



## BIODIVERSITY IN WILD VEGETABLES OF KONKAN REGION - MAHARASHTRA

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### **Abstract:**

The consumption of wild vegetables and plants is one of the strategies, adopted by the local people for sustenance is intrinsically linked to their strong traditional and cultural system and is inseparable. The indigenous communities include wild edibles to their daily food intake and sales from the surplus add to their income. Diversity of plant foods consumed provides nutritional diversity and also food during famine or scarcity of favored foods. It is essential that the locally available these edible herbs and plant parts are rich source of protein, iron, calories and they are also recognized for their characteristic color, flavor and therapeutic value, be used in the diets to prevent the nutrient deficiency and degenerative diseases. The wild vegetable also has medicinal value and hence beside food supplement they also act as nutritional supplement to the people of this area. The article deals with the diversity in wild vegetables and nutritional value consumed by people of Konkan region of Maharashtra. Wild vegetables refer to the species which are not cultivated at large scale commercially. They are grown on waste land by tribal communities or collected from their natural habitat and used as source of food. Ethanobotanical study was carried out by survey of local market, unstructured interview of local villagers and household food survey. Total 58 species belongs 55 genera and 27 families of Wild vegetables were documented. Out of 58 species 24 were herbaceous 22 climbers/prostate creepers/twiner, 3 shrubs and 9 trees. Out of these recorded species some are good source of protein some are carbohydrate and some are variable minerals.

### **Keywords:**

Wild vegetables; Diversity; Nutritional diversity; Konkan region; Ethanobotanical

### **Introduction:**

The diversity in the wild vegetable not only gives variation in diet but also provides nutritional diversity. It contributes to the house hold food security in this region. Wild vegetable refers to the species which are not cultivated at large scale commercially. They are grown on waste land by tribal communities





or collected from their natural habitat, fields etc. and used as source of food and income. Various studies have found that wild edible species are potential source of nutrition while in many cases they are more nutritious than conventionally eaten crops. Developing countries like India where food insecurity, malnourishment, poverty is more acute, potential of Wild vegetable in providing food, nutrition, source of income and livelihood in rural settings can be acknowledged. Survey and documentation of wild edible plants and their utilization for food have been conducted in several parts of the country. In Maharashtra several studies have been conducted on traditionally used medicinal plants (especially on Western Ghat). There were no work that records the diversity and usability of wild vegetables in Konkan. Therefore present study was planned to document the diversity in wild vegetables used by rural as well as urban people of Konkan.

### **Material and Method:**

**Study Area:** - Geographically Konkan is the coastal belt of western state of Maharashtra. It's a narrow strip, situated in between the Western Ghat and Arabian Sea. The world famous Western Ghats is lying in the Konkan. It rises from Sea level to 300 meter height. Konkan area ranges from 27 to 48 km in breadth and about 800 km in length, from Goa to Tapi basin. It has 6 administrative divisions i.e. Mumbai, Mumbai suburb, Thane, Raigad, Ratnagiri and Sindhudurg constituting area of 30,746 km<sup>2</sup>. The Konkan Coast is known for its rich vegetation, delicious food, palm and coconut trees. Konkan region formed of mostly secondary lateritic plateaus, hilly tracks and the coastal sandy low land belts. Littoral or mangrove forests, open scrub forest, moist deciduous forest and herbaceous flora of laterite plateaus are main components of vegetation. The long Konkan coast line and vantage ports and its proximity to the Arabian coast were well exploited by the earliest travellers.





**Data Collection & Analysis:** Study was carried out during the year March 2013 to March 2014. The information related to wild vegetable obtained through household food survey, local market survey (i.e. Mumbai, Mumbai suburb, Thane, Raigad), information collected from local villager during trips to various places of Konkan, informal discussion with people of Ratnagiri and Sindhudurg area. Plant specimens identified during the field visits were cross checked against different informants to validate the information. The collected plants and data entries were registered. Species identification was confirmed by Sutaria (1998), Cooke flora (1967), Singh et al., (2001). Medicinal value was noted down from the book “the herbs of Ayurveda” by Ashok Mithaliya et al. (2005).

### **Result and Discussion:**

**Wild Edible Plant Diversity-** During the field survey 58 species of wild vegetables were documented that belongs to 55 genera 27 families. Out of these wild vegetables 7 species belongs to the family Amaranthaceae, 6 Species from Cucurbitaceae, 4 Species from Caesalpiniaceae, 3 species each from Apiaceae, Araceae, Chenopodiaceae, Dioscoreaceae, Fabaceae, and Liliaceae. 2 species each from Apocynaceae, Asteraceae, Convolvulaceae, Mimosae, and Polygonaceae. One species each from Aizoaceae, Asclepiadaceae, Basellaceae, Commelinaceae, Euphorbiaceae, Poaceae, Moringaceae, Nyctaginaceae Nymphaeaceae, Oxalidaceae, Portulacaceae, Rutaceae, and Solanaceae (Table 2). Life forms indicated that herbs were dominating (41%) followed by climbers (40%), trees (15%) and shrubs (4%) (Fig. 1). Plant parts and composition: - Out of these wild vegetables 47% species was used as leafy vegetables, 22% species stem, 8% species inflorescence and flower, 28% species fruit and 5% species as a whole plant. The species like *Amaranthus panniculata*, *A. polygamous*, *A. sowa*, *A. indica*, *A. campanulata* and *Coccinia grandis* are used extensively whereas Species like *Acheranthus aspera*, *Coelocia argentia*, *Commelina benghalensis*, *Mimosa pudica*, etc. are used during festival of “Gauri &





Ganpati” as a food offering to the Goddess. Plants nutritional value:-Out of these recorded species some are good source of protein some are carbohydrate and some are variable minerals. Species like *Amaranthus viridis*, *Chenopodium album*, *Centella asiatica*, *Commelina benghalensis*, *Moringa oleifera* have been found to be very good source of protein (Kulkarni et al., 2003). Tuber of *Dioscoria bulbifera* leaves of *Oxalis corniculata* and *Cassia tora* are good source of carbohydrate, Proteins and dietary fibres. Species of *Portulaca oleracea*, *Centella asiatica* and *Cassia tora* are good source of iron (Kanchan LataVishwakarma et al., 2011).

### **Conclusion:**

Tourism, developmental projects, modernisation and deforestation depleting these wild species which are inexpensive lucrative source of vitamins, fibres, minerals and other nutrients for many economically deprived natives. Therefore these wild vegetables should be incorporated under managed cultivation or homestead agro-forestry system. Introduction of suitable agro-techniques for commercial production of these wild plants should be carried out. Genetic resources of wild vegetables should be conserved for future use to overcome malnutrition in vegetarian diet, food security and for crop improvement of cultivated relatives of these wild vegetables (Kala, 2007). An emphasis on the sustainable harvesting of wild edible plants will help to enhance and maintain the region’s biodiversity (Angami et al., 2006).

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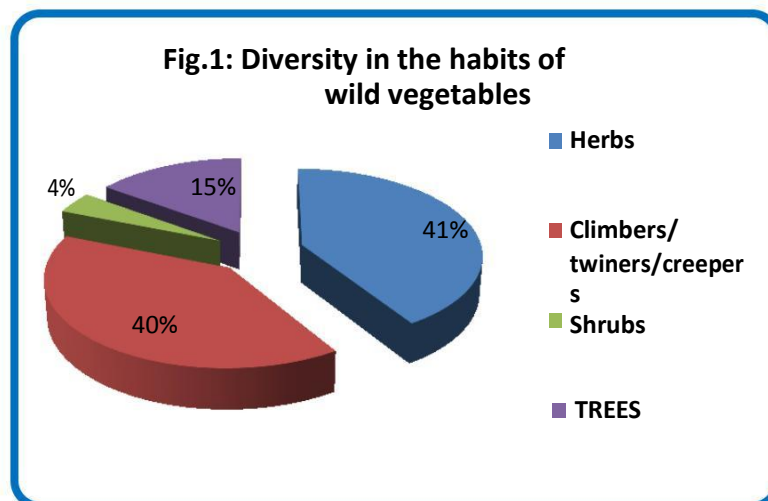
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**Figure 1:-** Map of Konkan showing study area





**Table 1:** List of plants, families and morphological characteristics of wild vegetable of Konkan region

Sr. NO	Scientific & common name	Family	Morphology	Part used	Chemical constituent	Properties	Medicinal value
1	<i>Abrus precatorius</i> [Gunja / Haripatti]	Fabaceae	Deciduous, wiry climber, leaves pinnate many pair of leaflet	<b>Leaves</b> to Prepare <b>Chatni</b>	Glycyrrhizin, precol, abrol, abrasine.	Astringent, emetic, diuretic and alexetric.	used in cough, stomatitis & inflammations
2	<i>Achyranthes aspera</i> [Chirchita/ Aghada]	Amaranthaceae	Annual herb, quadrangular stem, simple opp. leaves	<b>Tender leaves</b> to Prepare <b>main dish</b>	Achyranthine, amino acids and potassium	thermogenic, expectorant, carminative, laxative and diuretic	used in asthma, bronchitis, flatulence and colic pain
3	<i>Alternanthera sessilis</i> [Gudrisag]	Amaranthaceae	Branched prostrate herb, leaves simple,	<b>leaves</b> to prepare <b>main dish</b>	sitosterol, campesterol, lupeol and rhamnoside	astringent, cooling, digestive and galactagogue	useful in diarrhoea, fever, amaemia etc.
4	<i>Amaranthus paniculatus</i> [Lalmath, Rajagira]	Amaranthaceae	Tall annual herb, leaves simple ovate red,	<b>leaves and tender stem</b> to prepare <b>main dish</b> parched <b>grains</b> to prepare <b>chikki</b>	minerals, fibres, carbohydrates etc.	diuretic, laxative haemostatic and blood purifier	useful in constipation, piles and anaemia
5	<i>Amaranthus polygamous /viridis</i> [chauli]	Amaranthaceae	Small annual herb, fleshy stem, leaves simple ovate	<b>leaves and tender stem</b> to prepare <b>main dish</b>	Vitamins, fibres, carbohydrates, minerals. Amino acid reported in leaves are arginine, cysteine, histidine, leucine, lysine, tryptophan, tyrosin. And valine	astringent, diuretic, appetiser, mild laxative	useful in constipation, piles, anaemia, jaundice, leucorrhoea etc.
6	<i>Amaranthus spinosus</i> [Katili, kate math]	Amaranthaceae	Glabrous, spinous herb, varying in colour green to red, leaves simple	young leaves, stem to Prepare <b>main dish</b>	Vitamins, fibres, minerals, Amino acid, $\beta$ -sitosterol, cholesterol etc.	cooling, laxative, diuretic, stomachic, appetiser and tonic	leucorrhoea, menorrhagia, anaemia, anorexia fever etc.





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7	<i>Asparagus racemosus</i> [shatavari]	Liliaceae	Spinous branched climber with fasciculated tuberous root leaves spinous	fasciculated tuberous root to prepare soups	4 types saponin, mucilage starch	Bitter, sweet, emollient, astringent, cooling, diuretic, appetiser etc	Useful in nervous disorders, acidity, dyspepsia & Powerful tonic
8	<i>Alocasia indica</i> [shewra]	Araceae	Large stout herb with large rootstalk. Leaves large stagittatecordate	<b>Leaves &amp; Rhizome</b> to prepare <b>main dish</b>	Starch, oxalic acid, alocasin-sterols minerals (Ca)	Digestive laxative, diuretic, astringent, nutritive	Useful in constipation, pile, swelling, anorexia, gout, rheumatism
9	<i>Amorphophallus campanulatus</i> [Suran]	Araceae	Stout herb with dark brown corm, leaves compound	<b>Corm</b> to prepare <b>main dish</b>	Protein, carbohydrate, calcium, phosphorus, vit. A & B etc.	astringent, thermogenic, appetiser stomachic, liver tonic etc.	inflammation, flatulence, constipation, anorexia
10	<i>Anethum sowa</i> (graveolens) [suva/shepu]	Apiaceae [umbeliferae]	Glabrous aromatic annual herb, leaves 2-3 pinnate	<b>leaves</b> to prepare <b>main dish</b>	carvone, d- limonene, d- phellandrene	pungent, thermogenic, digestive, carminative, anthelmintic, antispasmodic	inflammation, flatulence, intestinal worms, ulcers, spermatorrhoea
11	<i>Basella alba</i> [poi /lalbachu,/ indian Spinach]	Basellaceae	Perennial succulent glabrous twining herb with red branches, leaves simple	<b>leaves</b> to prepare <b>main dish</b>	iodine, fluorine, carotenoids, iron, and vit-K	Cooling, emollient, aphrodisiac, laxative, appetiser.	useful in constipation, flatulence, anorexia, ulcers etc.
12	<i>Bauhinia variegata</i> [kachnar]	Caesalpinaceae	Deciduous tree, leaves simple grooved at apex	<b>flower bud</b>	tannin, $\beta$ -sitosterol, lupeol	astringent, cooling, constipating, anti-inflammatory	Useful in diarrhoea, dysentery, ulcers, goiter.
13	<i>Boerhavia diffusa</i> [patherchatta]	Nyctaginaceae	Perennial diffuse herb with many procumbent branches, leaves simple	<b>young leaves and tender stem</b> to prepare <b>main dish</b>	alkaloids, tricentanol, $\beta$ -sitosterol, ursolic acid & potassium salts	astringent, cooling, anthelmintic, cardiac stimulant, laxative & tonic	Useful in cardiac disorder, leucorrhoea, oedema etc.
14	<i>Carthamus tinctorius</i> [kardi/safflower]	Compositae	Small spiny annual herb Leaves oblong lanceolate spiny narrow at base	Tender Leaves & flower	Carbohydrate, minerals, oil	Expectorant, anti-inflammatory	beneficial in cold cough, bronchitis, liver tonic







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15	<i>Canavalia gladiata</i> [sword bean]	Fabaceae	Perennial twining plant, leaves trifoliate.	Unripe tender pod to prepare <b>main dish</b>	canavanine, protein, carbohydrates, gibberellins, minerals	astringent, cooling, appetizer, digestive	beneficial in anorexia, dyspepsia, hyperdipsia
16	<i>Cassia tora</i> [Takala]	Caesalpiniaceae	Annual herb, leaves pinnately compound	leaves	anthraglucosides, chrysophanola, rhein	thermogenic, laxative, anthelmintic, liver tonic	beneficial in helminthiasis, fever, constipation, cardiac disorders
17	<i>Carissa carandas</i> ( <i>Karvanda</i> )	Apocynaceae	Climbing shrub, stem spiny	Fruits ripe, unripe	mineral & Vit-C	sour acrid, cooling	useful in anorexia,
18	<i>Celosia argentea</i> [kurdu /safedmurga]	Amaranthaceae	Annual herb, leaves simple glabrous	young leaves to prepare <b>main dish</b>	carbohydrate, vitamins, minerals etc.	Diuretic, cooling, aphrodisiac, blood purifier, astringent.	beneficial in calculi, diabetes, spermatorrhoea
19	<i>Centella asiatica</i> [brahmi]	Apiaceae / umbelliferae	Perennial creeper, leaves simple elongated petioles	leaves and young stem to prepare <b>main dish</b>	asiaticoside, brahmoside, centelloside, vit-C, triterpenoidtrisaccharides	sweet, cooling, cardiogenic, nerv tonic, carminative, diuretic.	useful in insomnia, cardiac debility, asthma, amentia
20	<i>Chenopodium album</i> [bathua]	Chenopodiaceae	Small herb, leaves simple	young leaves to prepare <b>main dish</b>	Various Amino acids, vitamins, minerals.	digestive, carminative, laxative, diuretic	flatulence, seminal weakness, cardiac disorders
21	<i>Chlorophytum tuberosum</i> [phodshi/kuchela]	Liliaceae	Small herb with tuberous root, leaves radical sessile, recurved wavy	Tender leaves & tuberous root	Carbohydrate, minerals, fibers, root –protein & saponin	Astringent, diuretic,	Useful in colic, Anorexia, bronchitis etc





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22	<i>Coccinia grandis</i> [kundru /Jangaliton dli]	Cucurbitaceae	perennial branched tendril climber, leaves simple angled or lobed 5 nerved	<b>unripe fruit</b> to prepare <b>main dish</b>	mucilage, starch, caffeic acid , gum, quercitin , kaempferol, $\beta$ -sitosterol	cooling, astringent, depurative, antipyretic, diuretic, galactagogue	burning sensation, fever, agalactia, jaundice
23	<i>Colocasia esculenta</i> [alu / Arum/arvi]	Araceae	Tuberous perennial, herb with underground corm. Leaves simple with sheathing leaf base, long petiole	<b>leaves and corm</b> to prepare <b>main dish</b>	starch, mucilage, calcium oxalate, ca-phosphorus, vit-A B & C fibres	expectorant, astringent, thermogenic, appetiser , galactagogue, laxative	haemorrhage, otorrhoea , adenitis, alopecia, cough, anorexia etc.
24	<i>Commelinabenghalensis</i> [kena / kanchata]	commelinaceae	Annual herb, succulent stem. Leaves simple, ovate- elliptic sessile	<b>Leaves</b> to prepare <b>main dish</b>	vitamins, flavocommelin, saponin, tannin & minerals	diuretic, antiseptic, laxative, cooling, digestive , demulcent etc.	beneficial in piles, constipation, fever, calculi, indigestion etc.
25	<i>Cressacretica</i> [rudanti/ kharda]	Convolvulaceae	small dwarf herb near shores, leaves simple, numerous, subsessile ovate densely silky hairy	<b>whole plant</b> to prepare <b>main dish</b>	scopoletin, umbelliferone, isopimpinellin $\beta$ -sitosterol	acrid , salty, galactagogue, blood purifier, thermogenic, anthelmintic, digestive, carminative etc.	useful in whooping cough, constipation, diabetes, agalactia, flatulence, colic, anorexia , helminthiasis
26	<i>Dendroclamus strictus</i> [Bamboo]	Gramineae	Tall dense strong stem leaves petiolate base rounded gradually narrowed upward twisted tip	tender shoot	carbohydrate, fibres, minerals	Nutritive, thermogenic	Useful in T.B.
27	<i>Digera muricata</i> [manjarik]	Amaranthaceae	annual herb, stem glabrous , hollow, leaves ovate simple reddish margins	leaves & stem to prepare <b>dish</b>	vitamins, minerals, fibres etc	laxative, astringent, stomachic, diuretic, demulcent	useful in diabetes, constipation, urinary disorders , piles.





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28	<i>Dioscorea alata</i> [ China Kand]	Dioscoreaceae	Climber with 4-winged stems & underground tubers , leaves simple cordate.	Stem tubers to prepare <b>dish</b>	starch, protein, minerals, sucrose, maltose	Astringent, digestive, cooling, aphrodisiac, diuretic, anthelmintic.	useful in piles, gonorrhoea, helminthiasis
29	<i>Dioscorea bulbifera</i> [Jaminkand]	Dioscoreaceae	Perennial, bulbil bearing twiner with tuberous root leaves broad. Ovate cordate	tuberous root & bulbil to prepare <b>dish</b>	glucoside, proteins, starch, minerals etc.	nutritive, anthelmintic, aphrodisiac, diuretic, blood purifier , astringent	Useful in syphilis, gonorrhoea, hydrocele. Goiter, piles, dysentery.
30	<i>Dioscorea digitata</i> [Jaminkand]	Dioscoreaceae	Perennial, bulbil bearing twiner with tuberous root leaves broad. Ovate digitate.	tuberous root & inflorescence to prepare <b>dish</b>	glucoside, proteins, starch, minerals etc.	nutritive, anthelmintic, aphrodisiac, diuretic, blood purifier , astringent	Useful in syphilis, gonorrhoea, hydrocele. Goiter, piles, dysentery.
31	<i>Holarrhena antidysenterica</i> [Kurchi, kuda]	Apocynaceae	Tree	Flowers and pods	Holarrhensine, Kurchine alkaloids	Carminative, astringents, anthelmintic	useful in diarrhoea, dysentery.
32	<i>Ipomoea aquatica</i> [kalmisag/ phopali]	Convolvulaceae	prostrate procumbent herb, leaves simple ovate, lanceolate , glabrous	leaves and young stem to prepare <b>dish</b>	minerals Ca, P. , Vit-B,C,E etc.	astringent, expectorant, emetic , alexipharmic etc.	useful in bronchitis, asthma, nervous disorders ,fatigue anaemia etc.
33	<i>Lagenaria vulgaris</i> [ Jangalilauki/ bottle gourd]	Cucurbitaceae	Soft pubescent climbing herb, leaves simple, cordate dentate.	whole plant and fruit to prepare <b>dish</b>	cucurbitacins, minerals, carbohydrates	Bitter, Emetic, purgative, diuretic, refrigerant, astringent.	useful in constipation, inflammation, asthma, fever, constipation, jaundice, calculi etc.
34	<i>Launaea procumbens</i> [bhopatari]	Asteraceae	glabrous , prostrate herb. Leaves simple radical cauline oblong lyrate,narrow	leaves to prepare <b>dish</b>	tannin ,minerals (Ca, Fe, ), Vit- B,A,C etc.	Sweet, diuretic, cholagogue, astringent, expectorant, blood purifier, lactagogue.	beneficial in diarrhoea, dysentery, toxemia, fever, calculi etc.
35	<i>Luffa acutangulavaramara</i> [ Kadawatari]	Cucurbitaceae	Largemonocismtend rilled climber. Leaves orbicular, cordate, palmately 5-7 lobed scabrid on both sides.	unripe fruit	amino acids , oleic & linoleic acid, carbohydrate, minerals(Ca , Fe, P) , Vit- A&B	bitter, astringent, demulcent, diuretic , tonic & nutritive	useful in calculi, anorexia, piles, & constipation





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36	<i>Luffa cylindrica</i> [ ridged gourd/ turi]	Cucurbitac eae	large monoecious climber leaves orbicular reniformpalmat ely 5-lobed	unripe fruit	pectine, fibres, vitamins, sugar, amino acids, luffein	diuretic, emollient, laxative, carminative, anthelmintic,galactagogue	useful in stomachac he, fever, haematuria , tumour, syphilis.
37	<i>Mimosa pudica</i> [lajjadu]	Mimosace ae	diffuse prickly, undershrub leaves bipinnately compound	leaves	tannin, mimosine, norepinephr ine, jasmonic acid &Dpanitol	bitter, sudorific & tonic	useful in hydrocele, haemorrhoids, fistula, scrofula.
38	<i>Momordica charantia</i> [wild karela]	Cucurbitac eae	monoecious, branched,climbi ng , tendriled annual leaves simple, orbicular, cordate ,deeply divided into 5-7 lobes	unripe fruit	glycosides, ascorbic acid &momordic ine	bitter,acrid,thermogenic,de purative, purgative, antidiabetic, carminative etc.	useful in skin diseases, worms, ulcers, constipatio n, anorxia, colic etc.
39	<i>Momordica dioica</i> [phagla/kantole]	Cucurbitac eae	Dioecious, perennial climberwith tuberous root. Leaves simple , lobed triangular	unripe fruit & tubers (medicin al)	minerals(Fe , Mg), Vit- A, carbohydrat e fibres etc.	bitter, astringent, diuretic, appetizer etc.	Useful in leprosy, malignant ulcer, worms, jaundice, calculi, fever, diabetes, hypertensi on.
40	<i>Moringa oleifera/pterigosp erma</i> [shevga/ drum stick]	Moringace ae	Tree,leavestrip nate, leaflet elliptic,rounded at apex	leaves & unripe fruit	Protein carbohydrat e, oil, carotene, nicotinic acid, ascorbic acid.	anti-inflammatory, anthelmintic, ophthalmic, & Vit- A & C	Useful in scurvy, inflammati ons , helminthia sis etc.
41	<i>Murraya koenigii</i> [curry leaf]	Rutaceae	aromatic tree leavesimparipin nate, leaflet rhomboidal.	leaves  to prepare chatni & flavouri ng agent	oxalic acid,essenti al oil, carbohydrat e, minerals(Ca , P, Fe), Vit- B	Bitter, acrid, astringent, cooling, aromatic, demulcent, appetiser etc.	useful in burning sensation, skin diseases, anorexia, helminthia sis, colic, diarrhoea etc.





Sr. NO	Scientific & common name	Family	Morphology	Part used	Chemical constituent	Properties	Medicinal value
42	<i>Nelumbo nucifera</i> [lotus]	Nymphaeaceae	Large aquatic herb with rhizome. Leaves simple peltate, long petiole	stem to prepare main dish	carbohydrate, minerals, fibres,	Astringent, cooling, fragrant, diuretic.	useful in vomiting, leprosy, skin diseases etc.
43	<i>Oxalis corniculata</i> [tipali/tinpatiya]	Oxalidaceae	diffuse annual or perennial creeping herb, leaves palmate 3-foliolate. long stalked	leaves to prepare main dish	glyoxylic acid, oxalic acid, vitexin, glycolipids, Vit- C , Phospholipids etc	sour, astringent, thermogenic, cooling, digestive, carminative, diuretic, liver tonic	useful in dyspepsia, haemorrhoids, anaemia, fever, diarrhoea, dysentery, scurvy ulcer etc.
44	<i>Parkinsonia aculeate</i> [ram baval]	Caesalpiaceae	large armed shrub with sharp woody spines and prickles. Leaves bipinnate minute leaflets flattened rachis	unripe green pods are eaten	protein, mucilage, carbohydrate & fatty oil	antipyretic & anti-inflammatory	useful in cough, fever, & for quick energy
45	<i>Pentatropi scapensis</i> [shingroti]	asclepiadaceae	perennial twiner, leaves simple, ovate acuminate at apex	leaves to prepare dish	Pentatropin, minerals etc.	Cooling, astringent, appetiser, expectorant.	useful in cough, bronchitis, epilepsy, anorexia etc
46	<i>Peucedanum grande</i> [wild carrot/ baphali]	Apiaceae	perennial erect herb, leaves bipinnate, pinnae usually 2-pairs & terminal leaflet, cauline leaves 3-lobed	leaves to prepare dish [monsoon only]	carbohydrate, minerals, fibres, essential oil	thermogenic, expectorant, carminative etc.	useful in asthma, cough, bronchitis, flatulence, colic rheumatism, toothache
47	<i>Phyllanthus emblica</i> [Jangaliaamla]	Euphorbiaceae	small deciduous tree, leaves simple appears pinnate	fruit used making pickles, juice, jam, chatni	Vit- C, Minerals (Ca, P, Cu, Cr.), amino acids, carbohydrate, fibres.	astringent, bitter, acrid, cooling, ophthalmic, carminative, digestive, laxative etc.	useful in diabetes, cough, asthma, bronchitis, colic, peptic ulcer, ophthalmopathy, anaemia etc.
48	<i>Physalis minima</i> [sun berry]	Solanaceae	annual herb leaves simple ovate lobed	fruits are eaten directly	flavonoids, sterols, Vit- A & C, solanine	sour, sweet, appetiser	gastropathy, colic, ulcer, cough, bronchitis.





Sr. NO	Scientific & common name	Family	Morphology	Part used	Chemical constituent	Properties	Medicinal value
49	<i>Pithecellobium dulce</i> [jungle imli]	Mimosaceae	tree, leaves compound with one pair of pinnae, elliptic	Fruits arils are eaten directly	Vit- C, Minerals (Ca, Mg, Fe, p.)	astringent , sweet, sour, expectorant, nutritive	Fatigue, cough, spondylitis, fracture, toxemia, jaundice, diabetes.
50	<i>Polygonum glabrum</i> [jungle chaurai]	Polygonaceae	annual herb	young leaves	carbohydrate, fibres, minerals	astringent, diuretic, digestive, mild laxative	useful in constipation, piles , anaemia, etc.
51	<i>Portulaca oleracea</i> [ghol]	Portulacaceae	succulent prostrate annual herb with green /purple stem leaves simple fleshy	whole plant to prepare main dish	protein, Vit- A & B , mucilage, minerals( Na, K, Mg) oxalic acids	laxative, emollient, cooling, stomachic, diuretic etc.	useful in gastropathy, anorexia, constipation, jaundice, scurvy etc.
52	<i>Rumex elongates</i> [chukka bhaji]	Polygonaceae	Perennial erect glabrous herb. leaves lanceolate, wavy-cueled margins	leaves & tender shoot to prepare dish	Protein, carbohydrate, tannin, lapthin, chrysophanol, Ca-oxalate, essential oil.	Sour, nutritive, digestive, diuretic cooling, blood purifier.	beneficial in anaemia, constipation, cardiac problem, scurvy, syphilis, piles , anorexia, colic etc.
53	<i>Salicornia hebeacea</i> [Jointed glasswort, soda]	Chenopodiaceae	Herb, leaves absent, stem fleshy, jointed,	stem	starch, minerals, fibres	laxative, nutritive	useful in digestion
54	<i>Sesbania grandiflora</i> [Hatga/agasti]	Fabaceae	Tree,	Flowers and tender fruits	protein, minerals	astringent, nutritive	useful in digestion & weakness
55	<i>Smilax indica</i> (Ghotwel)	Liliaceae	climber	tender tips	Carbohydrate, minerals, fibres	Nutritive, thermogenic	Useful in digestion
56	<i>Suaeda fruticosa</i> [Saloonakbuti]	Chenopodiaceae	Branched, under shrub Saline soil , Leaves Succulent ,	Leaves	Minerals vitamins, fibres etc.	diuretic, laxative	Useful in asthma, rheumatism.
57	<i>Tamarindus indica</i> [imli]	Caesalpiniaceae	large tree leaves peripinnate	tender leaves and fruit to prepare chatni	flavonoid glycosides, citric, mallic, , tartaric & oxalic acids. Carbohydrate.	sour, astringent, thermogenic, anthelmintic, antifungal, diuretic, digestive, carminative.	useful in gastropathy, helminthiasis, ulcer, jaundice, anorexia, scurvy.
58	<i>Trianthema monogyna</i> [Shveta]	Aizoaceae	Prostrate, glabrous, succulent annual herb. Leaves simple, obovate.	leaves to prepare dish	minerals( K, Fe ) vitamins, fibres etc.	diuretic, vermifuge, laxative	useful in asthma, amenorrhoea, oedema, worms, rheumatism.





**Table-2: Analytical data of each family**

Sr.No	families	Total sp.	Trees	Shrubs	Herbs	Climber/ Twiner/ Creeper
1.	Aizoaceae	1	-	-	-	1
2.	Amaranthaceae	7	-	-	7	-
3.	Apiaceae	3	-	-	2	1
4.	Apocynaceae	2	1	-	-	1
5.	Araceae	3	-	-	3	-
6.	Asclepiadaceae	1	-	-	-	1
7.	Asteraceae	1+1	-	-	-	2
8.	Basellaceae	1	-	-	-	1
9.	Caesalpinaceae	4	2	1	1	-
10.	Chenopodiaceae	3	-	1	2	-
11.	commelinaceae	1	-	-	1	-
12.	Convolvulaceae	2	-	-	2	-
13.	Cucurbitaceae	6	-	-	-	6
14.	Dioscoreaceae	3	-	-	-	3
15.	Euphorbiaceae	1	1	-	-	-
16.	Fabaceae	3	1	-	-	2
17.	Poaceae	1	1	-	-	-
18.	Liliaceae	3	-	-	1	2
19.	Mimosaceae	2	1	1	-	-
20.	Moringaceae	1	1	-	-	-
21.	Nyctaginaceae	1	-	-	1	-
22.	Nymphaeaceae	1	-	-	1	-
23.	Oxalidaceae	1	-	-	-	1
24.	Polygonaceae	2	-	-	2	-
25.	Portulacaceae	1	-	-	-	1
26.	Rutaceae	1	1	-	-	-
27.	Solanaceae	1	-	-	1	-
	<b>TOTAL SPP</b>	<b>58</b>	<b>9</b>	<b>3</b>	<b>24</b>	<b>22</b>

