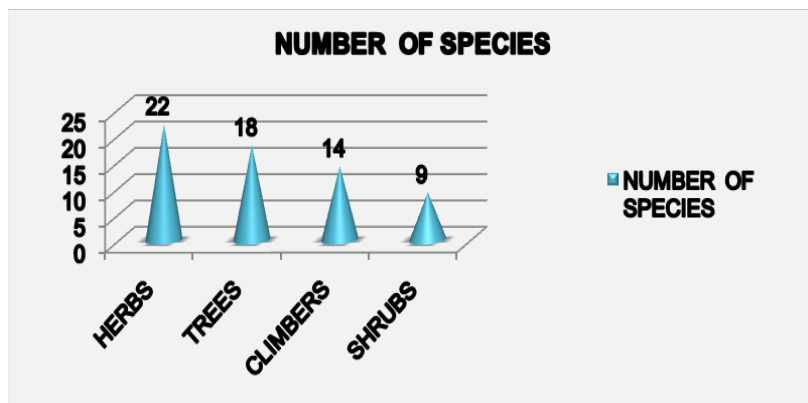


Fig. 5: Habit wise distribution of medicinal wild edible plants in Bidar district

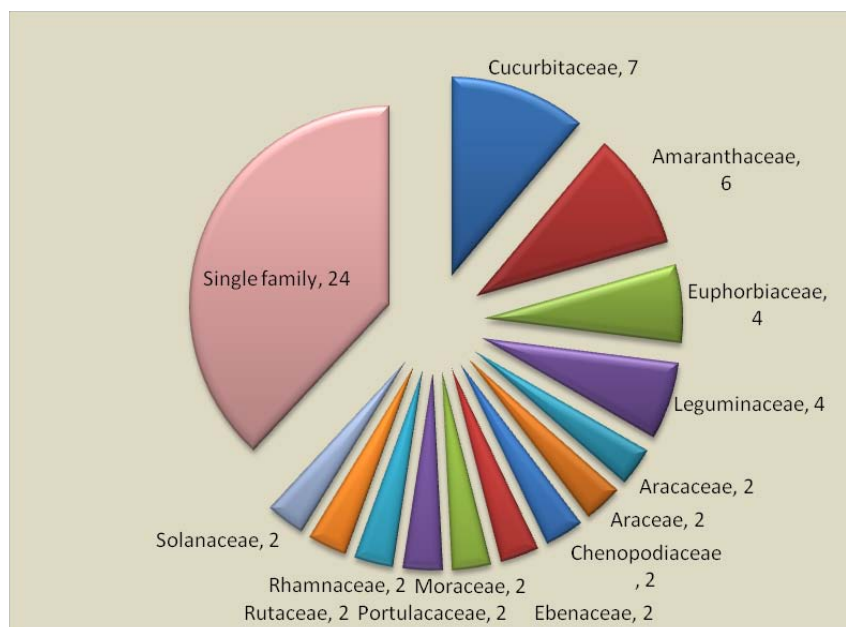


Fig. 6: Distribution of medicinal wild edible plants under various botanical families

DISCUSSION

The literature reveals that *Trianthema portulacastrum* root is used for killing the ascites. Plant is used as medicine for anti-inflammatory and anti-carcinogenic activities [12, 13]. The studies of ethnobotanical values of plants against 25 types of ailments were explored by using 31 medicinal plants belonging to 25 families in the people of Kailasakonda Sacred Grove [14]. *Curculigo orchoides* and *Amorphophallus paeoniifolius* root and rhizome are used as medicine to treat various diseases such as abortifacient, asthma, cough, cuts, filaria, fever, itching, leucorrhoea, nose bleeding, piles, bleed, tonic, unconsciousness of children and wounds, earache, inflammation throat, respiratory complaints, pimples and piles [15]. *Alternanthera sessilis*, *Amaranthus hybridus*, *A. spinosus*, *A. viridis*, *Digera muricata* and *Celosia argentea* leaves cooked as vegetable and used as medicine for liver ailments, dysentery, diarrhea, dizziness, constipation, urinary disorder etc., and marketed in local markets [16-20]. *Semecarpus anacardium* leaf and fruit juice is used for colic, high blood pressure, stomachache sprains and rheumatism. *Merremia gangetica* root, leaves and the whole plant are used as

purgative, diuretic, laxative, cough, headache, neuralgia, rheumatism, diuretic, inflammation, troubles of nose, fever and for the treatment of cancer, crude drug and other ayurvedic formulations [21-25]. *Annona squamosa*, *Centella asiatica*, *Hemidesmus indicus*, *Cucumis trigonus* and *Momordica charantia* seeds, root, leaves, fruits and the whole plant are used for to strengthen the bones, relieve vomiting, remove burning sensation, brain tonic, antibacterial, anti-diabetic, anti-fungal, etc [26-30]. The study reveals that some wild edible plants have dual role as food and medicinal in Palghar district. So, the total such 40 varieties of plant species are documented for phytochemical and nutraceutical analysis [31].

However, the large extent of ethnobotanical work on medicinal plants is carried out in worldwide, within the India and Karnataka state. In Bidar district medicinal healers are having lot of knowledge about Ethnobotany and ethnomedicine. There is no detailed study on documentation of edible wild plants used as medicine in the study area. So far, the present paper is gives detailed information of edible wild plants with their medicinal value for different ailments.

Table 1: List of medicinal properties of edible wild plants

S. No.	Botanical name	Family/Subfamily	HGUG voucher no.	Bidar local name/s	Available season	Part/s used	Preparation/dosage	Ailment/s or disease/s
1.	<i>Trianthema portulacastrum</i> L.	Aizoaceae	5216	Khappur palya	Rainy	Leaves	Leaves grinds with salt then apply on the wound caused by spine	Anti inflammatory
2.	<i>Alternanthera sessilis</i> (L.) R. Br. ex DC.	Amaranthaceae	5139	Garundi palya	Rainy	Leaves	Leaves used as vegetable	Piles, Osteomalacia
3.	<i>Amaranthus hybridus</i> L.	Amaranthaceae	5140	Rajgiri palya, Shravani math	Rainy	Leaves	Leaves used as vegetable	Digestive, stomach disorders, purgative, dysmenorrhoea, piles
4.	<i>Amaranthus spinosus</i> L.	Amaranthaceae	5141	Kirgale palya	Rainy	Leaves	Leaves used as vegetable	Anaemia, Osteomalacia, fever, colour blindness, jaundice, kidney stones
5.	<i>Amaranthus viridis</i> L.	Amaranthaceae	5143	Sanna rajgiri palya, kantha bhaji	Rainy	Young shoots, Leaves	Young shoots or leaves used as vegetable	Digestive, Purgative, stomach disorders, Anaemia
6.	<i>Celosia argentea</i> L.	Amaranthaceae	5159	Kukken gida, Anne soppu, Karada	Winter	Leaves	Leaves eaten with rock sugar. Leaves used as vegetable	Cooling agent, improve stamina, Mouth ulcer, colour blindness
7.	<i>Digera muricata</i> (L.) Mart.	Amaranthaceae	5169	Gundagarji palya, Gudeli palya	Rainy	Young plant	Young plant used as vegetable	Hepatitis, digestion, diuretic

S. No.	Botanical name	Family/Subfamily	HGUG voucher no.	Bidar local name/s	Available season	Part/s used	Preparation/dosage	Ailment/s or disease/s
8.	<i>Curculigo orchiooides</i> Gaertn.	Amaryllidaceae	5168	Khaduri, Adi ulagadde, One padarin ulagadde, Kali musli	Rainy	Tuber, fruits	Tuber of <i>Curculigo orchiooides</i> and <i>Castor</i> leaf powder makes a tablet, take daily for 21 d with empty stomach Ripe fruits eaten raw to enhance immunity	Jaundice, strengthen immunity Strengthen immunity, blood purification
9.	<i>Semecarpus anacardium</i> L.	Anacardiaceae	5210	Kyare kai, Bibha, Geru	Winter	Receptacle, Fruit, Flower	Boil the receptacles with pigeon pea and eat than drink only a cup of water to cure. Burn the receptacle to produce oil than rubs the oil on throat. Eat flower daily morning up to a week	Heart attack, Heart diseases Wet cough or whooping cough Whooping cough
10.	<i>Annona squamosa</i> L.	Annonaceae	5146	Sithaphal	Winter	Fruits, Seeds	Fruit epicarp paste applied on wound Seeds powder eaten with empty stomach	Digestive, fungal infections, ringworm, psoriasis, leptospirosis Killing the earthworms in stomach, stomach ache Memory enhancer, kidney stones
11.	<i>Centella asiatica</i> (L.) Urb.	Apiaceae	5160	Brahmi, Ondelage	Rainy	Leaves	Leaves chewed and eaten	Strengthen immunity, Memory enhancer, kidney stones
12.	<i>Hemidesmus indicus</i> (L.) R. Br.	Apocynaceae	5184	Sugandi beru, Halibarin gida	Rainy	Root	Root powder applied Root powder boil and drink	Skin infection, feet cracks, toothache Blood purifier
13.	<i>Phoenix sylvestris</i> (L.) Roxb.	Araceae	5200	Shindi kai, Enchalu hannu	Throughout the year	Seeds, Root	Seeds eaten raw Cattle can feed bulging roots with above ground at the base Ripe fruits eaten raw	Strengthen immunity, Milking in Cattle
14.	<i>Borassus flabellifer</i> L.	Araceae	5151	Taadin Kai	Winter	Fruits	Ripe fruits eaten raw	Laxative, stimulant
15.	<i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson	Araceae	5144	Suvarna gadde, Havalad gadde, Sonevell	Summer	Tubers	Eat raw tubers 3-4 d	Piles, menstrual cycle regular
16.	<i>Colocasia esculenta</i> (L.) Schott.	Araceae	5165	Shavi palya	Rainy	Leaves, Tubers	Take 2 rupees coin size leaf of <i>Colocasia esculenta</i> smashed and drink within cow milk or mother milk Tubers and leaves are used as vegetable, snacks and sauce.	Dry cough, whooping cough, Pneumonia, Blood purification, Digestion. Kidney stone, Urinary disorder, stomach ache, piles.
17.	<i>Glossocardia bosvallea</i> (L. f.) DC.	Asteraceae	5185	Adi sabski	Rainy	Whole plant	Whole plant used as vegetable	Strengthen immunity, fever
18.	<i>Opuntia stricta</i> (Haw.) Haworth.	Cactaceae	5197	Nagarpaden gida	Winter	Leaves	Leaf (Phyllode) cut into two equal portion warm and apply on chest tumour	Lump's, cancer
19.	<i>Capparis zeylanica</i> L.	Capparaceae	5155	Totttilu belli	Winter	Leaves	Eat 3-4 d 50g of leaf extract mix with ghee and sugar or Jaggary Leaves mixed with salt and brushed teeth to cure the toothache.	Menstrual problems, gynaecological disorder, stomachic Toothache, stomach ache
20.	<i>Basella alba</i> L.	Chenopodiaceae	5150	Basale soppu, Bansali	Rainy	Leaves	1-2 Leaves eaten with empty stomach in early morning	Constipation, Anaemia, digestive, appetite
21.	<i>Chenopodium album</i> L.	Chenopodiaceae	5161	Chukka, Hunachikki	Winter	Leaves	Leaves used as a vegetable	Cooling agent, stomach pain, kidney stone, yellow jaundice, piles
22.	<i>Merremia emarginata</i> (Burm. f.) Hallier f.	Convolvulaceae	5191	Ililikiwi gida	Rainy	Leaves, Whole plant	Leaves used as vegetable One spoon of whole plant decoction given to children daily at one time	Kidney stones, heart diseases, urinary diseases, digestive, diuretic. Urine problems, liver problems
23.	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Crassulaceae	5185	Tilval, Gandukalinga	Summer	Leaves	Leaves used eaten raw to treat	Asthma, cough
24.	<i>Coccinia indica</i> Wight and Arn.	Cucurbitaceae	5163	Tonde kai	Winter	Fruits	Chew 1 or 2 unripe fruits	Mouth ulcer, fever
25.	<i>Cucumis trigonus</i> Roxb.	Cucurbitaceae	5167	Gudumin kai, Kaadu sauté kai	Winter	Fruits	Fruits eaten raw	Cooling agent, Acidity, diabetes, digestive
26.	<i>Diplocyclos palmatus</i> (L.)	Cucurbitaceae	5175	Shivalingi, sumblen kai	Rainy	Seeds	Seeds powder mixed with cow milk and	Fertility in women, prevent miscarriage

S. No.	Botanical name	Family/Subfamily	HGUG voucher no.	Bidar local name/s	Available season	Part/s used	Preparation/dosage	Ailment/s or disease/s
27.	<i>Momordica charantia</i> L. C. Jeffrey.	Cucurbitaceae	5192	Haagal kai	Rainy	Fruits	drink Drink a cup of fruit juice for 2-3 d	Diabetes, pitta Acidity
28.	<i>Momordica dioica</i> Roxb. Ex Willd.	Cucurbitaceae	5194	Midi hagul kai	Rainy	Leaves, Fruits	Fruits eaten raw Drink leaf or fruit juice 2-3 d Fruits used as vegetable	Diabetes, fever Acidity, Pitta
29.	<i>Momordica cymbalaria</i> Hook. f.	Cucurbitaceae	5193	Karchi kai	Rainy	Fruits, Tubers, Leaves	Fruits used as vegetable Fruits used as vegetable Tubers eaten raw to treat 1-2 leaves eaten at an early morning	Strengthen immunity Diabetes Pitta
30.	<i>Mukia maderaspatana</i> (L.) M. Roem.	Cucurbitaceae	5196	Yemmighogari belli, Benneti	Rainy	Root, Fruits	Root extract applied on skin and pimples. Fruits eaten raw	Skin diseases
31.	<i>Diospyros melanoxylon</i> Roxb.	Ebenaceae	5173	Tendu, Thumbri, Illinta	Rainy	Fruits	Fruits eaten daily early morning with empty stomach	Cooling agent, Acidity, stomach problems
32.	<i>Diospyros montana</i> Roxb.	Ebenaceae	5174	Enchil hannu, Timbru	Summer	Fruits	Fruit eaten daily early morning with empty stomach	Cooling agent, Acidity
33.	<i>Phyllanthus acidus</i> (L.) Skeels.	Euphorbiaceae	5201	Havla, Keerinnelli, Gundinnelli	Summer	Fruits	Equal amount of (1/2 tsp.) <i>Phyllanthus acidus</i> fruit powder+ <i>Celosia argentea</i> leaf powder+ <i>Croton tiglium</i> seed powder mixed well and take orally up to 15-20 d. Fruits eaten raw with salt	Blood purification, appetite. Digestive, pitta, giddiness, omitting, acidity
34.	<i>Embolica officinalis</i> Gaertn.	Euphorbiaceae	5202	Nelle kai, Amla, Dodda nell kai	Winter	Fruits, Leaves	Take fruit powder of <i>Phyllanthus emblica</i> , <i>Terminalia bellarica</i> and <i>Terminalia chebula</i> in honey (50%) and <i>Allium sativum</i> paste (25%). Leaves extract applied on wounds	Control high blood pressure, cough and acidity, stomach problems Mouth ulcer
35.	<i>Kirganalia reticulata</i> (Poir.) Baill.	Euphorbiaceae	5186	Kempu huli, Huli hannu	Summer	Leaves	Leaves extract of <i>Kirganalia reticulata</i> and leaves extract of <i>Flueggea leucopyrus</i> mixed in buttermilk and take orally for 7 d	Red discharge, White discharge
36.	<i>Flueggea leucopyrus</i> Wild.	Euphorbiaceae	5209	Bili huli gida	Winter	Leaves	Leaves extract mixed in drinking water or cow milk or goat milk and take orally for 7 d	White discharge
37.	<i>Plectranthus amboinicus</i> (Lour.) Spreng.	Lamiaceae	5205	Ajeevan tappul, Dhapati yeli	Throughout the year	Leaves	Leaves used in meals Take leaves extract of <i>Occimum sanctum</i> and <i>Plectranthus amboinicus</i> in honey.	Digestive, hepatitis, diuretic, laxative, cough, asthma. Cold, cough in children
38.	<i>Cassia fistula</i> L.	Leguminaceae/Caesalpinioideae	5157	Kakke hanuu	Summer	Root	Root juice is applied on the snake bite	Snack bite
39.	<i>Senna tora</i> (L.) Roxb.	Leguminaceae/Caesalpinioideae	5158	Chagachi gida	Winter	Seeds Leaves	Seeds eaten raw and used as vegetable Leaves used as vegetable	Skin diseases, edema (Swelling of the body), enhance milk in cattle Strengthen the immunity, enhance milk in cattle Plant is consists of <i>omega 3 fatty acids</i> Strengthen immunity
40.	<i>Acacia arabica</i> (Lam.) Willd.	Leguminaceae/Mimosoideae	5137	Babli gida, Kari jaali	Throughout the year	Resin/Gum	Resin or gum eaten raw or cooked. Women eaten after maturation (Menstrual Cycle time) and child birth (Delivery)	
41.	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Leguminaceae/Mimosoideae	5204	Gorak kaambli, Kodabyale kai, Hulihunase	Summer	Fruits	Ripped fruits eaten raw	Cooling agent, acidity control
42.	<i>Asparagus racemosus</i> Willd.	Liliaceae	5147	Halavu makkal taayi, Shatavari	Throughout the year	Tubers	Powder of <i>Asparagus racemosus</i> tuber+ <i>Diplocyclos palmatus</i> fruit+cumin powder mixed in honey and eat 3 d during M C	Strengthen immunity, antipyretic, menstrual problems Sterility, dysentery

S. No.	Botanical name	Family/Subfamily	HGUG voucher no.	Bidar local name/s	Available season	Part/s used	Preparation/dosage	Ailment/s or disease/s
43.	<i>Abelmoschus moschatus</i> Medik.	Malvaceae	5136	Advi bendekai	Winter	Fruits	period (Precaution: Eat only white rice and curd for 3 d) Tubers used as vegetable Fruits used as vegetable during suffering from diseases	Strengthen immunity, digestive, stomach ache, constipation
44.	<i>Cocculus hirsutus</i> (L.) Diels.	Menispermaceae	5164	Dhangadgen gida	Rainy	Leaves	2-3 Leaves used to eaten daily morning	Male sterility
45.	<i>Ficus racemosa</i> L.	Moraceae	5178	Atti kai	Winter	Latex, Root	Latex mixed with sugar or batasha. Root powder mixed in pot water overnight and drunk early in the morning Latex applied on wounds	Menstrual problems Chest tumour, wounds.
46.	<i>Ficus hispida</i> L.	Moraceae	5177	Nela atti kai	Rainy	Latex	Latex applied on skin diseases and wounds	Skin infections-pimples, ringworm, wounds
47.	<i>Syzygium cumini</i> (L.) Skeels.	Myrtaceae	5214	Nerale hannu, Kaala jamun, Jaamun	Rainy	Fruits, Seeds	Ripped fruits eaten raw Eaten fruits with seeds Take a spoon of shade dried seeds powder daily early in the morning	High diabetes Killing the earthworms in stomach Diabetes
48.	<i>Ximena americana</i> L.	Olacaceae	5218	Nagari hannu, Nakkeru	Summer	Leaves	Take a glass of leaf extract	Snack bite
49.	<i>Portulaca oleracea</i> L.	Portulacaceae	5206	Dodda ghooli	Rainy	Leaves	Leaves used as vegetable	Treatment for liver, kidney, jaundice, constipation, asthma
50.	<i>Portulaca quadrifida</i> L.	Portulacaceae	5207	Sanna ghooli	Rainy	Whole plant	Whole plant used as vegetable	Cooling agent, digestive, diuretic
51.	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	5219	Bare hannu	Winter	Spines, Leaves	Take 3 spines of the plant and mark round on wound or ring gourd. Leaf paste applied on burns	Fungal infections, Burns
52.	<i>Ziziphus oenoplia</i> (L.) Mill.	Rhamnaceae	5221	Kaalaboar, Kari bare kai	Winter	Fruits	Ripped fruits eaten raw	Jaundice, stomach problems
53.	<i>Gardenia resinifera</i> Roth.	Rubiaceae	5179	Dikambali, Karinga	Winter	Fruits	Fruits eaten raw	Jaundice, stomach problems
54.	<i>Aegle marmelos</i> Corr.	Rutaceae	5138	Billa, Bilvapatre, Bel	Summer	Leaves, Fruit pulp	1-2 Leaves chewed as raw in early morning. Fruit pulp eaten raw	Fever, acidity, digestive, astringent Male sterility, digestive
55.	<i>Limonia acidissima</i> L.	Rutaceae	5189	Kaute kai, Yelka, Naibela	Rainy	Fruit pulp, Leaves	Fruit pulp grinded to make chutney, eaten 2-3 d Eat equal amount of fruit pulp with sugar Take leaf extract orally	All kinds of cough Pitta, stomach ache Strengthen immunity
56.	<i>Madhuca longifolia</i> (Koenig) Macbride.	Sapotaceae	5190	Ippe gida, Mahua	Summer	Root	Take outer layer of root milk by stone and applied on tonsils	Tonsils
57.	<i>Bacopa monnieri</i> (L.) Wettst.	Scrophulariaceae	5148	Neeru bhrasmi, Timare	Rainy	Leaves	Drink two spoon of leaves extract at early in the morning with empty stomach	Nerve tonic, Strengthen immunity
58.	<i>Balanetes roxburghii</i> Planch.	Simarubaceae	5149	Ingalkyan kai, Hingin kai	Summer	Fruit pulp, Fruits	Dried fruit pulp mixed in Jaggary to make a tablets and take for 2-3 d with empty stomach Fruit epicarp paste applied on eyes	Jaundice, stomach problems, purgative Eye diseases, skin problems
59.	<i>Physalis minima</i> L.	Solanaceae	5203	Gudde hannu, Sannaguppate gida	Winter	Leaves	Leaf extract applied on leg or any swollen part of the body	Edima
60.	<i>Solanum nigrum</i> L.	Solanaceae	5211	Kaamini gida, Ganike palya	Throughout the year	Leaves	Drink leaf extract 3-4 d (Precautions: eat only Sorghum rotti/bread and Brinjal curry). Leaves boiled or burn and eaten	Jaundice, stomach problems Pitta, mouth ulcer
61.	<i>Lantana</i>	Verbenaceae	5187	Kaagi gida,	Throughout	Leaves,	Leaves paste mixed	Skin diseases

S. No.	Botanical name	Family/Subfamily	HGUG voucher no.	Bidar local name/s	Available season	Part/s used	Preparation/dosage	Ailment/s or disease/s
	<i>camara</i> L.			Gangoda, Shisha, Kammari	t the year	Fruits	with lime powder and applied on the face	Loose motion
62.	<i>Cissus quadrangularis</i> L.	Vitaceae	5162	Sandu balli	Rainy	Stem	Ripped fruit eaten raw Stem paste mixed in butter and applied on bone fracture or fingers	Bone fracture
63.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	5217	Neggi mullu	Throughout the year	Fruits, Whole plant	Fruit powder of <i>Tribulus terrestris</i> and root powder of <i>Achyranthus aspera</i> mixed in water and drink daily 2 times. Whole plant ash mix in water Then powder will appears on the surface of water than the powder is mixed in honey and eaten.	Kidney stone, stomach ache, excretory disorders Asthma, bronchitis

CONCLUSION

The above investigation deals with 63 edible wild plant species used as medicine for various diseases in Bidar district. The information was gathered from different 42 people of local medicinal practitioners in the study area. Day by day the, people will be attracting towards the herbal medicine for their no side effect. There is less information about wild edible plants with their uses in the district. So far, it is important to document and evaluate this knowledge for their medicinal value of plants. The present paper is communicated to gives more and more medicinal properties of edible wild plants. It is desirable to use of proper plants for particular diseases by their correct formulations without any confusion.

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AUTHORS CONTRIBUTIONS

All the authors have contributed equally.

CONFLICT OF INTERESTS

Author herewith declares that there is no any conflict of interest.

REFERENCES

- Jain SK. Some less known plant foods among the tribal of Purulia district, West Bengal. *Sci Cult*. 1964;30:285.
- Bagul RM. Some ethnomedicinal plant species of satpuda forest region of east Khandesh Jalgaon district, Maharashtra. *J New Biol Rep*. 2013;2(3):264-71.
- WHO (World Health Organization). *Quality Control for Medicinal plant material*. New Delhi: AITBS Publishers; 1998. p. 46.
- Oak Gayatri, Kurve Poonam, Kurve Siddhisha, Pejaver Madhuri. Ethnobotanical studies of edible plants used by tribal women of Thane district. *J Med Plants Stud*. 2015;3(2):90-4.
- Champion GH, Seth SK. *A revised survey of the forest types of India*. New Delhi: Government of India; 1968.
- Roy Subarna, Hegde Harsha V, Bhattacharya Debduitta, Upadhy Vinayak, Kholkute Sanjiva D. Tribes in Karnataka: status of health research. *Indian J Med Res*. 2015;141(5):673-87. doi: 10.4103/0971-5916.159586, PMID 26139788.
- Venkataraman K. India's biodiversity act. 2002 and its role in conservation. Vol. 50. *International Society for Tropical Ecology*; 2009. p. 23-30.
- Gamble JS, Fisher CEC. *Flora of the presidency of madras*. Reprinted edition: Vol. III. Calcutta: BSI; 1957.
- Saldanha CJ. *Flora of Karnataka*. Oxford and IBH: publishing Co. New Delhi; 1984.
- Singh NP. *Flora of eastern Karnataka*. Reprinted edition, Vol. I-II: Mittal publications Delhi; 1988.
- Seetharam YN, Kotresh K, Uplaonkar SB. *Flora of Gulbarga District*. Gulbarga, Karnataka: Gulbarga University; 2000. p. 160.
- Amit Tomar. Folk medicinal uses of plant roots from Meerut district, Uttar Pradesh. *Indian J Trad Knowl*. 2009;8:298-301.
- Mandal Animesh, Bishayee Anupam. *Trianthema portulacastrum* Linn. displays anti-inflammatory responses during chemically induced rat mammary tumorigenesis through simultaneous and differential regulation of NF- κ B and Nrf2 signaling pathways. *Int J Mol Sci*. 2015;16(2):2426-45. doi: 10.3390/ijms16022426, PMID 25622256.
- Yugandhar P, Savithamma N, Suhrulatha D. Traditional medicinal plants used by local people of kailaskona-a sacred grove of chittoor District, Andhra Pradesh, India. 2015;7:407-11.
- Archana Singh. An ethnobotanical study of medicinal plants in sonebhadra district of Uttar Pradesh, India with reference to their infection by foliar fungi. *J Med Plants Res*. 2012;6(14):2727-46. doi: 10.5897/JMPR10.895.
- Rajasab AH, Isaq M. Documentation of folk knowledge on edible wild plants of North Karnataka. *Indian J Trad Knowl*. 2004;3:419-29.
- Balemie Kebeu, Kebebew Fassil. Ethnobotanical study of wild edible plants in Derashe and Kucha Districts, South Ethiopia. *J Ethnobiol Ethnomed*. 2006;2:53. doi: 10.1186/1746-4269-2-53, PMID 17184523.
- Reddy KN, Chiranjibi Pattanaik Reddy CS, Raju VS. Traditional knowledge on wild food plants in Andhra Pradesh. *Indian J Trad Knowl*. 2007;6:223-9.
- Pegu Rajeswar, Gogoi Jitu, Tamuli Ajit K, Teron Robindra. eth no botanical study of wild edible plants in poba reserved Forest, Assam, India: multiple functions and implications for conservation. *Res J Agric For Sci*. 2013;1:1-10.
- Shiddamallayya N, Prashant Kumar GM. Documentation of wild leafy vegetables of Hassan district, Karnataka. *Int J Pure Appl Biosci*. 2014;2:202-8.
- Nadkarni KM. *Indian material medica*. 3rd ed. Bombay: Bombay Popular Prakashan; 1954. p. 690.
- Rameshkumar A, Sivasudha T, Jeyadevi R, Sangeetha B, Smilin bell Aseervatham G, Maheshwari M. Profiling of phenolic compounds using UPLC-QTOF-MS/MS and nephroprotective activity of Indian green leafy vegetable *Merremia emarginata* (Burm. f). *Food Res Int*. 2012. p. 1016.
- Rameshkumar A, Sivasudha T, Jeyadevi R, Sangeetha B, Arul Ananth D, Smilin Bell Aseervatham G, Nagarajan N, Renganathan R, Kathiravan A. *In vitro* antioxidant and antimicrobial activities of *Merremia emarginata* using thioglycolic acid-capped cadmium telluride quantum dots. *Colloids and Surfaces B. Biointerfaces*. 2013;101:74-82.

24. Purushoth Prabhu T, Shine Sudhev, Clement Atlee W, Suresh R, Balasubramanian S. Pharmacognostic studies on whole plant of *Merremia emarginata* burm. F (Convolvulaceae). Int J Pharmacognosy and Phytochemical Research. 2004;6:1002-6.
25. Devadasu Ch, Naga Jyothi N, Srinivasa Babu P, Afzal Basha SK. Biological evaluation of merremia emarginata for antibacterial, antifungal and antioxidant activities. World J Pharm Pharm Sci. 2017;6:1509-25.
26. Shivanna MB, Mangala KR, Mahishi Parinitha. Ethno-medicinal knowledge of Lambani community in Chikmagalur district of Karnataka, India. J Med Aromat Plants Sci. 2008;30:105-8.
27. Kuru Suresh Kottaimuthu R, Selvin Jebaraj Norman T, Kumuthakalavalli R, Sabu M Simon. Ethnobotanical study of medicinal plants used by malayali tribals in Kollihills of Tamil nadu, India. IJRAP. 2011;2:502-8.
28. Hazarika TK, Lalramchuana Nautiyal BP. Studies on wild edible fruits of Mizoram, India used as ethnomedicine. Genetic Resources and Crop Evolution–An International Journal 2012;59:1767-76.
29. Anu Shrivastava, Shikha Roy. Cucurbitaceae: a ethno medicinally Important vegetable family. J Med Plants Stud. 2013;1:16-20.
30. Upinder Gill S, Uppalapati Srinivasa R, Jin Nakashima, Kirankumar S Mysore. Characterization of *Brachypodium distachyon* as a non-host model against switchgrass rust pathogen *Puccinia emaculata*. BMC Plant Biol. 2015;15:113.
31. Mahadkar Shivprasad, Rane Megha, Satavi Vaibhav. Documentation and ethnobotanical survey of wild edible plants from Palghar district. Asian J Pharm Clin Res. 2016;9:16-9.