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Documentation of cultivated and wild vegetables from Nagpur District of Maharashtra

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Abstract

Several wild plants are useful additions to a diet rich in nutrients and can replace staple meals during times of food scarcity. Food is provided by naturally occurring plants. Natural plants are an excellent source of physical nutrients for secondary metabolism as well as vitamins and minerals. We assessed the nutritional qualities of 63 wild edible vegetables that are reportedly eaten by tribal people and rural residents of the different villages in the Nagpur region, taking into account the necessity to promote and domesticate these plants as a substitute source of dietary nutrition. A thorough investigation was conducted to gather data on the local population's utilization of both cultivated and wild vegetables. This study provides detailed information on fifty distinct vegetables, both monocot and dicot, that are mentioned. Many times of food scarcity, a variety of wild plants can be used as valuable supplements to a diet rich in nutrients and as an alternative to staple foods. Natural plants are a source of nourishment. These paper in addition to the picture information. These wild edible vegetables were discovered to be potential species for domestication and may be thought of as good substitutes for many cultivated vegetables. The study was conducted with the assistance of a knowledgeable local and was based on a market survey from the study area.

Key words : Documentation, Dietary Nutrition, Wild vegetable, Secondary Metabolites, Utilization of vegetable, cultivated vegetable.

Since the beginning of time, humans have been dependent on plants, and wild plants are essential to human survival[1]. Indigenous cultures worldwide use wild plants for food, medicine, and animal feed[2], Since most developing nations are experiencing significant population growth and urbanization, there has been a greater focus on the need for food security. Additionally, the nutritious content of plants has contributed to their rising significance. Since people are more aware of the necessity of maintaining their health in this day and age,

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research has shown that wild plants have higher biological activity than conventionally consumed crops, such as vegetables that are found growing in the soil nearby area during the monsoon season, This is natural plants serve as a food source. Wild plants are a good source of vitamins, minerals, and physical nutrients for secondary metabolism. Farmers gather these veggies from their farmed fields and barren areas to utilize as a staple element in meals and sell in nearby marketplaces. These veggies are valuable in the market and are in season.

One of the most crucial elements in maintaining human health and well-being is having an adequate quantity of food that is high in calories and nutrients. The need for food security has gained a lot of attention recently because of the world's developing countries' fast urbanization and population growth[4]. Various kinds of vegetables can be used as food. An essential part of the diet; because of their beneficial components, both produced and wild vegetables are significant. Wild Vegetables with minerals, vitamins, secondary metabolites, and chemicals beneficial to the body's nourishment have been reported in the literature[2]. In addition, the locals believed that some wild vegetable plants that are in season are beneficial to health and can aid in the treatment of different ailments.

These vegetables are locally available and quite nutritious. According to a survey on food plants and their potential therapeutic uses, the locals in this area rely heavily on the many plant items that grow in and around the forested areas. Younger people in this community know relatively little about the plant parts used in the research area; only the elderly are knowledgeable about fruit consumption and its applications. People have utilized plants for food, fuel, shelter, clothes, medicine, and a host of other practical uses since the beginning of time[10]. Nonetheless, there hasn't been enough discussion of the value of wild edible plants for food security in India[7].

In comparison to other vegetables, many green plants are higher in nutrients, and the locals think that wild veggies are more medicinally valuable. The main foods consumed by the locals are grains, beans, rice, and wheat. Along with the main food sources, the farmers and locals gather a variety of plants from the forest, cultivated fields, and arid areas. These vegetables are used by people as important.

Physiography of study area :

Nagpur district is a district in the central Indian state of Maharashtra, in the Vidarbha area,. The district administrative center is located in Nagpur. The boundaries of Nagpur district are defined by the districts of Bhandara on the east, Chandrapur on the southeast, Wardha on the southwest, Amravati on the northwest, and Chhindwara and Seoni in the state of Madhya Pradesh on the north. Nagpur district is placed 29th out of 640 districts in India by the District Census. The population density of the district is 1,200 persons per square mile, or 470 persons per square kilometer. Scheduled Tribes: 9.40% and Scheduled Castes: 18.65% of the population, respectively. An average of 1064.1 mm of rain falls in the Nagpur district annually. The district's tehsils of Umred, Kuhi, and Bhivapur receive the most rainfall, while the tahsils of Katol and Narkhed receive less than the other tehsils combined.

PLATE: I

Amaranthus cruentus L.

Abelmoschus ficulneus L.

Portulaca quadrifida L.

Momordica dioica Roxb.

Colocasia esculenta (L.) Schott

Achyarthes aspera L

Anethum sowa Roxb.

Bambusa arundinacea L.

Smilax zeylanica L.

Tinospora cordifolia (Willd.) Hook.f.

Capparis zeylanica L.

Cassia fistula

Cassia tora L.

Colocasia esculenta L.

Lathyrus sativus L.

Leptadenia reticulata (Retz.) Wight & Arn

Source -this picture was collected by Miss. Rajani k Mohod & Dr.Prashant S Jakhi

PLATE: II

Ficus racemosa L.

Celosia argentea var. cristata (L.) Kuntze

Hibiscus sabdariffa L.

Phyllanthus amarus Schum and Thonn

Rumex elongates L.

Digera muricata (L.) Mart.

Basella alba L.

Physalis pubescens (L).

Brassica campestris L.

Dioscorea bulbifera L.

Nymphaea L.

Portulaca oleracea L.

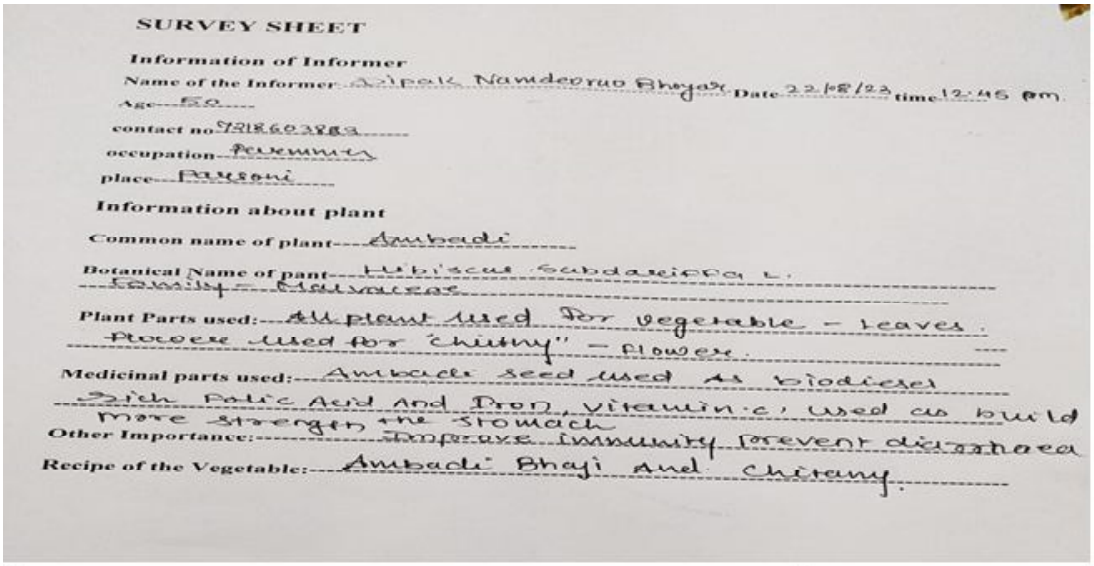
Commelina benghalensis L.

Termitomyces heimii Natarajan (1979)

Cordia dichotoma G. Forst.

Amorphophallus paeoniifolius (Dennst.) Nicolson

Source -this picture was collected by Miss Rajani K. Mohod & Dr.Prashant S Jakhi



SURVEY SHEET

Information of Informer

Name of the Informer: Jaipal Nanderao Bhoyar Date 22/08/23 time 12:45 pm

Age: 50

contact no: 9518603983

occupation: Pensioner

place: Parseoni

Information about plant

Common name of plant: Ambadi

Botanical Name of pant: Hibiscus Subdariffa L.

Family: Malvaceae

Plant Parts used: All plant used for vegetable - leaves. Flower used for "chutny" - flower.

Medicinal parts used: Ambadi seed used as biodiesel Rich Palic Acid And Iron, Vitamin-c, used as build more strength the stomach

Other Importance: Improve immunity prevent diarrhea

Recipe of the Vegetable: Ambadi Bhaji And chitany.

The district is located at 210 15' latitude, 790 09' longitude, and 311 m elevation. Geographically speaking, the district is ranked 15th in the state and 71st in India with a total area of 9.892 sq km. Its eastern boundary is formed by the Bhandara district. The districts that border Madhya Pradesh on the north are Chhindwara, the northwest is Amravati, the southwest is Wardha, and the southeast is Chandrapur. The climate of the Nagpur district is classified as tropical, wet, and dry. The district receives its most rainfall during the monsoon season. In the real terms, the district received 1188.9 mm of rainfall in 2021–2022. Ramtek, Umred, Kalameshwar, Katol, Kamthi, Kuhi, Narkhed, Nagpur, Nagpur (Rural), Parseoni, Bhiwapur, Mouda, and Savner and Hingna are among the 14 talukas that make up the administrative division of the Nagpur district. The district also includes 1.617

Table-1. Information about Wild and Cultivated vegetable plants.

SN	Botanical Name	Family	Mono-cot/ Dicot	Verna-cular/ local Name	Habit	area	Availa-bility	Wild/ Culti-vated	Plant Part Used
1.	*Abelmoschus esculentus* L.	Malva-ceae	D	Bhendi	H	AFT	TOY	C	Fr
2.	*Abelmoschus ficulneus* L.	Malva-ceae	D	Raanbhendi	H	K1,U, Na,Ma,R	Sept-Feb	W	Fr
3.	*Achyranthes aspera* L.	Amaran-thaceae	D	Agada	H	K1,U, Ma,Hi,	Aug-Sept	W	L
4.	*Bauhinia purpurea* L.	Caesalpi-niaceae	D	Apata	T	K1,K2, K3,Hi,Na	Feb-Nov	W	S
5.	*Celastrus paniculatus* Willd.	Celastra-ceae	D	Pimpli cha baar	Cl	K3,U, B,K3	March-June	W	F
6.	*Alternanthera sessilis* L.	Amaran-thaceae	D	Paturbhaji	H	U,N,Ma, Hi,R,Pa	June - Sept	W	L
7.	*Amaranthus tricolor* L.	Amaran-thaceae	D	Laal math	H	AFT	TOY	C	L
8.	*Amaranthus oleraceus* L.	Amaran-thaceae	D	Chavlibhaji	H	AFT	TOY	C	Wp
9.	*Amorphophallus paeoniifolius* (Dennst.) Nicolson	Araceae	M	Suran	Cl	AFT	Oct-Nov	W	C
10.	*Anethum sowa* Roxb.	Apiaceae	M	Shepu	H	AFT	June-Feb	C	L
11.	*Artocarpus heterophyllus* Lam.	Moraceae	D	Fanas	T	AFT	Feb-June	C	Fr
12.	*Bambusa arundinacea* L.	Poaceae	M	Vaste	H	K2,K3,Sa Ma,Hi,N	Aug-Sept	W	Ys
13.	*Basella alba* L.	Basel-laceae	D	Mayalu	Cl	Hi,Ma,B,	Oct-Mar	C	L
14.	*Boerhavia diffusa* L.	Nyctagi-naceae	D	Khaparkuti	H	K1,K3,	June–Sept	W	L
15.	*Amaranthus*	Amaran-	D	Rajgira	H	K1,K2,	June-	C	Wp

	cruentus L.	thaceae				K3,K4,B, U,N,Na, NR	Oct		
16.	*Capparis zeylanica* L.	Cappa-raceae	D	Varakalya	Cl	K1,R,Sa,	Mar-May	W	Fr
17.	*Cassia fistul*a L.	Caesalpi-niaceae	D	Bahava	T	K1,R,	May-June	W	Fl
18.	*Cassia tora* L.	Caesalpi-niaceae	D	Tarota	S	AFT	July-Sept	W	L
19.	*Celosia argentea var. cristata (L.)* Kuntze	Amaran-thaceae	M	Kurdu	H	AFT	Oct-Dec	W	Ls
20.	*Chenopodium album* L.	Amaran-thaceae	D	Awadi-dhawadi	S	U,B,Ma, Sa,K3	July-Sept	W	L
21.	*Colocasia esculenta* (L.) Schott	Araceae	M	Kochai	S	U,Bma Sa,R,	TOY	C	L,Rh
22.	*Commelina benghalensis* L.	Comme-linaceae	M	Kena	H	Hi,Ma, Sa,U,B	June-Oct	W	L
23.	*Digera muricata*	Amaran-thaceae	M	Kunjar	H	AFT	June-Dec	W	Wp
24.	*Coccinia grandis* L.	Cucurbi-taceae	D	Tondali, Kundru	Cl	AFT	June-Oct	W	F
25.	*Sesbania grandiflora* (L.) Poiret.	Fabaceae	D	Hadga, Heti	T	AFT	Oct-Jan	W	Fl
26.	*Dioscorea bulbifera* L.	Diosco-reaceae	M	Mataru	Cl	K!,K3, K4,U,Sa, Hi	Sept-Oct	W	Rh
27.	*Ficus racemosa* L.	Mora-ceae	D	Umbar	T	R,U,B, Sa,K4	Feb-July	W	Fr
28.	*Amaranthus roxburghianus* H.W.Kung	Amaran-thaceae	D	Tandulja	H	N,K4,Hi, B,U,K3	July-Jan	C	Wp
29.	*Hibiscus sabdariffa* L.	Malva-ceae	D	Laal Ambadi	S	AFT	TOY	C	L,Fr
30.	*Holrrahena pubescens*	Apocyn-aceae	D	Pandara kuda	S	Hi,Ma, U,K3	July-Sept	W	Fl

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31.	*Lagenaria siceraria* L.	Cucurbi-taceae	D	Lauki	Cl	AFT	Nov-Feb	C	Fr
32.	*Leptadenia reticulata*	Asclepia-daceae	D	Dodi, Jeevanti	Cl	K1,K2, K3,Hi,B, Ma.Sa	Jul-Sept	W	Fl
33.	*Luffa acutangula* (L.) Roxb.	Cucurbi-taceae	D	Dodka	Cl	AFT	Nov-Feb	C	Fr
34.	*Cordia dichotoma*	Boragi-naceae	D	Bhokar, Shemadi	T	K1,Hi, R,Ma	Apr-June	W	Fr
35.	*Moringa oleifera* L.	Morin-gaceae	D	Shevaga	T	AFT	Feb-April	C	Fr ,Fl
36.	*Momordica dioica* Roxb.	Cucurbi-taceae	M	Katwal	Cl	AFT	June-Sept	W	Fr
37.	*Nymphaea* L.	Nympha-eceae	D	Kamal kakadi	H	Na,NR, K2	Feb-June	W	Rh,P
38.	*Olax imbricata* Roxb.	Olaca-ceae	D	Aratfari	S	N,U,B, K3,Ma	June-Sept	W	L
39.	*Colocasia esculenta* (L.) Schott	Areca-ceae	M	Dhopa, Alu	H	AFT	TOY	W	L
40.	*Oxalis corniculata* L.	Oxalida-ceae	D	Ambushi	H	K3,Na, Hi,B	June-Sept	W	L
41.	*Holarrhena antidysenterica* R.Br.	Apocyn-aceae	D	Kuda	S	Hi,K3, NR,Na,	May-Aug.	W	F
42.	*Portulaca oleracea* L.	Portula-caceae	D	Gholbhaji	H	AFT	June-Sept	W	L
43.	*Portulaca quadrifida* L.	Portula-caceae	D	Chivad	H	AFT	June-sept	W	L
44.	*Rumex elongatus* L.	Polygo-naceae	M	Ambatc-huka bhaji	H	AFT	June-Sept	W	L
45.	*Smilax zeylanica* L.	Smilaca-ceae	M	Sherdira	Cl	U,K3,Hi,	June-Sept	W	Wp
46.	*Madhuca longifolia*	Sapota-cveae	D	Mahuwa	T	K1,K2 K3,B,U,	April-June	W	Wp

	(J. Konig) J. F. Macbar					Hi			
47.	*Spinacia oleracea* L.	Amaran-thaceae	M	Palak bhaji	H	AFT	TOY	C	L
48.	*Termitomyces heimii*	Lyophyl-laceae	F	Dumbar-sati	Sapro-phytic	K1,B,Hi, Sa,Pa,N	Aug-Sept	W	Usp
49.	*Tinospora cordifolia* (Willd.) Hook.f.	Menis-perma-ceae	D	Gudvel	Cl	AFT	May-June	C	L
50.	*Lathyrus sativus* L.	Fabaceae	D	Lakhori	H	R,Ma,K3, Pa,NR	Oct-Dec	C	L, F
51.	*Trigonella foenum-graecum* L.	Fabaceae	M	Methi	H	AFT,	TOY	C	L
52.	*Maytenus senegalensis*	Celast-raceae	D	Bharkal	S	K1,K3,U, Pa,Hi	Oct-Dec	W	F
53.	*Glossocardia bosvallia* (L. F.) DC.	Aster-aceae	D	Dagad-shepu	H	K1,N	June-Aug	W	Wp
54.	*Atriplex hortensis* L.	Amaran-thaceae	M	Chandan-batva	S	K,K2,K4 Na,N,B, U,NR	TOY	W	Wp
55.	*Costus speciosus* (Koen) Sm	Zingib-eraceae	M	Harduli	H	B,U K3, Hi,R	June-Dec	W	L
56.	*Clerodendum serratum* (L)	Verban-aceae	D	Bharangi	S	K1,U,K3	June-Dec	W	Wp
57.	*Brassica compestris* Linn	Cruci-ferae	D	Mohri	H	Na,K1, K3,B,Na, NR,	July-Nov	C	Wp
58.	*Oroxylum indicum* (L.) Vent.	Bignoni-aceae	D	Tetu,	T	N,K3,K4	June-July	W	L
59.	*Chlorophytum tuberosum* (Roxb.) Baker	Liliaceae	M	Safed Musali	H	K1,K3, N,Pa,NR	June-July	W	Wp
60.	*Plectranthus amboinicus* (Lour.) Spreng	Lami-aceae	M	Ovabhaji	H	B,Hi K3,K4	TOY	C	L

61.	*Physalis pubescens* (L)	Solan-aceae	D	kapalphodi	H	N,R, Pa,Sa	Oct-Dec	W	L
62.	*Phyllanthus amarus* Schum and Thonn	Euphor-biaceae	D	Bhuiavala	H	B,Hi,K3,	June-Feb	W	wp
63.	*Dentella repens* (L.) J.R.Forst. & G.Forst	Rubi-aceae	D	Kadubhaji	H	B,Hi, K3,Ma		W	Wp

Abbreviations used- TOY - Throughout the Year. W- Wild, C- Cultivated.
D - Dicot, M - Monocot, F-Fungi
Habit: **H** - Herb, **S** - Shrub, **T** - Tree, **Cl** - Climber
Part used: **Fr**-Fruit, **Fl**-Flower, **L** - Leaves, **C** - Corm, **Wp** - Whole plant, **Ys**- Young shoot, **Ts** - Tender shoot, **Rh** -Rhizome, **P** - Petiole, **Usp** - Unriped Sporocarp.

B-Bhivapur, Hi-hingna, K1-katol, **K2**-kalmeshwar, **K3**-kuhi **K4**-kamthi, **N**-Narkhed, **Pa**-parsivani, **R**-Ramtek **U**-umred, **Sa**-Saoner, **Ma**-Mauda, **Na**-,Nagpur., **NR**-Nagpur Rral, **AFT**-All Forteen Talukas.

villages, 41 towns, and 14 sub-districts. Marathi is used for administrative purposes in the district.

The Nagpur district in eastern Maharashtra is extremely fortunate to have natural resources. It is situated between latitudes 200 35' and 210 44' north and longitudes 780 15' and 790 40' east, covering an area of 9930 square kilometers. Large residual Satpuda hill ranges and their separate components physically encircle the district, which has an average elevation of between 275.50 and 305 meters above sea level. Nakhed, Parseoni, Ramtek, Saoner, Umred, Bhiwapur, Hingna, Kalmeshwar, Kamptee, Katol, Kuhi, Mouda, Nagpur, Nagpur Rural, and Umred are the 14 talukas that make up the political division of the district. The floristic survey was carried out in the district over the course of a year's worth of visits[8].

Throughout the investigation, a number of villages from the Nagpur district vegetable market were frequently visited. Interaction and visitation-based data is tallied and arranged. a Red Mi Y2 smartphone camera image of a variety of vegetables that was identified using standard flora and references to Cooke[1], Naik[6], and Yadav & Sardesai[11]. In addition, tabulated data regarding the exchanges was compiled and a group discussion was held with knowledgeable locals. A table presenting the answers to a range of queries about regional names, the applications of plant parts, recipes, and their relevance to health were also posed[5].

Regular visits were conducted to the 63 distinct plant species that the locals in different parts of the Nagpur district use during the investigation. All pertinent information gathered during fieldwork and visits is

documented in a field notebook, and the plants that were recorded are arranged in a tabular format (Table-1). An attempt has been made to capture the GPS-enabled photos listed in plate's I–II. Details about plants found in a particular area of the Nagpur district, including names given locally, botanical names, family, habits, parts used by monocots and dicots, availability by season, and species that are found both wild and cultivated.

Total number of these 63 plant species, one is a fungus, 44 are dicot plants, which are divided into 24 different dicot families, and 18 are monocot species, which are divided into 12 separate families. 31 herb species, 10 shrub species, 12 climber species, and 9 tree species were identified in the current inquiry; 44 of them were wild plant species and 19 were cultivated plant species that are used as vegetables. The locals use plant parts like roots, stems, leaves, and tender shoots as vegetables. Most vegetables, fruits and tubers are used by a smaller number of local species. Every time it was feasible, local names were noted. Only those species that make up an intriguing percentage of the district's eating habits are given; known edible species that are frequently used are eliminated from the data. It was discovered that the younger generation mostly depends on the grown veggies that are prevalent in the plain's region and residential regions market, while only the elderly are aware of and use wild vegetables. A survey of the local weekly markets indicates that there aren't many chances for agriculture in the Nagpur section of the city.

By exposing the diversity within these plants, which primarily consist of dicots and monocots, the current survey documentation of edible wild plants in the Nagpur district has led to a record of a large number of wild plants and varied parts of usage. Most cultivated plants may be found in the market area's umbonal region, whereas wild vegetables are more expensive. In certain remote areas, people use wild veggies as food. As a result, attempts might be made to cultivate certain of them to preserve a steady supply and aid in their conservation.

In this research I am fortunate to have lots of helping hands, I couldn't acknowledge all but some important ones Dr. Khobragade (Director, Institute of Science Nagpur, My guide and mentor Dr.P.S.Jakhi (Principal. Government Science College, Gadchiroli) and Prof .D.N. Watakhere (Assistant Professor, RMG College, Saoli, Chandrapur).

Conflict of interest :

Author has no conflict of interest.

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