

Ethnobotanical Wild Edible Plants Used by the Tribes of Sahebganj District, Jharkhand

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| Received: 02.08.2021 | Accepted: 07.09.2021 | Published: 11.09.2021

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Abstract

Original Research Article

The Wild edible plants form an important Constituent of traditional diets of the tribal Community .Most of the rural populations residing in different parts of the country depend on plants and their parts to fulfill their daily needs and have developed unique knowledge about their utilization. The Present study has been conducted to document the indigenous knowledge related to the diversity and uses of wild edible weeds in day- to- day life of tribals of Sahibganj District. A total of 51 different herbs, 7 shrubs, 26 trees and 41 Climbing herbs belonging to 48 families were recorded in the present investigation out. The diversity of wild edible plants in Sahibganj district was also found to be depleting due to their over exploitation and unsustainable harvesting for foods, medicines as well as because of various other biotic interferences including grazing, herbivory and anthropogenic fire. Therefore, there is an urgent need to conserve these valuable wild edible plants and use it in a sustainable manner to ensure future demand.

Keywords: Wild edible plants, Tribal, Community, Sahibganj district, biotic interferences, need of conservation.

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INTRODUCTION

Ethnobotany is the study of the cultural bondage of the human beings with the plants of the surrounding environment in the world. The tribale people or ethnic communities possess their own unique cultures, customs, cults, religious rites, rituals, taboos, legends and myths, superstitions, folk tales, folk songs and folk dances, houses, art and crafts, foods, beverages, fodder and medical systems and for this they often use numerous wild and cultivated plants and various animals, birds, insects *etc* (Shah 2013). Jharkhand (the land of forests) is one of the most tribal dominated states of India. The most tribal populated district of Jharkhand is Sahebganj where about 26.8% of tribal people reside along with the other non-tribal people. Sahebganj district is situated in the tip of eastern part of Jharkhand near the southern bank of the river Ganges. This district possesses hilly, valley, plateau and plain regions with a great diversity of plants, animals and human beings. The district is dominated by a large number of tribes *viz.* Santhal, Kharwar, Munda, Oraon, Assur, Ho *etc.* which mainly reside in forest areas of hills of Sahebganj where as the plain region is inhabited mainly by the non-tribals. The largest population among tribals is of Santhal (about 50%). The tribals of Sahebganj possess a rich knowledge of wild plants which they use in their day to day life. They also cultivate plants of dietary purposes. In the

present study an investigation has been made in both *plain regions* (Site-I: Sahebganj Block with 3 villages) and *hilly regions* (Site-II: Mandro Block with 11 villages, Site-III: Borio Block with 8 villages and Site-IV: Barhait Block with 9 villages) to explore the wild plants of various categories. Wild edible plants play a significant role in the life of tribes of Sahebganj district of Jharkhand. They were recorded to be utilized by the tribal people of both hilly and plain regions. Depending upon the species various plant parts like roots, tubers, stems, leaves, flowers, inflorescence, fibrous peduncle stalks, seeds or sometimes the entire plants are consumed by these people. The collection and consumption of wild edible plants usually depend upon the season of their maturity or period of flowering. The wild edible plants one usually depend upon commonly found in forests, agriculture and non- agriculture fields as well as along the roadsides, drains and wastelands. These plants may be herbs, shrubs, whole or trees and can be used directly or after cooking and processing. Forests of Sahibganj are mainly subtropical deciduous type and highly species rich. The dependency on wild edible plants is quite high in Sahibganj as forests are considered as a high value commodity across the district. Most of the indigenous people of Sahibganj are dependent on forests as well as on agriculture to fulfill their sustenance needs. In general tribals used to live in close association with nature and

maintain a connection between man and the environment. Wild edible plants mainly the vegetables are used due to their high nutritive and medicinal values and are the integral part of daily diet of indigenous people of Sahibganj. Wild edible plants are used as food to maintain good health as it is an important source of vitamins, minerals and all other required nutrients. Therefore, the present study was attempted to document indigenous knowledge related to the diversity and uses of edible weeds in day to day life of tribal in Sahibganj district.

MATERIALS AND METHODS

Several field trips were organized in tribal dominated villages of Sahebganj district of Jharkhand during the years August 2016 to August 2020. A combination of focus group of individual interviews and field walk discussions of Sahebganj district were conducted with a tertiary educated translator present at each session. The field trips were organized in 31 tribal populated villages of four blocks of Sahebganj district namely Sahebganj, Mandro, Borio and Barhait. Sahebganj district of Jharkhand which lie approximately between 24^o21'- 25^o21' North latitude and between 87^o25'- 87^o54' East longitude The district is surrounded on the North by the river Ganges and the Katihar district of Bihar, on the South by the districts Godda and Pakur

of Jharkhand, on the East by the districts Maldah and Murshidabad of West Bengal and on the west by the districts Bhagalpur of Bihar and Godda of Jharkhand. The data and information presented in the paper have been collected after observation and discussion with the local people during the field visits. The data were collected from different places *i.e.* mountain area, grounds, drains, wastelands another localities like festival areas etc. Unidentified concerned samples were collected and brought to the department for identification.. The vernacular name, botanical name and family of the wild edible plants were noted. Herbarium specimens of some of the concerned unidentified plants were also prepared following the standard methods (Jain 1987). The unknown herbarium specimens were identified with the help of standard floras (Hooker, 1872-1897; Oomachan, 1977; Maheshwari, 1986; Verma *et al.*, 1993; Duthie, 1994; Mudgal *et al.*, 1997; Sharma *et al.*, 2001) and matching with the herbarium specimens housed at Bhagalpur. Some of the important plant species like *Acacia catechu* Willd., *Butea monosperma* (Lam.) Taub., *Calotropis gigantea* R.Br. ex Roxb., *Diospyros melanoxylon* Roxb., *Vitex negundo* L., *Withania somnifera* L. etc. are also planted in the Swami Vivekanand Medicinal Park of B.S.S. College, Supaul, Bihar.



RESULTS AND DISCUSSION

A total of 98 plant species belonging to 48 families and utilized by the tribals were mainly documented in the present investigation. The maximum number of wild edible plant species utilized by the tribals of Sahebganj belonged to the family – Amaranthaceae (8) followed by Fabaceae, Moraceae and Polygonaceae (6 each) and others. Out of them 95 were angiosperms (84 dicots and 11 monocots) and 03 Pteridophytes. Species were found in both wild and cultivated conditions. Among them dicots excel the monocots in number. Different parts of wild plants were utilized by the tribals. The maximum number of plant parts utilized by the tribals was leaves (42), fruits (30), stems (22), seeds (5), tender shoots (3), flowers (3), roots (3) and underground tuber (1).

The tribal communities of Sahebganj district have a vast knowledge of the utilization of wild edible plants in which they inhabit. Altogether 97 wild plants

were recorded for the dietary purposes in the Sahebganj district of Jharkhand. However 49 wild edible plants were recorded from Jharkhand by Kumar (2013). Ahirwar (2016) recorded 40 wild edible plants used by the Baiga tribes of Amarkantak region, M.P. Out of 97 edible plants 4 plant species including leaves of *Cassia tora*, ripe fruits of *Ficus benghalensis* and *F. religiosa* and seeds of *Shorea robusta* are used as draught or famine food. However, Kumar (2013) has also recorded fruits and seeds of 4 plants including the above three as draught or famine food from Jharkhand. Altogether 25 fruits of 25 wild plant species belonging to 20 genera and 18 families were collected from tribals. Kushwaha *et al.*, (2016) have recorded ethnobotanical uses of 29 plant species of wild fruits from Sonbhadra district, U.P. The leafy vegetables formed the major parts of wild edible plants utilized by the tribals and local people represented by 43 plant species. In a study, Kumar and Kumari (2007) recorded 51 leafy vegetables utilized by the tribals and others of Panch Pargana of Jharkhand.

Table 1: Wild Edible Plants Used By the Tribes of Sahebganj District

S. N.	Botanical Name	English Name	Vernacular/ Local name	Family	Life form	Parts in use	Eaten (Uses)
1.	<i>Abrus precatorius</i> L.	Rosary pea	Gunja / Ratti	Fabaceae	CH	Leaves, Seeds	Raw or as vegetable
2.	<i>Achyranthes aspera</i> L.	Prickly chaff flower	Ulta chirchiri, Latjeera	Amaranthaceae	S	Leaves	As vegetable
3.	<i>Aegle marmelos</i> (L.) Corr.	Wood apple	Bel	Rutaceae	T	Fruits (Pulp)	Ripe
4.	<i>Aerua lanata</i> Juss.	Polpala	Lapong saag	Amaranthaceae	H	Leaves	As vegetable
5.	<i>Allium ursinum</i> L.	Wild garlic	Jangali lahsun	Liliaceae	H	Leaves, Bulb	As vegetable, spice
6.	<i>Allium vineale</i> L.	Wild onion	Jangali pyaj	Liliaceae	H	Leaves, bulb	As vegetable
7.	<i>Alocacia macrorhiza</i> (L.) Scott.	Giant taro	Mankanda	Araceae	H	Corm	As vegetable
8.	<i>Aloe vera</i> (L.) Burm.f.	Aloe vera	Gheekunwar	Asphodelaceae	H	Leaves	As vegetable
9.	<i>Alternanthera sessilis</i> L.	Sessile joyweed	Sarauchi	Amaranthaceae	H	Tender shoots	As vegetable
10.	<i>Amaranthus spinosus</i> L.	Spiny amaranthus	Katabhaji, Katali chaulai	Amaranthaceae	H	Tender shoots	As vegetable
11.	<i>A. viridis</i> L.	Needle burr	Chaleree/ Katali saag	Amaranthaceae	H	Leaves, Stem	As vegetable
12.	<i>A. caudatus</i> L.	Foxtail amaranth	Chaulai, Ramdana	Amaranthaceae	H	Tender shoots	As vegetable
13.	<i>Annona reticulata</i> L.	Wild sweetsop	Ramphal	Annonaceae	T	Fruits	Ripe
14.	<i>A. squamosa</i> L.	Custard apple	Sitaphal	Annonaceae	T	Fruits	Ripe
15.	<i>Anthocephalus cadamba</i> Roxb.	Burflower tree	Kadam	Rubiaceae	T	Fruits	Ripe
16.	<i>Artocarpus hirsutus</i> Lam.	Wild Jack	Jangali Kathal	Moraceae	T	Fruits	Ripe, unripe fruits as vegetable, pickles
17.	<i>Artocarpus lakoocha</i> Roxb.	Monkey fruit	Barhar	Moraceae	T	Fruits	Ripe or pickled, Unripe fruit as spice or substitute for tamarind
18.	<i>Asparagus recemosus</i> Willd.	Satavari	Satavar	Liliaceae	CH	Under-ground tubers	As vegetable
19.	<i>Asphodelus tenuifolius</i> Cavan.	Onion weed	Jangli Lahsun	Asparagaceae	H	Leaves	As vegetable
20.	<i>Azadirachta indica</i> A.Juss.	Bastard tree	Neem	Meliaceae	T	Leaves	As vegetable

21.	<i>Bacopa monnieri</i> L. Penn.	Indian pennywort	Brahmi	Scrophulariaceae	H	Shoots	As vegetable
22.	<i>Bambusa balcooa</i> Roxb.	Clumping bamboo	Haraut Bans	Poaceae	H	Young shoots	As vegetables and pickles
23.	<i>B. bambos</i> (L.) Voss	Thorny bamboo	Kataha Bans	Poaceae	H	Young shoots	As vegetables and pickles
24.	<i>Basella rubra</i> L.	Indian spinach	Poi saag	Chenopodiaceae	C	Leaves , Stem	As vegetable
25.	<i>Bauhinia variegata</i> L.	Mountain ebony	Kachnar	Caesalpiniaceae	T	Flowers	As vegetable
26.	<i>Boerhavia diffusa</i> L.	Red spiderling	Punarnava, Khapra saag	Nyctaginaceae	H	Shoots	As vegetable
27.	<i>Bombax ceiba</i> L.	Silk cotton	Semal	Malvaceae	T	Tender fruits	As vegetable
28.	<i>Borassus flabellifer</i> L.	Palm	Tar	Arecaceae	T	Fruits Tap root	As Tarkoon (Endosperm) Boiled tap root
29.	<i>Buchanania lanzan</i> Spr.	Charoli nut	Chironji	Anacardiaceae	T	Fruits	Raw or roasted
30.	<i>Canavalia gladiata</i> (Jacq.) DC.	Sword bean	Berseem	Fabaceae	CH	Fruits	As vegetable
31.	<i>Careya arborea</i> Roxb.	Wild guava	Pindar, Kumbhi	Lecythidaceae	T	Fruits	Ripe
32.	<i>Carissa carandas</i> L.	Carandas plum	Karaunda	Apocynaceae	S	Fruits	As vegetable
33.	<i>Cassia fistula</i> L.	Golden shower tree	Amaltas	Caesalpiniaceae	T	Flowers	As vegetable
34.	<i>Cassia occidentalis</i> L.	Coffee senna	Kasaundi saag	Caesalpiniaceae	S	Leaves	As vegetable
35.	<i>Cassia tora</i> L.	Sickle pod	Panewar, Chokanda	Caesalpiniaceae	S	Leaves	As vegetable
36.	<i>Celosia argentea</i> L.	Quail grass	Safedmurg Sihari	Amaranthaceae	H	Young shoots	As vegetable
37.	<i>Centella asiatica</i> (L.) Urban	Indian pennywort	Beng saag	Apiaceae	H	Young shoots	As vegetable
38.	<i>Chenopodium album</i> L.	Bacon weed	Bathua saag	Chenopodi-aceae	H	Leaves	As vegetable
39.	<i>Cissus adnata</i> Roxb.	Wild grape	Mattha saag	Vitaceae	H	Leaves,	As vegetable
40.	<i>Citrullus colocynthis</i> (L.) Schrad.	Colocynth, Desert gourd	Indrayan	Cucurbitaceae	CH	Fruits	Ripe
41.	<i>Coccinia indica</i> W. & A.	Ivy gourd	Jangali Kundru	Cucurbitaceae	C	Leaves	As vegetable
42.	<i>Colocasia esculenta</i> (L.) Schott.	Green taro	Kochu	Araceae	H	Leaves	As vegetable
43.	<i>Commelina benghalensis</i> L.	Fire leaf	Canna saag	Commelinaceae	H	Leaves	As vegetable
44.	<i>Corchorus olitorius</i> L.	Nalta jute	Patwa saag	Malvaceae	S	Leaves, stem	As vegetable
45.	<i>Costus speciosus</i> (Koen.) Sm.	Crepe ginger	Kevuk kand	Costaceae	H	Rhizome	As vegetable
46.	<i>Cucurbita maxima</i> L.	Red pumpkin	Kadima	Cucurbitaceae	C	Leaves, Tender shoots	As vegetable
47.	<i>Dendrocalamus strictus</i> (Roxb.) Nees	Solid bamboo	Lathi bans	Poaceae	H	Young shoots	As vegetables or pickles
48.	<i>Dioscorea alata</i> L.	Purple yam	Chuprialu	Dioscoreaceae	CH	Tubers	As vegetable
49.	<i>Dioscorea bulbifera</i> L.	Air potato/ yam	Zimikand	Dioscoreaceae	CH	Tubers, Bulbils	Boiled or as vegetable
50.	<i>Dioscorea pentaphylla</i> L.	Prickly yam	Kanta alu, Khunia kanda	Dioscoreaceae	CH	Tubers	Boiled or as vegetable
51.	<i>Diospyros melanoxylon</i> Roxb.	Malabar ebony	Tendu	Ebenaceae	T	Fruits	Ripe
52.	<i>Diplazium esculentum</i> (Retz.) Sw.	Vegetable fern	Dehki saag	Athyriaceae	H	Tender shoots	As vegetable
53.	<i>Emblica officinalis</i>	Indian	Amla	Euphorbiaceae	T	Fruits	Raw or cooked or

	Gaertn.	gooseberry					pickeled
54.	<i>Euphorbia hirta</i> L.	Asthma weed	Dudhi saag	Euphorbiaceae	H	Entire plant	As vegetable
55.	<i>Ficus benghalensis</i> L.	Banyan tree	Bargad	Moraceae	T	Fruits	Ripe during draught
56.	<i>Ficus religiosa</i> L.	Sacred fig	Peepal	Moraceae	T	Fruits	Ripe during draught
57.	<i>Ficus racemosa</i> L.	Fig tree	Gular	Moraceae	T	Fruits	As vegetable
58.	<i>Grewia asiatica</i> L.	Falsa	Phalsa	Tiliaceae	S	Fruits	Ripe fruits eaten raw
59.	<i>Ipomoea aquatica</i> Forsk.	Water spinach	Karmua / Karmi saag	Convolvulaceae	H	Leaves Young shoots	As vegetable
60.	<i>Lactuca sativa</i> L.	Lettuce	Jhala, Kheranchi	Asteraceae	H	Leaves, Young shoots	As vegetable
61.	<i>Lamium amplexicaule</i> L.	Henbit deadnettle	Indu saag	Lamiaceae	H	Leaves, Young shoots	As vegetable
62.	<i>Lathyrus aphaca</i> L.	Yellow-Flowered pea	Khesari saag	Fabaceae	H	Leaves, Young shoots	As vegetable
63..	<i>Leucas aspera</i> Spreng.	Common leucas	Guma saag	Lamiaceae	H	Young shoots	As vegetable
64.	<i>Lepidium latifolium</i> L.	Pepperweed		Brassicaceae	H	Leaves	As vegetable
65.	<i>L. cephalotes</i> Spreng.	Head leucas	Pitta saag	Lamiaceae	H	Leaves	As vegetable
66.	<i>Madhuca longifolia</i> (Konig) Macbr.	Butter/ Honey tree	Mahua	Sapotaceae	T	Fruits	Raw or cooked
67.	<i>Mangifera indica</i> L.	Mango	Am	Anacardiaceae	T	Fruits	Ripe or Raw fruits pickled
68.	<i>Marsilea minuta</i> L.	Small waterclover	Sunsunia saag	Marsileaceae	H	Leaves	As vegetable
69.	<i>Melothria heterophylla</i> (Lour.) Cogn.	Nabilari	Ban Kundari	Cucurbitaceae	H	Leaves, Fruits	As vegetable
70.	<i>Mentha longifolia</i> L.	Wild mint	Minania	Lamiaceae	H	Leaves	As vegetable
71.	<i>Meyna spinosa</i> Roxb. ex Link	Meyna	Sarla saag	Rubiaceae	S	Leaves, Fruits	As vegetable
72.	<i>Moringa oleifera</i> Lam.	Drumstick	Saragawa patta, Shojne	Moringaceae	T	Leaves	As vegetable
73.	<i>Morus alba</i> L.	Mulberry	Toot	Moraceae	T	Fruits	Fresh ripe fruits
74.	<i>Mucuna pruriens</i> (L.) DC.	Velvet bean, Cowhedge	Kaunch, Kewanch	Fabaceae	CH	Fruits, Seeds	As vegetable
75.	<i>Musa acuminata</i> Colla	Wild banana	Jangali kela	Musaceae	H (Tree-like)	Fruits	Unripe fruits as vegetable, Ripe fruits eaten raw
76.	<i>Nelumbo nucifera</i> Gaertn.	Lotus	Kamal	Nymphaeaceae	H	Rhiz-ome Seeds	As vegetable Fresh
77.	<i>Nymphaea alba</i> L.	Waterlily	Kumudani, Koka phool	Nymphaeaceae	H	Tuber (Sharuk) Seeds	Boiled As laddu (Bhent)
78.	<i>Oldenlandia corymbosa</i> L.	Diamond flower	Pitgaham saag	Scrophulariaceae	H	Shoots	As vegetable
79.	<i>Ophioglossum reticulatum</i> L.	Adders tongue fern	Sugga saag	Ophioglossaceae	H	Leaves, Young shoots	As vegetable
80.	<i>Oxalis corniculata</i> L.	Creeping wood sorrel	Khatmithi saag	Oxalidaceae	H	Leaves	As vegetable
81.	<i>Paspalum scrobiculatum</i> L.	Creeping paspalum	Kodra saag	Poaceae	H	Leaves	As vegetable
82.	<i>Phoenix sylvestris</i> Roxb.	Wild date palm	Khajur	Arecaceae	T	Fruits	Fresh ripe fruits or often made drink
83.	<i>Pithecelobium dulce</i> (Roxb.) Benth.	Manila Tamarind	Jangali jalebi	Mimosaceae	T	Fruits	Pulp of ripe seeds
84.	<i>Polygonum barbatum</i> L.	Knot grass	Sake saag	Polygonaceae	H	Leaves	As vegetable
85.	<i>P. plebejum</i> R.Br.	Small	Chimti saag	Polygonaceae	H	Whole plant	As vegetable

		knotweed					
86.	<i>Portulaca oleracea</i> L.	Purslane	Lonia / Gologola saag	Portulacaceae	H	Leaves	As vegetable
87.	<i>P. quadrifida</i> L.	Wild purslane	Noni saag	Portulacaceae	H	Leaves	As vegetable
88.	<i>Pueraria tuberosa</i>	Indian kudzu	Patal kohra	Fabaceae	CH	Tubers	As vegetable
89.	<i>R. nepalensis</i> Spreng.	Nepal Dock	Urval saag	Polygonaceae	H	Young leaves	As vegetable
90.	<i>R. dentatus</i> L.	Toothed Dock	Banpalungo	Polygonaceae	H	Young leaves	As vegetable
91.	<i>Rumex vesicarius</i> L.	Bladder dock	Banpalak	Polygonaceae	H	Young leaves	As vegetable
92.	<i>Sesbania grandiflora</i> Pers.	Corkwood tree	Agoti	Papilionaceae	H	Flowers	As vegetable
93.	<i>Shorea robusta</i> Gaertn.f.	Sal tree	Sakhua	Dipterocarpaceae	T	Seeds	As famine food
94.	<i>Solanum laxum</i> Spreng.	Potato vine	Vine potato / Latabala Aalu	Solanaceae	CH	Leaves, Tubers	As vegetable
95.	<i>S. nigrum</i> L.	Black nightshade	Makoi	Solanaceae	H	Leaves	As vegetable
96.	<i>Spinacia oleracea</i> L.	Spinach	Dakshini palak	Amaranthaceae	H	Leaves	As vegetable
97.	<i>Tamarindus indica</i> L.	Tamarind	Imli	Fabaceae	T	Fruits	Pulp of ripe fruitseaten as sauce
98.	<i>Urtica dioica</i> L.	Stinging nettle	Bichchu vati	Urticaceae	CH	Leaves	As vegetable

H = Herb; S = Shrub; T= Tree, CH= Climber

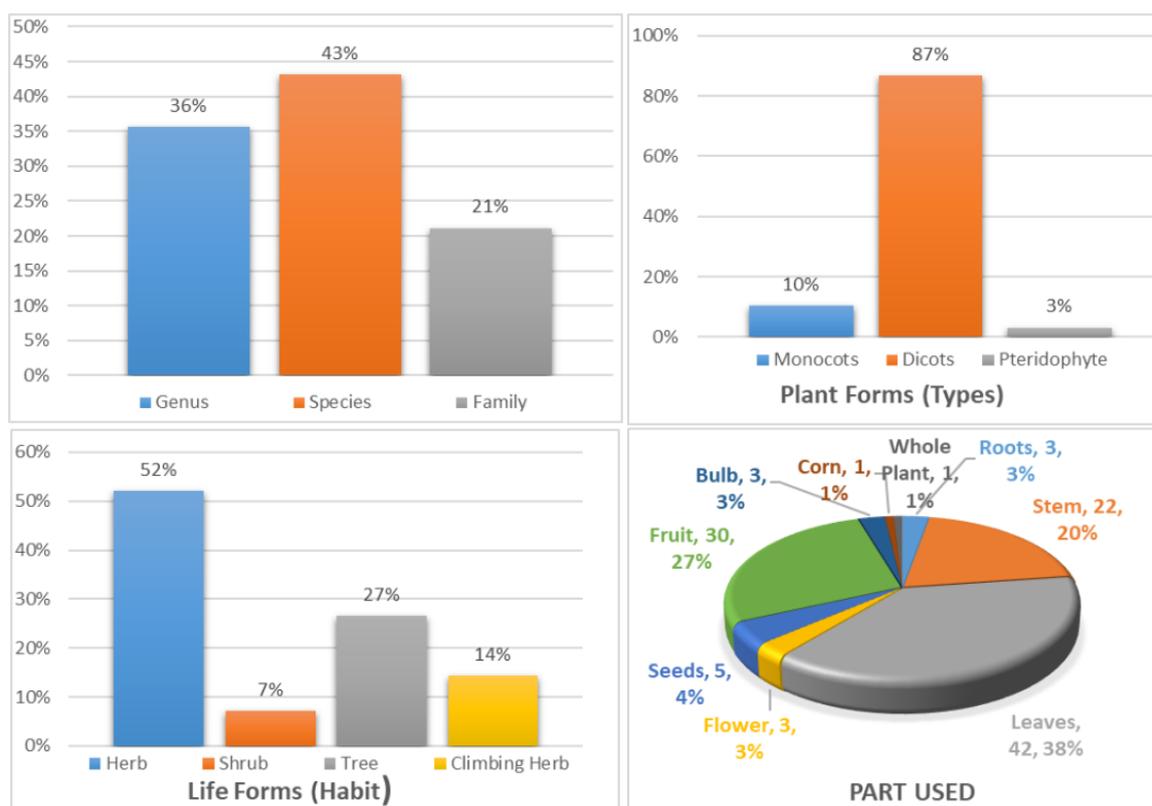


Fig-1: Wild Edible Plants Used By the Tribes of Sahebganj District

Wild Edible Plants Used By the Tribes in Sahibganj District



Nymphaea tuberosa: Habit

N. tuberosa: Tubers

N. tuberosa: A Fruit Cut Open



Tribal woman selling plants

Colocasia esculenta

Diplazium esculentum



Madhuca longifolia : Fruits

Urtica dioica

Portulaca quadrifida



Canavalia gladiata

Glinus oppositifolius

Portulaca oleracea



Oldenlandia corymbosa

Cassia tora

Ipomoea aquatica



Bambusa balcooa: Young shoots

Kigelia africana (Lam.) Benth. (Balam Kheera)

Ficus racemosa L. Gular: Fruits

CONCLUSION

Forests play an important role in the livelihoods of local tribal people through enormous goods Wild edible plants in terms of fruits, vegetables, medicines, etc. and services (regulating, provisioning, social, and economic). The present study has recorded a great diversity of wild edible plants (98 different species) in the 4 different blocks of Sahibganj district. The common wild edible herbs frequently distributed in the study area are *Aerua lanata* juss., *Alocacia macrorhiza* (L.), *Boerhavia diffusa* L., *Centella asiatica* (L.). Similarly, the most frequent edible shrubs are *Achyranthes aspera* L., *Cassia tora* L., *Corchorus olitorious* L., *Meyna spinosa* Roxb.ex Link. The diversity of wild edible plants in Sahibganj is depleting due to overexploitation and unsustainable harvesting of foods, medicines and collection of flowers of *Madhuca longifolia* during summer for the preparation of traditional alcoholic beverages. Therefore, there is an urgent need to conserve these valuable wild edible plants and use it in a sustainable manner to ensure future demand. On the one hand, this information could help the policy makers to promote these local plants, aiming at improved food and nutritive values of wild edible plants, so that, it can give a scientific basis for the further development of herbal drugs and traditional foods.

ACKNOWLEDGEMENTS

The authors are grateful to “Santhal, Munda, Kharwar and Oraon” tribes of Sahebganj district of Jharkhand for their active support in providing valuable information about wild edible plants, and traditional methods practiced to preserve them. The author is also thankful to Dr. SK Varma, Retd. Prof. and Dr. Naresh Kumar, Botany, TMBU Bhagalpur, Bihar and Fransis Tuddu, Santoshani Marandi, Jangli Munda, Manjhi Kisku, Vivekanand Singh, Gurudev Pahariya of Sahebganj and Late Dr. MK Pathak, BSI Kolkata for providing necessary facilities encouragement and identification of some of the wild edible plants.

REFERENCES

- Aiyeloja, A. A., & Bello, O. A. (2006). Ethnobotanical potentials of common herbs in Nigeria: A case study of Enugu state. *Educational Research and Reviews*, 1(1), 16-22.
- BFN. (2020). *Alternanthera sessilis* L. Biodiversity for Food and Nutrition. Sri Lanka.
- Damor, V. V., Jayendrasinh, C. R., Desai, B. P. V., & Vardhan, K. (2016). Status of ethno-botanical studies in Gujarat. *Forest and Tree-based Land Use Systems for Livelihood, Nutritional and Environmental Security*, pp. 21-23.
- Das, H. B., Majumdar, K., Datta, B. K., & Ray, D. (2009). Ethnobotanical uses of some plants by Tripuri and Reang tribes of Tripura. *Natural Product Radiance*, 8(2), 172-180.
- Datta, S., Sinha, B. K., Bhattacharjee, S., & Seal, T. (2019). Nutritional composition, mineral content, antioxidant activity and quantitative estimation of water soluble vitamins and phenolics by RP-HPLC in some lesser used wild edible plants. *Heliyon*, 5(3), e01431.
- Gupta, S. P. (1974). *Tribes of Chotanagpur Plateau. An Ethno-nutritional & Pharmacological Cross Section*. Bihar Tribal Welfare Research Institute, Ranchi, pp. 209.
- Hill, M. S. (1992). *The panel study of income dynamics: A users guide*, Vol 2, (Sage publications, Inc. New York), 753-761.
- Horo, S., & Topno, S. (2015). Study and analysis of nutritional value of some wild and semi wild edible plants consumed by “HO” tribes of W. Singhbhum district, Jharkhand, India. *International Journal of Herbal Medicine*, 3(5 Part A), 25-32.
- Jain, S. K. (1964). Wild plant foods of the tribals of Bastar (Madhya Pradesh). *Proc. Nat. Inst. Sci. India*, 30 B: 56-80.
- Kayang, H. (2007). Tribal knowledge on wild edible plants of Meghalaya, Northeast India. *Indian Journal of Traditional Knowledge*, 6(1), 177-181.
- Kumar, G., Chikkappaiah, L., & Nagayya, S. (2016). Nutritional analysis of edible wild plants used by hakki pikki tribes of Hassan district, Karnataka, India. *Int J Pharm Pharm Sci*, 8(8), 390-393.
- Kumar, S., Kumari, B., & Goel, A. K. (2013). Study of leafy vegetables supplemental to malnutrition among tribals in Jharkhand. *Ethnobotany*, 25(1&2), 135-138.
- Kumar, S., & Kumari, B. (2007). Some less-known ‘sags’ (leafy vegetables) utilized by the tribals and others of Panch Pargana area of Jharkhand. *Ethnobotany*, 19(1&2), 62-66.
- Kumari, B., & Kumar, S. (2001). A checklist of some leafy vegetables used by tribals in and around Ranchi, Jharkhand. *Zoos’ Print Journal*, 16(3), 442-444.
- Kayang, H. (2007). Tribal knowledge on wild edible plants of Meghalaya North-east India. *Indian Journal of Traditional Knowledge*, 6, 177-181.
- Kushwaha, A. K., Tewari, L. M., & Choudhary, L. B. (2016). Ethno-botanical uses of wild fruits of Sonbhadra District, Uttar Pradesh. *Ethnobotany*, 28, 86-90.
- Kumar, R., & Saikia, P. (2020). Wild edible plants of Jharkhand and their utilization perspectives. *Indian Journal of Traditional Knowledge*, 19(2): 237-250.
- Malhotra, C. L., & Singh, S. (1985). Additional notes on the wild edible plants of India. *J Econ Taxon Bot*, 6(2), 481-482.
- Rapoport, E. H., Raffaele, E., Ghermandi, L. (1995). Edible Weeds: A Scarcely Used Resource, *Bull Ecoll Soc of America*, 76(3), 163-166.
- Ruffo, C. K., Birnie, A., & Tengnas, B. (2002). Edible Wild Plants of Tanzania, Regional Land

Management Unit (RELMA). *Technical Handbook Series*, 27, 766-767.

- Singh, H.B., & Arora, R. K. (1978). *Wild Edible Plants of India*. I.C.A.R. New Delhi, India
- Sinha, R., & Lakra, V. (2006). Edible weeds of tribal of Jharkhand, Orissa and West Bengal, *Indian J Tradit Know*, 6(1), 217-222.
- Sharma, I. P., Kanta, C., Semwal, S. C., & Goswami, N (2017). Wild fruits of Uttarakhand (India): Ethnobotanical and medicinal uses. *Int J Complement Alt Med.*, 8(3).
- Sharma, M., & Sood, S. K. (2013). Ethnobotanical survey of wild plants of district Solan, Himachal Pradesh, India. *International Journal of Environmental Biology*, 3(3), 87-95.
- Singh, H. B., & Arora, R. K. (1978). *Wild Edible Plants of India*. ICAR, New Delhi, pp .88.
- Styger, E., Rakotoarimanana, J. E. M., Rabevohitra, R., & Fernandes, E. C. M. (1999). Indigenous fruit trees of Madagascar: potential components of agroforestry systems to improve human nutrition and restore biological diversity. *Agroforestry systems*, 46(3), 289-310.