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Diversity in wild vegetables in forest of Konkan region of India

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Abstract
The article deals with the diversity in wild vegetables and nutritional value consumed by people of Konkan region of Maharashtra. The study documented 58 wild vegetables plant species belonging to 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. Life forms indicated that herbs were dominating (41%) followed by climbers (40%), trees (15%) and shrubs (4%). 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. Present study demonstrated that there is an urgent need for documentation of traditional knowledge related to the intangible cultural heritage concerning wild vegetables are utilized. The utilization and cultivation of these vegetables should be promoted to maintain the dietary needs of the household in Konkan region of Maharashtra. The study can provide a baseline data that may be helpful for prioritization of conservation through sustainable use and management of the resources.

Keywords: diversity, wild vegetables, nutritional diversity

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 then 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. 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. An emphasis on the sustainable harvesting of wild edible plants will help to enhance and maintain the region's biodiversity.

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. The Konkan Coast is known for its rich vegetation, mango, kokum, coconut cashew. 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.

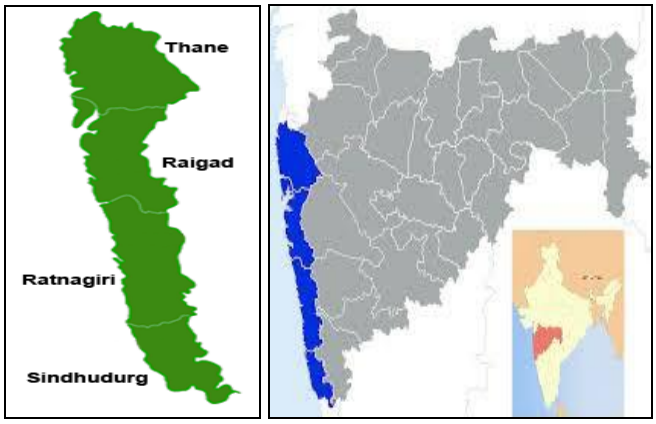

Fig 1: Map of konkan region of india showing study area

Data collection & analysis: The information related to wild vegetable obtained through household food survey, local market survey information collected informal discussion with people and farmers of Konkan region. 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.

Result and Discussion

The investigation of diversity in wild vegetables in forest of Konkan region of India in Maharashra. The variation in this region the heavy rainfall, humid climate and red lateritic soil is helpful for the new regenerated vegetation variety of resources wild plant rich diversity which is nutritional value and edible by farmers and people in this region. Wild Edible Plant Diversity- During the field survey 58 species of wild vegetables were documented that belongs to 55 genera 27 families (Table 1and 2). Life forms indicated that herbs were dominating (41%) followed by climbers (40%), trees (15%) and shrubs (4%). 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 present report on the use of wild vegetable plant for food purposes draws support from earlier studies in different parts of India (Arinathan *et al* 2007, Reddy *et al* 2007; Sharma and Savant, 2012) [1, 5, 6]

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. Shore (2000) [7] indicated that uncultivated foods such as leafy greens, tubers and wild fruits constituted nearly 40 per cent of food requirement of the communities in Bangladesh. Amongst the very poor, landless members of these communities (comprising some fifteen per cent of the rural population, many of which are women headed households) dependence on such sources of food and fodder is nearly 100 per cent. Species like *Amaranthus viridis*, *Chenopodium album*, *Centella asiatica*, *Commelina benghalensis* and *Moringa oleifra* have been found to be very good source of protein. 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 Lata Vishwakarma *et al*., 2011) [4]. Bhati and Jain (2016) [3] conducted a study at South western region of Rajasthan near to *Aravalli* ranges and observed that local population consumes a wide variety of fruits, green leafy vegetables, other vegetables and roots and tubers available in the forest. About 49- fruits, 35- green leafy vegetables, 34-other vegetables and 29-roots and tubers were identified in the region. Among them 17 fruits and vegetables were available round the year. The collection and sale of these fruits and vegetables can provide considerable support to local livelihoods, especially for those who lack the capital to engage in other livelihood activities. Bhati and Acharya (2016) [3] studied underutilized plants embedded with rich nutrient potentials along with ability to stand against adverse climatic conditions can prove to be boon to all concerns - growers, consumers and environmentalists, provided that they are tamed properly. The reason for the low utilization of underutilized fruits and vegetables is lack of information and non-viability of indigenous vegetable production like the major cultivated species.

Table 1: Analytical data of each family

S. 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	2	-	-	-	2
8.	Basellaceae	1	-	-	-	1
9	Caesalpiniaceae	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	1	-	1
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	-
28	Gramineae	1	-	1	-	-
	Total Species	58	9	4	24	21

Life forms indicated that herbs were dominating (41%) followed by climbers (40%), trees (15%) and shrubs (4%)

Table 2: List of plants, families and morphological characteristics of wild vegetable of Konkan region

S. No	Family	Scientific & common name	Morphology	Part used	Chemical constituent	Properties	Medicinal value
1	Aizoaceae	*Trianthema monogyna* [Shveta]	Prostrate, glabrous, succulent annual herb. Leaves simple, obovate	leaves	Minerals (K, Fe) vitamins, fibres etc.	diuretic, vermifuge, laxative	asthma, amenorrhoea, oedema, worms, rheumatism
2.	Amaranthaceae	*Achyranthes aspera* [Chirchita/ Aghada]	Annual herb, quadrangular stem,simple opp. leaves	Tender leaves	Achyranthine, amino acids and potassium	thermogenic, expectorant, carminative, laxative and diuretic	asthma, bronchitis, flatulence and colic pain
3.	Amaranthaceae	*Alternanthera sessilis* [Gudrisag]	Branched prostrate herb, leaves simple	leaves	sitosterol, campesterol, lupeol and rhamnoside	astringent, cooling, digestive and galactagogue	diarrhoea, fever, amaemia etc.
4.	Amaranthaceae	*Amaranthus paniculatus* [Lalmath, Rajagira	Tall annual herb, leaves simple ovate red,	leaves and tender stem,grains	minerals, fibres, carbohydrates etc.	diuretic, laxative haemostatic and blood purifier	constipation, piles and anaemia
5.	Amaranthaceae	*Amaranthus polygamous /viridis* [chauli	Small annual herb, fleshy stem, leaves simple ovate	leaves and tender stem	Vitamins, fibres, carbohydrates, minerals. amino acid reported in leaves are arginine, cysteine, histidine, leucine, lysine, tryptophan, tyrosin. And valine	astringent, diuretic, digestive, appetiser, mild laxative	constipation, piles, anaemia, jaundice, leucorrhoea etc.
6.	Amaranthaceae	*Amaranthus spinosus* [Katili, kate math]	Glabrous, spinous herb, varying in colour green to red, leaves simple	leaves, stem	vitamins, fibres, minerals, amino acid, β-sitosterol, cholesterol etc.	cooling, laxative, diuretic, stomachic, appetiser and tonic	leucorrhoea, menorrhagia, anaemia, anorexia fever etc
7.	Amaranthaceae	*Celosia argentea* [kurdu /safedmurga]	Annual herb, leaves simple glabrous	young leaves	carbohydrate, vitamins, minerals etc.	Diuretic, cooling, aphrodisiac, blood purifier, astringent.	calculi, diabetes, spermatorrhoea
8.	Amaranthaceae	*Digera muricata* [manjarik]	annual herb, stem glabrous, hollow, leaves ovate simple reddish margins	leaves & stem	vitamins, minerals, fibres etc	laxative, astringent, stomachic, diuretic, demulcent	diabetes, constipation, urinary disorders, piles.
9.	Apiaceae	*Anethum sowa* (graveolens) [suva/shepu]	Glabrous aromatic annual herb, leaves 2-3 pinnate	leaves	carvone, d- limonene, d-phellandrene	pungent, thermogenic, digestive, carminative, anthelmintic, antispasmodic	inflammation, flatulence, intestinal worms, ulcers, spermatorrhoea
10.	Apiaceae	*Centella asiatica* [brahmi]	Perennial creeper, leaves simple elongated petioles	leaves and young stem	asiaticoside, brahmoside, centelloside, vit-C, triterpenoidtrisaccharides	sweet, cooling, cardiotonic, nerv tonic, carminatve, diuretic	insomnia, cardiac debility, asthma, amentia
11.	Apiaceae	*Peucedanum grande* [wild carrot/ baphali]	perennial erect herb, leaves bipinnate,pinnae usually 2- pairs & terminal leaflet, caulineleaves 3-lobed	leaves	carbohydrate, minerals, fibres, essential oil	thermogenic, expectorant, carminative etc.	asthma, cough, bronchitis, flatulence, colic rheumatism, toothache
12.	Apocynaceae	*Carissa carandas (Karvanda)*	Climbing shrub, stem spiny	Fruits ripe, unripe	mineral & Vit-C	sour acrid, cooling	anorexia,
13.	Apocynaceae	*Holarrhena antidysentrica* [Kurchi, kuda]	Flowers and pods	Holarrhensine, Kurchine alkaloid	carminative, astringents, anthihelmenthic	useful in diarrhoea, dysentry.	
14.	Araceae	*Alocasia indica* [shewra	Large stout herb with large rootstalk. Leaves large stagittatecordate	Leaves & Rhizome	starch, oxalic acid, alocasin- sterols minerals (Ca)	Digestive laxative, diuretic, astringent, nutritive	Useful in constipation, pile, swelling, anorexia,gout, rheumatism
15.	Araceae	*Anethum sowa* (graveolens) [suva/shepu]	Stout herb with dark brown corm, leaves compound	leaves	protein, carbohydrate, calcium, phosphorus, vit. A & B etc.	astringent, thermo genic, appetiser stomachic, liver tonic	inflammation, flatulence, constipation, anorexia
16.	Araceae	*Colocasia esculenta* [alu / Arum/arvi]	Tuberous perennial, herbwith underground corm. Leaves simple with	leaves	starch, mucilage, calcium oxalate, ca-phosphorus, vit-A B & C fibres	expectorant, astringent, thermogenic, appetiser, galactogogue, laxative	haemorrhage, otorrhorea, adenitis, alopecia,

			sheathing leaf base, long petiole				cough, anorexia etc.
17.	Asclepiadaceae	*Pentatropi scapensis* [shingroti]	perennial twiner, leaves simple, ovate acuminate at apex	leaves	pentatropin, minerals etc.	Cooling, astringent, appetiser, expectorant	cough, bronchitis, epilepsy, anorexia etc
18.	Asteraceae	*Launaea procumbens* [bhopatri]	glabrous, prostrate herb. Leaves simple radical cauline oblong lyrate,narrow	leaves	tannin,minerals (Ca, Fe,), Vit- B,A,C etc.	Sweet, diuretic, cholagogue, astringent, expectorant, blood purifier, lactagogue	diarrhoea, dysentery, toxaemia, fever, calculi
19.	Basellaceae	*Basella alba* [poi /lalbachu,/ indian Spinach	Perennial succulent glabrous twining herb with red branches, leaves simple	leaves	iodine, fluorine, carotenoids, iron, and vit-K	Cooling, emollient, aphrodisiac, laxative, appetiser	constipation, flatulence, anorexia, ulcers etc.
20.	Caesalpiniaceae	*Bauhinia variegata* [kachnar	Deciduous tree, leaves simple grooved at apex	flower bud	tannin, β-sitosterol, lupeol	astringent, cooling, constipating, anti-inflammatory	diarrhoea, dysentery, ulcers, goiter.
21.	Caesalpiniaceae	*Cassia tora* [Takala]	Annual herb, leaves pinnately compound	leaves	anthraglucosides, chrysophanola, rhein	thermogenic, laxative, anthelmintic, liver tonic	helminthiasis, fever, constipation, cardiac disorders
22.	Chenopodiaceae	*Chenopodium album* [bathua]	Small herb, leaves simple	young leaves	amino acids, vitamins, minerals	digestive, carminative, laxative, diuretic	flatulence, seminal weakness, cardiac disorders
23.	Chenopodiaceae	*Salicornia hebacea* [Jointed glasswort, soda]	Herb, leaves absent, stem fleshy, jointed,	stem	starch, minerals, fibres	laxative, nutritive	useful in digestion
24.	Chenopodiaceae	*Suaeda fruticosa* [Saloonakbuti	Branched, under shrub Saline soil, Leaves Succulent,	Leaves	Minerals vitamins, fibres etc.	diuretic, laxative	Useful in asthma, rheumatism
25.	commelinaceae	*Commelina benghalensis* [kena / kanchata]	Annual herb, succulent stem. Leaves simple, ovate- elliptic sessile	Leaves	vitamins, flavocommelin, saponin, tannin & minerals	diuretic, antiseptic, laxative, cooling, digestive, demulcent	beneficial in piles, constipation, fever calculi, indigestion etc.
26.	Convolvulaceae	*Ipomoea aquatica* [kalmisag/ phopali	prostate procumbent herb, leaves simple ovate, lanceolate, glabrous	leaves	minerals Ca, P., Vit-B,C,E etc	astringent, expectorant, emetic, alexipharmic etc.	useful in bronchitis, asthma, nervous disorders,fatigue anaemia etc
27.	Convolvulaceae	*Cressa cretica* [rudanti/ kharda	small dwarf herb near shores, leaves simple,numerous, subsessile ovate densely silky hairy	whole plant	scopoletin,umbeliferone, isopimpinellin β-sitosterol	acrid, salty, galactogogue, blood purifier, thermogenic, anthelmintic, digestive, carminative etc.	whooping cough, constipation, diabetes, agalactia, flatulence, colic, anorexia, helminthiasis
28.	Cucurbitaceae	*Coccinia grandis* [kundru /Jangalitondli	perennial branched tendril climber, leaves simple angled or lobed 5 nerved	unripe fruit	mucilage, starch, caffeic acid, gum, quercitin, kaempferol, β-sitosterol	cooling,astringent, depurative, antipyretic, diuretic, galactagogue	burning sensation, fever, agalactia, jaundice
29.	Cucurbitaceae	*Luffa acutangulavaramara* [Kadawaturi]	Largemonoecismtendrilled 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
30.	Cucurbitaceae	*Luffa cylindrica* [ridged gourd/ turi]	large monoecious climber leaves orbicular reniformpalmately 5-lobed	unripe fruit	pectine, fibres, vitamins, sugar, amino acids, luffein	diuretic, emollient, laxative, carminative, anthelmintic, galactagogue	useful in stomachache, fever, haematuria, tumour, syphilis
31.	Cucurbitaceae	*Momordica charantia* [wild karela]	monoecious, branched,climbing, tendriled annual leaves simple, orbicular, cordate,deeply divided into 5-7 lobes	unripe fruit	glycosides, ascorbic acid &momordicine	bitter, acrid,thermogenic, depurative, purgative, antidiabetic, carminative etc	useful in skin diseases, worms, ulcers, constipation, anorxia, colic etc
32.	Cucurbitaceae	*Momordica dioica* [phagla/kantole]	Dioecious, perennial climberwith tuberous root. Leaves simple, lobed triangular	unripe fruit & tubers	minerals(Fe, Mg), Vit- A, carbohydrate fibres etc	bitter, astringent, diuretic, appetizer etc	Useful in leprosy, malignant ulcer, worms, jaundice, calculi, fever, diabetes, hypertension.
33.	Cucurbitaceae	*Lagenaria vulgaris* [Jangalilauki/ bottle gourd]	Soft pubescent climbing herb, leaves simple, cordate dentate.	whole plant	cucurbitacins, minerals, carbohydrates	Bitter, Emetic, purgative, diuretic, refrigerant, astringent	useful in constipation, inflammation, asthma, fever, constipation, jaundice, calculi etc.
34.	Dioscoreaceae	*Dioscorea digitata* [Jaminkand]	Perennial, bulbil bearing twiner with tuberous root leaves broad. Ovate cordate	tuberous root & bulbil	glucoside, proteins, starch, minerals etc	nutritive, anthelmintic, aphrodisiac, diuretic, blood purifier, astringent	Useful in syphilis, gonorrhoea, hydrocele. Goiter, piles, dysentery.
35.	Dioscoreaceae	*Dioscorea alata* [	Climber with 4- winged	Stem,tubers	starch, protein, minerals,	Astringent, digestive,	useful in piles,

		China Kand]	stems & underground tubers, leaves simple cordate.		sucrose, maltose	cooling, aphrodisiac, diuretic, anthelmintic	gonorrhoea, helminthiasis
36.	Dioscoreaceae	*Dioscorea bulbifera* [Jaminkand]	Perennial, bulbil bearing twiner with tuberous root leaves broad. Ovate cordate	tuberous root & bulbil	glucoside, proteins, starch, minerals etc	nutritive, anthelmintic, aphrodisiac, diuretic, blood purifier, astringent	Useful in syphilis, gonorrhoea, hydrocele. Goiter, piles, dysentery.
37.	Euphorbiaceae	*Phyllanthus emblica* [Jangaliaamla]	small deciduous tree, leaves simple appears pinnate	fruit	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, opthalmopathy, anaemia. etc
38.	Fabaceae	*Abrus precatorius* [Gunja / Haripatti]	Deciduous, wiry climber, leaves pinnate many pair of leaflet	Leaves	Glycyrrhizin, precol, abrol, abrasine	Astringent, emetic, diuretic and alexetric	used in cough, stomatitis & inflammations
39.	Fabaceae	*Canavalia gladiate* [sword bean]	Perennial twining plant, leaves trifoliate.	Unripe tender pod	canavanine, protein, carbohydrates, gibberellins, minerals	astringent, cooling, appetizer, digestive	beneficial in anorexia, dyspepsia, hyperdipsia
40.	Fabaceae	*Sesbania grandiflora* [Hatga/agasti]	Tree,	Flowers and tender fruits	protein, minerals	astringent, nutritive	useful in digestion & weakness
41.	Liliaceae	*Asparagus racemosus* [shatavari	Spinous branched climber with fasciculated tuberous root leaves spinous	fasciculated tuberous root	4 types saponin, mucilage starch	Bitter, sweet, emollient, astringent, cooling, diuretic, appetiser etc	Useful in nervous disorders, acidity, dyspepsia & Powerful tonic
42.	Liliaceae	*Chlorophytum tuberosum* [phodshi/kuchela]	Small herb with tuberous root, leaves radical sessile, recurved wavy	Tender leaves & tuberous root	Carbohydrate, minerals, fibers, root –protein &saponin	Astringent, diuretic,	colic, Anorexia, bronchitis etc
43.	Liliaceae	*Smilex indica* [Ghotwel]	climber	tender tips	Carbohydrate, minerals, fibres	Nutritive, thermogenic	digestion
44.	Mimosaceae	*Mimosa pudica* [lajjadu]	diffuse prickly, undershrub leaves bipinnately compound	leaves	tannin, mimosine, norepinephrine, jasmonic acid &Dpanitol	bitter, sudorific & tonic	hydrocele, haemorrhoids, fistula, scrofula
45.	Mimosaceae	*Pithecellobium dulce* [jungle imli]	tree, leaves compound with one pair of pinnae, elliptic	Fruits	Vit- C, Minerals (Ca, Mg, Fe, p.)	astringent, sweet, sour, expectorant, nutritive	Fatigue, cough, spondylitis, fracture, toxaemia, jaundice, diabetes
46.	Moringaceae	*Moringa oleifera/pterigosperma* [shevga/ drum stick]	Tree,leavestripnnate, leaflet elliptic,rounded at apex	leaves & unripe fruit	Protein carbohydrate, oil, carotene, nicotinic acid, ascorbic acid.	anti-inflammatory, anthelmintic, ophthalmic, & Vit- A & C	scurvy, inflammations, helminthiasis etc.
47.	Nyctaginaceae	*Boerhavia diffusa* [patherchatta]	Perennial diffuse herb with many procumbent branches, leaves simple	young leaves and tender stem	alkaloids, tricontanol, β-sitosterol, ursolic acid & potassium salts	astringent, cooling, anthelmintic, cardiac stimulant, laxative & tonic	Useful in cardiac disorder, leucorrhoea, oedema etc
48.	Nymphaeaceae	*Nelumbo nucifera* [lotus]	Large aquatic herb with rhizome. Leaves simple peltate, long petiole	stem	carbohydrate, minerals, fibres,	Astringent, cooling, fragrant, diuretic	vomiting, leprosy, skin diseases etc
49.	Oxalidaceae	*Oxalis corniculata* [tipali/ tinpatiya	diffuse annual or perennial creeping herb, leaves palmate 3-foliate.long stalked	leaves	glyoxylic acid, oxalic acid, vitexin, glycolipids, Vit- C, Phospholipids etc	Sour, astringent, thermogenic, cooling, digestive, carminative, diuretic, liver tonic	dyspepsia, haemorrhoids, anaemia, fever, diarrhoea, dysentery, scurvy ulcer etc.
50.	Polygonaceae	*Polygonum glabrum* [jungle chaurai	annual herb	young leaves	carbohydrate, fibres, minerals	astringent, diuretic, digestive, mild laxative	constipation, piles, anaemia, etc.
51.	Polygonaceae	*Rumex elongates* [chukka bhaji]	Perennial erect glabrous herb. leaves lanceolate, wavy-cueled margins	leaves & tender shoot	Protein, carbohydrate, tannin, lapthin, chrysophanol, Ca-oxalate, essential oil.	Sour, nutritive, digestive, diuretic cooling, blood purifier	anaemia, constipation, cardiac problem, scurvy, syphilis, piles, anorexia, colic etc
52.	Portulacaceae	*Portulaca oleracea* [ghol]	succulent prostrate annual herb with green /purple stem leaves simple fleshy	whole plant	protein, Vit- A & B, mucilage, minerals (Na, K, Mg) oxalic acids	laxative, emollient, cooling, stomachic, diuretic etc	gastropathy, anorexia, constipation, jaundice, scurvy etc
53.	Rutaceae	*Murraya koenigii* [curry leaf]	aromatic tree leavesimparipinnate, leaflet rhomboidal.	leaves	oxalic acid,essential oil, carbohydrate, minerals(Ca, P, Fe), Vit- B	Bitter, acrid, astringent, cooling, aromatic, demulcent, appetiser etc.	burning sensation, skin diseases, anorexia, helminthiasis, colic, diarrhoea etc
54.	Solanaceae	*Physalis minima* [sun berry]	annual herb leaves simple ovate lobed	fruits	flavonoids, sterols, Vit- A & C, solanine	sour, sweet, appetiser	gastropathy, colic, ulcer, cough, bronchitis.
55.	Compositae	*Carthemus tinctorius [kardi/saflower*	Small spiny annual herb Leaves oblong lanceolate	Tender Leaves & flower	Carbohydrate, minerals, oil	Expectorant, anti-inflammatory	cold cough, bronchitis, liver

			spiny narrow at base				tonic
56.	Gramineae	*Dendroclamus strictus* [Bamboo]	Tall dense strong stem leaves petiolate base rounded gradually narrowed upward twisted tip	tender shoot	carbohydrate, fibres, minerals	Nutritive, thermogenic	T.B.
57.	Caesalpiniaceae	*Parkinsonia aculeate* [ram baval]	large armed shrub with sharp woody spines and prickles. Leaves bipinnate minute leaflets flattened rachis	unripe green pods	protein, mucilage, carbohydrate & fatty oil	antipyretic& anti-inflammatory	cough, fever, & for quick energy
58.	Caesalpiniaceae	*Tamarindus indica* [imli	large tree leaves peripinnate	tender leaves and fruit	flavonoid glycosides, citric, mallic,,, tartaric & oxalic acids. Carbohydrate	sour, astringent, thermogenic, anthelmintic, antifungal, diuretic, digestive, carminative	gastropathy, helminthiasis, ulcer, jaundice, anorexia, scurvy

Conclusion

The study documented 58 wild vegetables plant species belonging to 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. Life forms indicated that herbs were dominating (41%) followed by climbers (40%), trees (15%) and shrubs (4%). 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.

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