



Ethnobotanical Documentation of wild edible plants and their uses in Tapi District, Gujarat

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Abstract

Wild edible plants (WEPs) are vital to the subsistence, nutrition, and healthcare of herbal communities, yet their documentation remains limited in India. This study records the mode of consumption pattern, with their habit, edible part, habit, folk names, seasonal availability, and associated medicinal uses of WEPs among the tribal communities of Tapi District, Gujarat, during 2023-2025. Data were collected across seven talukas – Songadh, Vyara, Dolvan, Uchchhal, Nizar, Valod and Kukurmunda – using semi-structured questionnaires, expert interviews, and group discussions. Thirty traditional healers from the Gamit, Vasava, Kokni, and Chaudhari communities are interviewed to gather information. A total of 88 wild edible plant species belonging to 76 genera and 39 families are recorded. Fabaceae is the most dominant family, followed by Apocynaceae and Malvaceae. Trees are the most common growth form, followed by climbers and herbs. Leaves and tender leaves (29 species) and fruits (28 species) are the most frequently consumed parts, with tubers and roots as crucial seasonal staples. Plants are classified into six food categories, with vegetables predominating, followed by raw edible parts and fruits. Ethnolinguistic diversity is evident, as the same species often had multiple folk names across communities. In addition to their dietary value, these plants are used to treat 53 ailments, notably fever, sores, sugar-related disorders, and diarrhea. Traditional knowledge is concentrated among elderly male farmers, indicating a risk of erosion. This study fills a major gap in Gujarat's ethnobotanical literature and provides a baseline for conservation, nutritional studies, and intergenerational transfer of indigenous knowledge.

Keywords: Wild edible plants, ethnobotany, tribal community, Tapi District, Gujarat

Introduction

Although a vast number of plant species exist worldwide, only a small fraction have been domesticated and utilized as a regular food source for humans (Blanco-Salas *et al.*, 2019; Padulosi *et al.*, 2013) [7, 24]. This suggests that many potentially useful species remain untapped. Wild edible plants (WEPs) are those that grow naturally in the wild, without deliberate cultivation, and provide at least one edible part such as leaves, roots, fruits, or seeds (Grivetti & Ogle, 2000; Bharucha & Pretty, 2010) [6, 13]. In India, WEPs form an integral part of tribal subsistence strategies, particularly in forested regions such as Gujarat, Madhya Pradesh, Odisha, and the North-East (Reddy *et al.*, 2007; Mallick *et al.*, 2020) [18, 31]. They play a vital role during periods of food scarcity, poverty, and extreme climatic conditions (Heywood, 1999; Arya *et al.*, 2018) [15]. By serving as supplementary or alternative food resources, WEPs contribute significantly to household nutrition, food security, and cultural traditions (Termote *et al.*, 2011; Cruz-Garcis & Price, 2014; Chauhan *et al.*, 2018) [9, 10, 35].

India is one of the biodiversity-rich countries of the world, and a large proportion of its rural communities continue to depend on forest products, including wild edible plants, for their sustenance. Similar to many developing countries, a significant section of the population often struggles to meet daily food requirements and therefore relies on wild edible plants as primary or supplementary food source, reflecting an indirect dependence on forest ecosystems (Badimo *et al.*, 2015; Mukhtar, 2016) [4, 23]. However, the traditional knowledge associated with these plants is rapidly diminishing, as it is largely held by elder members of the community and tends to disappear with their passing. This highlights the urgent need for systematic documentation and preservation of indigenous knowledge on wild edible plants

and their uses. Ethnobotanist worldwide have recognised this urgency and stress the importance of ethnobotanical investigations to safeguard cultural traditions, promote food security, and conserve biodiversity (Zhang *et al.*, 2021) [37]. Earlier ethnobotanical investigations primarily focused on compiling lists of useful species, especially those with potential for pharmaceuticals and non-wood forest products (NWFPs), owing to their economic value. In recent years, however, research has increasingly shifted towards understanding the traditional uses of wild plants beyond medicinal and material contexts, with greater emphasis on wild edibles. These plants are now widely recognised for their contributions to local nutrition, dietary diversity, income generation, healthcare, and food security by addressing micronutrient deficiencies and broadening resource bases. Knowledge of WEPs – including modes of preparation and cultural practices surrounding their use – is thus a crucial component of ethnobotanical research. Documenting region-specific patterns of habitat use and consumption is particularly vital for shaping effective policies in biodiversity conservation, nutrition, and public health. The lack of comprehensive and region-specific data remains a major barrier to informed decision-making decisions (Bhandary *et al.*, 1995; Harsha *et al.*, 2002; Purkayastha *et al.*, 2005; Ignacimuthu *et al.*, 2006; Qureshi and Bhatti 2008) [5, 14, 16, 27, 28].

The present study aims to document the traditional knowledge of wild edible plants among the tribal communities of Tapi District, Gujarat, and to analyse patterns of consumption. Previous ethnobotanical research in Gujarat has largely emphasized species of ethnomedicinal significance, leaving a considerable knowledge gap in the documentation and ecological understanding of wild edibles (Ishnava *et al.*, 2011; Chauhan *et al.*, 2018; Chaudhary & Maitreya, 2023; Patel *et al.*, 2024) [9, 17, 25].

Materials and Methods

Study area

The present investigation was conducted in Tapi District, located in the southern part of Gujarat State. According to the Census of India (2011), nearly 83% of the district's population belongs to Scheduled Tribes, making it one of the most tribal-dominated regions of the state. The local communities are primarily dependent on forests and agriculture for their subsistence, rituals, and livelihoods. Forests occupy approximately 28.94% of the total geographical area, understanding the strong interdependence between people and natural resources. Fieldwork was undertaken across seven talukas: Songadh, Vyara, Dolvan, Uchchhal, Nizar, Valod, and Kukurmunda. The district is inhabited by diverse tribal groups, including the Gamit, Chaudhary, Vasava, Dodia, Kokni, Valvi, and Vasave, who possess rich ethnobotanical knowledge, particularly related to wild edible and medicinal plants (Gamit *et al.*, 2015; Gamit *et al.*, 2018) ^[11, 12].

The landscape of Tapi District is a mosaic of moist and dry dry deciduous forest, bamboo groves, river valleys, rolling hills, and agricultural fields, interspersed with scrublands and grasslands. The district falls within the Western Ghats-Satpura transitional zone, which contributes to its biological richness. Climatically, Tapi experiences a tropical monsoon climate, with three distinct seasons: summer, monsoon, and winter. The average annual rainfall ranges between 1,500-2000 mm, most of which is received during the southwest monsoon. Temperatures vary from 10-15 °C in winter to 40-42 °C in summer, with high humidity during the monsoon months (Gamit *et al.*, 2015) ^[11]. Such climatic diversity, combined with varied topography, supports a wide range of wild edible plants, many of which are seasonably harvested and form a crucial part of tribal diets.

Data Collection

To document the traditional knowledge of wild edible plants, field surveys were conducted in different tribal villages of Tapi District during 2023-2025. Data were gathered through frequent expert interviews, semi-structured questionnaires, and group discussions with local informants (Martin, 1995) ^[20]. Village-level group interviews were organised to record both past and current consumption trends of wild edibles, while expert interviews helped to understand the reasons behind the gradual decline in their use (Sundriyal & Sundriyal, 2001; Mishra *et al.*, 2021; Motti, 2022; Asfaw *et al.*, 2023) ^[3, 21, 22, 34].

Informants included elderly persons, farmers, shepherds, and housewives, ensuring representation of diverse knowledge holders within the community. Information was collected on local names, plant parts used, methods of consumption and collection practices. Relatives accounts were also noted to cross-check and validate the data (Mandal *et al.*, 2023; Priyadarshini *et al.*, 2024; Samkaria & Kumari, 2025) ^[19, 26, 33]. Plant specimens were collected during field visits, with details such as habitat, habit, and phenology carefully recorded. The specimens were dried, pressed, poisoned, and mounted on herbarium sheets following standard herbarium techniques (Alexiades, 1996; Yadav, 2020) ^[1, 36]. Identification of plant species was carried out with the help of flora and relevant literature (Cooke, 1906; Shah, 1978, Qureshmatva *et al.*, 2018 & 2020) ^[29, 30].

Results and Discussion

Demographic details of Informants

A total of 30 traditional healers from the Gamit, Vasava, Chaudhari, and Kokni communities were interviewed presented in Table 1. Out of these, 28 (93.3%) are male and only 2 (6.7%) are female, showing male dominance in Traditional healing. Songadh Taluka harbours the maximum number of healers (20; 66.7%), followed by Dolvan (3), Uchhal (3), Vyara (2), and Kukarmunda (1). In terms of education, 16 healers (53.33%) are literate and 14 (46.67%) are illiterate, indicating an equal split. The age of healers ranges from 35 to 82 years, with most belonging to the elderly category (60+ years), reflecting that traditional knowledge is largely held by older generations. The healers have an average age of 61.2 years, with the majority in the elderly group (61-70). The community is male-dominated (93.3%), with a slightly higher number of literate healers (53.3%) compared to illiterate ones. Literacy levels ranged from primary schooling to higher secondary. An analysis of 30 traditional healers revealed that the majority are farmers (26 healers), reflecting a strong link between agriculture and healing knowledge. The study also documented other occupations, including a carpenter (1 healer), nurseryman (1 healer), rojanddar (1 healer), and sarpanch (1 healer), showing a diversity in their professional background. The healers primarily belong to the Gamit (15 healers) and Vasava (10 healers) communities, but also include individuals from the Kokni (4 healers) and Chaudhari (1 healer) communities. Knowledge is at risk of decline if younger generations do not get involved.

Table 1: Demographic Characteristics of Traditional Healers Interviewed

Variable	Demographic categories	Number of Informants interviewed	Percent age
Gender	Male	2	6.67
	Female	28	93.33
Age	26-45 years	6	20.00
	46-65 years	12	40.00
	66-85 years	12	40.00
Taluka	Songadh	20	66.67
	Uchchhal	3	10.00
	Dolvan	4	13.33
	Vyara	2	6.67
	Kukarmunda	1	3.33
Education	Illiterate	14	46.67
	Literate	16	53.33
	Primary Schooling	11	36.67
	Higher Secondary Level	5	16.67
Community	Chaudhari	1	3.33
	Gamit	15	50.00
	Kokni	4	13.33
	Vasava	10	33.33
Occupation	Farmer	26	86.67
	Carpenter	1	3.33
	Nurseryman	1	3.33
	Rojanddar	1	3.33
	Sarpanch	1	3.33

Diversity of Wild Edible Plants

The present study documented a total of 88 wild edible plant species belonging to 76 genera and 39 families used by tribal communities of Tapi District, Gujarat (Table 2.) For each species, details such as scientific name, family, habit,

local name, plant part utilized, mode of consumption, and associated folk medicinal applications were recorded. The finding confirms the extensive reliance of tribal communities on wild plant resources for both food and healthcare. Fabaceae emerged as the most dominant family (14 species), followed by Apocynaceae and Malvaceae (7 species each), Cucurbitaceae (5 species), and Araceae, Dioscoreaceae, and Rubiaceae (4 species each). Together, these families accounted for more than half of the total documented species, highlighting their ecological abundance and cultural significance (Fig. 1).

All the 88 recorded species are distributed across 76 genera, of which seven are dominant. Hibiscus is the most represented genus with five species (*Hibiscus cannabinus*, *H. hirtus*, *H. sabdariffa*, and *H. vitifolius*), followed by *Dioscorea* with four species (*Dioscorea alata*, *D. bulbifera*, *D. hispida*, and *D. pentaphylla*). Genera such as *Amorphophallus*, *Bauhinia*, *Ceropegia*, *Nervilia*, and *Piliostigma*, are represented by two species, whereas the remaining 68 genera are represented by a single species each, reflecting high taxonomic diversity with relatively few dominant genera.

Table 2: List of Wild Edible Plants used by Tribal Communities in the Tapi District, Gujarat

Sr. No	Scientific Name	Habit	Family	Local Name	Medicinal uses	Part Used	Mode of Consumption
1.	<i>Aegle marmelos</i> (L.) Correa	Tree	Rutaceae	Bili	Fever, Cough, Cold	Fruit	The fruit pulp is edible.
2.	<i>Amaranthus viridis</i> L.	Herb	Amarant haceae	Ma'atlo	-	Tender leaves	The tender leaves are used as vegetable by local tribals.
3.	<i>Amorphophallus commutatus</i> (Roxb.) Blume.	Herb	Araceae	Vayo	-	Leaves	The leaves are finely chopped, washed with fresh water, and cooked along with <i>Hibiscus sabdariffa</i> leaves.
4.	<i>Amorphophallus sylvaticus</i> (Roxb.) Kunth	Herb	Araceae	Dod'da	-	Tender leaves	The tender leaves after first rain are used as food. They are chopped finely and boiled in water before being used to prepare a dish with added spices.
5.	<i>Ampelocissus latifolia</i> (Roxb.) Planch.	Climbe r	Vitaceae	Poyri hejihi	Sprain, Sore, Testicle inflammation	Fruit	The fruits are eaten quietly because eating them while speaking can cause itching in the throat.
6.	<i>Bauhinia racemosa</i> Lam.	Tree	Fabaceae	Hinglo	Frequent urination, Menstrual regulation, Sugar, and Diabetes	Flower buds	Flower buds are used to prepare food.
7.	<i>Bauhinia variegata</i> L.	Tree	Fabaceae	Koralyabaji	-	Tender leaves	The leaves are finely chopped with a knife and cooked well with the addition of spices.
8.	<i>Borassus falbellifer</i> L.	Tree	Arecacea e	Taad	Chicken pox, Blood clot	Juice	The juice from the inflorescence is used as drink by local tribal.
9.	<i>Buchanania cochinchinensis</i> (Lour.) M.R. Almeida	Tree	Anacardi aceae	Makadchali	Joint pain, Corona, to stop menstrual cycle	Fruit	The seeds are edible.
10.	<i>Butea monosperma</i> (Lamk.) Taub	Tree	Fabaceae	Khakro	Fever, Fracture	Flower	The flowers of <i>Butea monosperma</i> and the ripe fruits of the <i>Tamarindus indica</i> are soaked in water with some sugar for a few minutes. The mixture is then stirred, and the juice is extracted using a sieve.
11.	<i>Canavalia gladiata</i> (Jacq.) DC.	Climbe r	Fabaceae	Popdo	Body heating	Fruit	The fruits are fermented in salty water and then eaten.
12.	<i>Carissa spinarum</i> L.	Shrub	Apocyna ceae	Konda	Sprain, Toothache, to overcoming alcohol Addiction	Fruit	The ripe fruits are edible and the green fruits are pickled.
13.	<i>Celastrus paniculatus</i> Willd	Liana	Celastrac eae	Kangan	Stomachache, Sore, Kidney stone, Joint pain	Flower buds	The flower buds are collected from the plant and used to prepare food along with onions and eggs, with the addition of spices.
14.	<i>Ceropegia bulbosa</i> Roxb.	Climbe r	Apocyna ceae	Burkühuli	-	Tuber	The outer thick portion of the tuber is removed and the inner white portion is eaten by locals.
15.	<i>Ceropegia vincifolia</i> Hook.	Climbe r	Apocyna ceae	Burkühuli	-	Tuber	The outer thick portion of the tuber is removed, and the inner white portion is eaten by locals.
16.	<i>Chlorophytum tuberosum</i> (Roxb.) Baker	Herb	Asparaga ceae	Dholi musli, Kuhlo	-	Tender leaves	The tender leaves can be cooked alone or cooked with dals such as Tur dal or Val dal. The tender leaves are chopped well and cooked in a small amount of oil and spices.
17.	<i>Capparis zeylanica</i> L.	Shrub	Capparac eae	Khak bilado, Vaghat	Malnutrition, Sore, Night Blindness	Fruit	The mature green fruits are collected, the outer peel is removed, and the inner white portion is chopped into spices. The pieces are boiled in water for 10 minutes and then cooked with chopped onions, oil, and spices.
18.	<i>Celosia argentea</i> L.	Herb	Amarant	Ukhrudo,	Kidney stone	Tender	The tender shoots and leaves are chopped

			haceae	Ukrado		leaves	well and cooked in oil with the addition of spices.
19.	<i>Cucurbita pepo</i> L.	Climber	Cucurbitaceae	Kovlo	-	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
20.	<i>Cynanchum annularium</i> (Roxb.) Liede & Khanum	Climber	Apocynaceae	Mothi siri	Indigestion, Acidity	Flower	The flowers are eaten for their sugary taste.
21.	<i>Cissus repanda</i> (Wight & Arn.) Vahl.	Liana	Vitaceae	Vagvelo, Nandan	Sore, Fracture	Juice	The stem of the plant is cut, and a bottle is placed beneath the cut edge to collect the water from the stem
22.	<i>Coccinia grandis</i> (L.) Voight.	Climber	Cucurbitaceae	Tondla	Fever	Tender leaves	The tender leaves are used as food.
23.	<i>Colocasia esculenta</i> (L.) Schott	Herb	Araceae	Tero, Nero, Ahalyo	Diarrhea, Vomiting	Tender leaves	The leaves of <i>Colocasia esculenta</i> are thoroughly crushed, washed well with water, and the excess water is squeezed out by hand. The prepared leaves are then cooked in an appropriate amount of oil along with spices.
							The leaves are finely chopped and boiled in water for a short duration. After boiling, the excess water is squeezed out manually. The processed leaves are then mixed with flour to prepare laddoos, which are subsequently deep-fried in oil and consumed as a traditional food item.
							The tender leaves of <i>Colocasia esculenta</i> are finely chopped and boiled in water for about 15 minutes. The boiled leaves are then mixed with the chopped tender leaves of <i>Lagerstroemia parviflora</i> and cooked thoroughly with spices.
24.	<i>Corchorus aestuans</i> L.	Herb	Malvaceae	Chucha bassi	-	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
25.	<i>Cordia dichotoma</i> G. Forst.	Tree	Boraginaceae	Helti, Gundi	Sugar, Diabetes	Fruit	The immature fruits are collected and boiled in water for some time. After boiling, the seeds are removed, and the thick fruit peel is cooked well with oil and spices.
							The immature fruits are collected and boiled in water for some time. After boiling, the seeds are removed, and the thick fruit peels are mixed with pickle masala and spices. The prepared mixture is then stored in a bottle with a certain amount of oil for fermentation, as traditionally practiced by the local tribal communities.
26.	<i>Dalbergia latifolia</i> Roxb.	Tree	Fabaceae	Sisam	Abdominal bloating (Cattle)	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
27.	<i>Dendrophthoe falcata</i> (L.f.) Ettingsh.	Hemi-Parasitic Shrub	Loranthaceae	Bendval	Joint pain, Chest pain	Fruit	The ripe fruits are eaten.
28.	<i>Desmostachya bipinnata</i> (L.) Stapf.	Herb	Poaceae	Dabdo	Asthma	Root	The roots are consumed after the plant has flowered.
29.	<i>Digera muricata</i> (L.) Mart.	Herb	Amaranthaceae		-	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
30.	<i>Dioscorea alata</i> L.	Climber	Dioscoreaceae	Ratalo kand		Tuber	The tubers are boiled in salt water and eaten.
31.	<i>Dioscorea bulbifera</i> L.	Climber	Dioscoreaceae	Kadvo kand, Jungli kand, Mano kand	Sugar, Weakness	Tuber	The tubers are boiled in water for 2 hours to remove the bitterness. The boiled tubers can be eaten raw or cooked with spices in oil.
							The tubers are chopped well and soaked in running water for 1-2 days to remove their bitterness. Then, the tubers are cooked using spices.
32.	<i>Dioscorea hispida</i> Desnst.	Climber	Dioscoreaceae	Kadvo kaand, Vas	Sore	Tuber	The tubers are chopped well and soaked in running water for 1-2 days to remove their

				kand, Huvako			bitterness. Then, the tubers are chopped well and eaten by locals. The tubers of <i>Dioscorea bulbifera</i> are sliced into thin chips and then either boiled in water for half an hour or soaked in running river water for two days to remove their bitterness. After this process, the chips are cooked with the addition of spices.
33.	<i>Dioscorea pentaphylla</i> L.	Climber	Dioscoreaceae	Lundi, Huvako	Stomachache	Tuber	The tubers are chopped well and soaked in running water for 1-2 days to remove their bitterness. Then, the tubers are cooked using spices.
34.	<i>Diospyros melanoxylon</i> Roxb.	Tree	Ebenaceae	Temro	Toothache, Acidity	Fruit	The yellow pulp of the fruit is eaten by locals.
35.	<i>Embelia basaal</i> A. DC.	Climber	Primulaceae	Vingi	Diarrhea (Cattle)	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
36.	<i>Ensete superbum</i> (Roxb.) Cheesman	Shrub	Musaceae	Chovan	To start Menstrual cycle, Kidney stone	Rhizome	The thick, rhizomatous basal portion of the stem is peeled with the help of a sickle, and the inner white stem is consumed in limited quantities by the local tribal communities during the monsoon season.
37.	<i>Flacourtia indica</i> (Burm.f.) Merr.	Tree	Salicaceae	Re'ekla	To Start Menstrual Cycle, Diarrhea, Vomiting	Fruit	The pulpy portion of the fruit is eaten.
38.	<i>Flemingia strobilifera</i> (L.) W.T. Aiton	Shrub	Fabaceae	Rani chano	Oral health (Miswak)	Seed	The dry seeds are eaten by locals.
39.	<i>Flueggea virosa</i> (Roxb. ex Willd.) Royle	Shrub	Phyllanthaceae	Chini	Loss of taste (Fever), Sore	Fruit	The juicy white fruits are eaten by the local communities.
40.	<i>Hibiscus hirtus</i> L.	Shrub	Malvaceae	Boprya ful	To start Menstrual Cycle, Tonic, Cataract	Root	The tuberous root is washed well and eaten in small amounts, either alone or with jaggery.
41.	<i>Hibiscus radiatus</i> Cav.	Shrub	Malvaceae	Ambado	-	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
42.	<i>Hibiscus vitifolius</i> L.	Shrub	Malvaceae	Rani bendi	-	Seed	The dry seeds are consumed in small amount.
43.	<i>Hibiscus sabdariffa</i> L.	Shrub	Malvaceae	Rani bendi	-	Tender leaves	The leaves of <i>Hibiscus sabdariffa</i> are finely chopped, mixed with cooked dal, and boiled for some time until the dal is fully cooked.
44.	<i>Holarrhena pubescens</i> Wall. ex G. Don	Tree	Apocynaceae	Dudkuvdi	Fever, Acidity	Fruit	The green fruits are chopped and thoroughly, then pickled in oil with pickle masala.
45.	<i>Hymenodictyon orixense</i> (Roxb.) Mabb.	Tree	Rubiaceae	Bovarsal	Decreased feed intake (Cattle), Dizziness	Bark	The bark of the tree is chopped into small pieces, soaked in salt water, and fermented for two weeks. The fermented bark is then eaten.
						Root	The roots are cut into small pieces, fermented in salt water, and then made into a pickle.
46.	<i>Ipomoea aquatica</i> Forssk.	Climber	Convolvulaceae	Nala	-	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
47.	<i>Lagerstroemia parvifolia</i> Roxb.	Tree	Lythraceae	Kalo bondaro	Snake bite	Tender leaves	The tender leaves of the <i>Colocasia esculenta</i> are chopped, boiled in water for 15 minutes to remove the irritating substances. The boiled leaves are then mixed with chopped tender leaves of the <i>lagerstroemia parviflora</i> and cooked thoroughly in oil with spices.
48.	<i>Launaea procumbens</i> (Roxb.) Ramaiyya & Rajagopal	Herb	Asteraceae	Jonglikobi	Piles	Leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
49.	<i>Leea macrophylla</i> Roxb. ex Hornem.	Shrub	Leeaceae	Mothu dini, Denipan	Sore	Fruit	The pulpy portion of the fruit is eaten.
50.	<i>Limonia acidissima</i> L.	Tree	Rutaceae	Gunjidi	-	Fruit	The pulp of the fruit is eaten by locals.
51.	<i>Luffa aegyptiaca</i> Mill.	Climber	Cucurbitaceae	Dodaka	-	Fruit	The green immature fruits are washed well and chopped well, and cooked with potatoes in oil and spices.
52.	<i>Madhuca indica</i> J.	Tree	Sapotaceae	Movdo	To Start Menstrual	Flower	The mature flowers are eaten in smaller

	Gmel		ae		Cycle		amounts for their sugary taste.
53.	<i>Marsilea crenata</i> C. Presl	Herb	Marsileaceae	Ja'ajla baji	-	Tender leaves	The leaves of <i>Marsilea crenata</i> are thoroughly washed and cooked with oil and the addition of spices.
54.	<i>Martynia annua</i> L.	Herb	Martyniaceae	Vagnokhyo, Motho morvo	Fever, Epilepsy	Seed	The dry black seeds are chewed, and the white milky juice from the seeds is consumed.
55.	<i>Meyna spinosa</i> Roxb. ex Link.	Tree	Rubiaceae	Ovlo	-	Fruit	The green mature fruits are collected and kept in salted water for fermentation
56.	<i>Miliusa tomentosa</i> (Roxb.) J. Sinclair	Tree	Annonaceae	Umbla	Paralysis, Fever	Fruit	The black, juicy pulp from the fruits is eaten.
57.	<i>Morinda pubescens</i> Sm.	Tree	Rubiaceae	Aali	Leg pain, Fever	Fruit	The black, juicy pulp from the fruits is eaten.
58.	<i>Mukia maderaspatana</i> L.	Climber	Cucurbitaceae	Mundkugra		Fruit	The green fruits are eaten.
59.	<i>Nervilia aragoana</i> Gaudich.	Herb	Orchidaceae	Godmanjya	Lactation insufficiency	Tuber	The tuber is washed well and eaten.
60.	<i>Nervilia plicata</i> (Andrews) Schltr	Herb	Orchidaceae	Dukkar kand	Lactation insufficiency	Tuber	The tuber is washed well and eaten.
61.	<i>Oougeinia oojeinensis</i> (Roxb.) Hochr.	Tree	Fabaceae	Tinho	Body pain	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
62.	<i>Opuntia elatior</i> (Willd.) Mill.	Herb	Cactaceae	Fafat	-	Fruit	The fruits are collected, the outer spiny peel is removed, and the inner pulpy portion is eaten.
63.	<i>Pergularia pallida</i> (Roxb.) Wight & Arn.	Climber	Apocynaceae	Bugdodi	Udder inflammation (Cattle)	Flower	The flowers are finely chopped and cooked with eggs, oil, and spices.
64.	<i>Portulaca oleraceae</i> L.	Herb	Portulacaceae	-	-	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
65.	<i>Pistia stratiotes</i> L.	Herb	Araceae	Jurkla	Stomachache	Leaves	The leaves are washed thoroughly and boiled in water for 15 minutes. After boiling, the water is drained from the leaves, and the leaves are then used as a vegetable with the addition of spices.
66.	<i>Piliostigma foveolatum</i> (Dalzell) Thoth.	Tree	Fabaceae	Chamelo	Fracture, Bodypain	Flowers	The flowers are used as vegetable.
67.	<i>Piliostigma malabaricum</i> (Roxb.) Benth.	Tree	Fabaceae	Khato ambado	Fracture, Bodypain	Tender leaves	The tender leaves are mixed with dal and cooked well.
68.	<i>Plumbago zeylanica</i> L.	Shrub	Plumbaginaceae	Chitrakho	Headache, Fungal Infection	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
69.	<i>Pterocarpus marsupium</i> Roxb.	Tree	Fabaceae	Biyo	Sugar, Fever, Diabeter, Cancer	Gum	The gum is crushed into a fine powder and boiled in water with a small amount of chai powder.
70.	<i>Pueraria tuberosa</i> (Roxb. ex Willd.) DC.	Liana	Fabaceae	Bur kovlo, Odkuvo, Borkolu	Chest pain, Stomachache	Tuber	The raw tuber is eaten by locals.
71.	<i>Rivea hypocrateriformis</i> (Desr.) Choisy	Climber	Convolvulaceae	Guglyo	Abdominal bloating	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
72.	<i>Smilax zeylanica</i> L.	Climber	Smilacaceae	Chay, Chayo	-	Tuber	The tubers are thoroughly washed and boiled in water for 30 minutes. The boiled tubers are then eaten with added spices.
73.	<i>Solena amplexicaulis</i> (Lam.) Gandhi	Climber	Cucurbitaceae	Jad Gumtho	Weakness, Sugar	Fruit	The ripe fruits are eaten by locals.
						Tuber	The tuber is washed well and eaten.
74.	<i>Sphaeranthus indicus</i> L.	Herb	Asteraceae	Ba'athda, Bo'othdo	-	Tender leaves	The tender leaves are washed well in water to remove the bitterness. Then, the leaves are chopped well and cooked in oil with spices.
75.	<i>Spondias pinnata</i> (L.f.) Kurz.	Tree	Anacardiaceae	Khato Ambado	Sugar	Leaves	The leaves of <i>Spondias pinnata</i> are finely chopped, mixed with cooked dal, and boiled for some time until the dal is fully cooked.
76.	<i>Syzygium lanceolatum</i> (Lam.) Wt. & Arn.	Tree	Myrtaceae	Jambudi	White discharge	Fruit	The ripe fruits are eaten.
77.	<i>Sterculia urens</i> Roxb.	Tree	Malvaceae	Kadvay, Kodayo, Kakadoli, Ovathi,	-	Seed	The white pulp of the dry seed is eaten by locals.

				Kodvi			
78.	<i>Tamarindus indica</i> L.	Tree	Fabaceae	Ambli	Sore, Acidity	Fruit	The flowers of <i>Butea monosperma</i> and the ripe fruits of the <i>Tamarindus indica</i> are soaked in water with some sugar for a few minutes. The mixture is then stirred, and the juice is extracted using a sieve.
79.	<i>Tamilnadia uliginosa</i> (Retz.) Tirveng. & Sastre	Tree	Rubiaceae	Gogdo	Sugar, Cough, White discharge	Flower	The flowers of <i>Tamilnadia uliginosa</i> are collected, finely chopped, and cooked with spices in a small amount of oil.
						Fruit	The mature green fruits are collected, the outer peel is removed, and the inner white portion is chopped into spices. The pieces are boiled in water for 10 minutes and then cooked with chopped onions, oil, and spices.
80.	<i>Trevis nudiflora</i> L.	Tree	Euphorbiaceae	Mahado, Nihano, Mahado	Diarrhea, Vomiting	Fruit	The seeds from the dry fruits are eaten.
81.	<i>Vigna vexillata</i> (L.) A. Rich.	Climber	Fabaceae	Rani chovla	-	Tuber	The swollen root is thoroughly washed, the thick outer skin is removed, and the inner white root is consumed.
82.	<i>Wrightia arborea</i> (Densst.) Mab.	Tree	Apocynaceae	Burali kudi, Bukhchi kuvdi	Diarrhea, Stomachache	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.
83.	<i>Ziziphus rugosa</i> Lam.	Liana	Rhamnaceae	Torna	Blood purification, Jaundice	Fruit	The pulp of the ripe fruits is eaten.
84.	<i>Phyllanthus reticulatus</i> Poir.	Shrub	Phyllanthaceae	Kali herhani	Diarrhea, Vomiting	Fruit	The ripe fruits are eaten by locals.
85.	<i>Pithecellobium dulce</i> (Roxb.) Benth.	Tree	Fabaceae	Velati ambli, Horgi ambli	Cough, Diarrhea	Fruit	The white fleshy portion of the fruit is eaten by locals.
86.	<i>Eleusine coracana</i> (L.) Gaertn.	Herb	Poaceae	Nagli, Ragi	-	Seed	The flour is mixed with water, oil, and salt, and kneaded by hand into a soft dough. From this dough, rounded flatbreads called rotla are prepared and then cooked on flat pan.
87.	<i>Panicum miliaceum</i> L.	Herb	Poaceae		-	Seed	The grains are washed thoroughly and boiled in water until cooked.
88.	<i>Hibiscus cannabinus</i> L.	Shrub	Malvaceae	Ambado	-	Tender leaves	The tender shoots and leaves are chopped well and cooked in oil with the addition of spices.

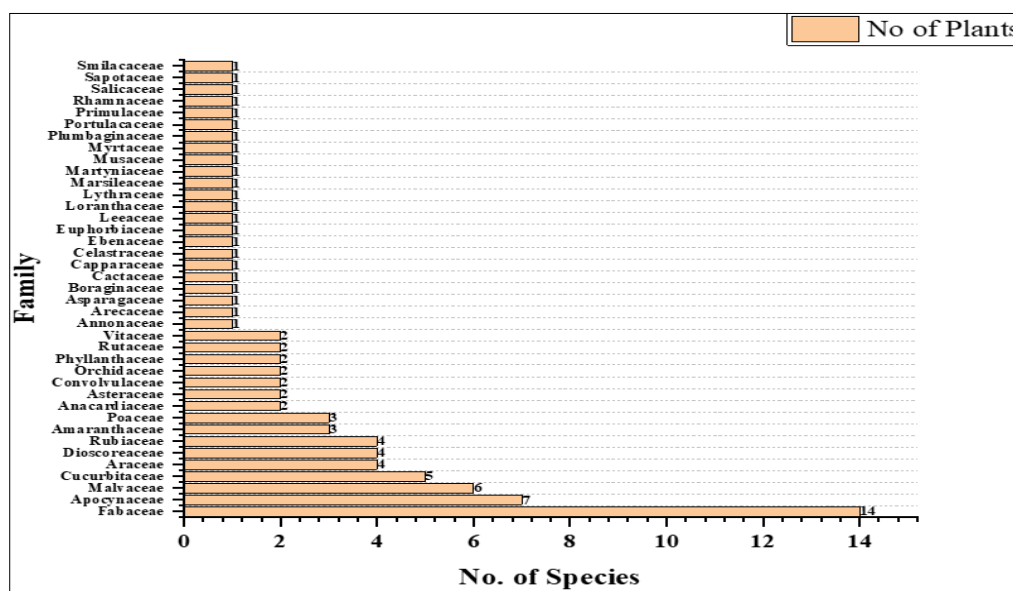


Fig 1: Family-wise distribution of Wild Edible plants

The recorded wild edible plant species are categorised into six distinct growth habits (Fig. 2). Among them, trees constituted the largest group with 30 species, followed by climbers (20 species) and herbs (20 species). Shrubs contributed 13 species, while lianas and hemi-parasitic

shrubs are represented, with four and one species, respectively. This distribution indicates the predominance of arboreal and climbing species in the ethnobotanical practices of the tribal communities in Tapi District, reflecting their strong reliance on forest-based resources.

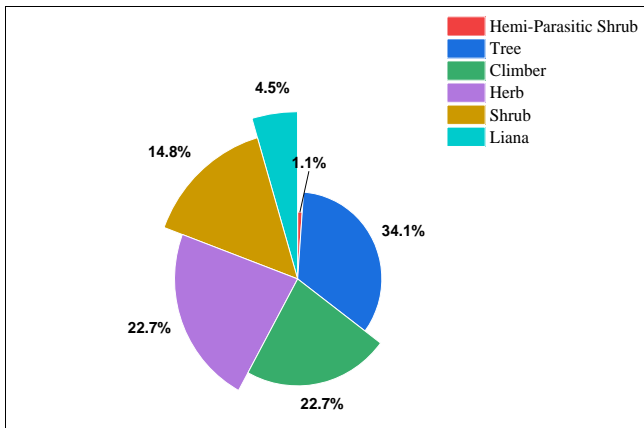


Fig 2: Habit-wise Classification of Edible Plants

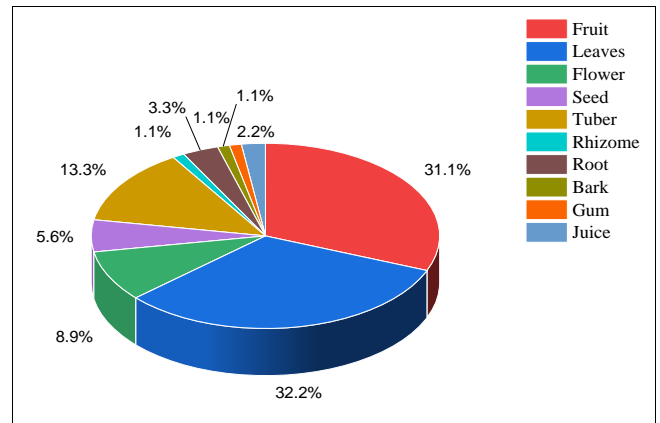


Fig 3: Plant Parts Used by Local Communities for Food and Medicinal Purposes

Folk Names of Wild Edible Plants

Tribal communities of Tapi District display significant variation in local dialects, which is also reflected in the nomenclature of wild edible plants. Interviews with traditional healers revealed that the same plant species are often known by multiple folk names across different tribal groups. For instance, *Sterculia urens* is referred to as ‘Kahadol’ and ‘Kadavy’ by the Gamit and Kokni communities, while the Vasava community uses ‘Ovathi’ and ‘Kodvi’. Similarly, *Capparis zeylanica* is known as ‘Khak Bilado’ by Gamit, ‘Vaghat’ by the Kokni and ‘Bilado’ by the Vasava community.

Such ethnolinguistic diversity underscores the rich cultural heritage and the close relationship these communities maintain with their natural environment. In addition to species-specific names, broader folk classifications are also observed. For instance, all species of the genus *Ceropegia* are collectively referred to as ‘Burkuhuli’, while all *Dioscorea* species are commonly grouped under the name ‘Kand’. This system of folk taxonomy aligns with indigenous knowledge systems reported in other regions of India (Sachula et. Al., 2020) [32], reflecting both cultural distinctiveness and ecological familiarity.

Plant Parts of Wild Edible Plants

A total of 88 wild edible plant species were documented from the study area (Fig. 3). This figure includes an increase arising from three species - *Hymenodictyon orixense*, *Solena amplexicaulis*, and *Tamilnadia uliginosa* – for which multiple plant parts are used. Among all recorded species, leaves and tender leaves (29 species) and fruit (28 species) are the most frequently consumed plant parts, reflecting their availability and ease of preparation. These were followed by tubers (12 species), which also represent an important seasonal staple. Other plant parts, including flowers, seeds, roots, rhizomes, bark, gum, and juice, were used less frequently, typically for specific culinary, ritual, or medicinal purposes.

Food Categories of Wild Edible Plants

Analysis of the recorded species revealed a clear dominance of vegetables, with 41 plant uses (45.05 %) documented. This was followed by raw edible parts with 25 uses (27.47 %), and fruits with 15 uses (16.48 %), highlighting their importance as key food sources for the tribal communities. Other categories such as condiments (4 uses; 4.40%) grains (3 uses; 3.30%), and beverages (3 uses; 3.30%) were also reported indicating the wide spectrum of wild plants integrated into local diet (Table 3).

Table 3: Food categories of Wild Edible Plants recorded in the Tapi District

Variable	Number	Percentage
Vegetable	41	45.05
Raw edible parts	25	27.47
Fruit	15	16.4
Condiment	4	4.40
Grain	3	3.30
Beverage	3	3.30

Wild Edible Fruits

During the study, 28 species of wild edible fruits are documented from the tribal areas of Tapi District. Notable examples include *Aegle marmelos*, *Ampelocissus latifolia*, *Buchanania cochinchinensis*, *Canavalia gladiata*, *Carissa spinarum*, *Capparis zeylanica*, *Cordia dichotoma*, *Dendrophthoe falcata*, *Diospyros melanoxylon*, *Flacourtia indica*, *Flueggea virosa*, *Holarrhena pubescens*, *Leea macrophylla*, *Limonia acidissima*, *Luffa aegyptiaca*, *Meyna spinosa*, *Miliusa tomentosa*, *Morinda pubescens*, *Mukia maderaspatana*, *Opuntia elatior*, *Solena amplexicaulis*, *Syzygium lanceolatum*, *Tamarindus indica*, *Tamilnadia uliginosa*, *Treva nudiflora*, *Ziziphus rugosa*, *Phyllanthus reticulatus*, *Pithecellobium dulce*. These species constitute an important source of seasonal and supplementary nutrition for the tribal communities, providing fruits in vitamins, minerals, and bioactive compounds. Their collection and consumption are deeply integrated into local dietary traditional and reflect the community’s intimate knowledge of the forest ecosystem.

Wild Edible Flowers

A total of 8 species of edible flowers were recorded from the study area, including *Bauhinia racemosa*, *Butea monosperma*, *Celastrus paniculatus*, *Cynanchum annularium*, *Madhuca indica*, *Pergularia pallida*, *Piliostigma foveolatum*, and *Tamilnadia uliginosa*. These species represent a mixture of Trees as well as Climbers and Lianas, showing the diverse sources of edible floral resources. The flowers are consumed by tribal and rural communities either fresh, cooked as vegetables, or prepared in traditional recipes. The documentation of these edible flowers highlights their nutritional and cultural significance and the importance of conserving the species and the associated traditional knowledge.

Wild Edible Greens

A total of 29 species of leafy greens were recorded during the study. These include *Amaranthus viridis*, *Amorphophallus commutatus*, *Amorphophallus sylvaticus*,

Bauhinia variegata, *Chlorophytum tuberosum*, *Celosia argentea*, *Cucurbita pepo*, *Coccinia grandis*, *Colocasia esculenta*, *Dalbergia latifolia*, *Digera muricata*, *Embelia basaal*, *Hibiscus radiatus*, *Hibiscus sabdariffa*, *Ipomoea aquatica*, *Lagerstroemia parvifolia*, *Launaea procumbens*, *Marsilea crenata*, *Oougeinia oojeinensis*, *Portulaca oleraceae*, *Pistia stratiotes*, *Piliostigma malabaricum*, *Plumbago zeylanica*, *Rivea hypocrateriformis*, *Sphaeranthus indicus*, *Spondias pinnata*, *Wrightia arborea*, *Hibiscus cannabinus*, these wild greens are consumed in the form of cooked vegetables by following traditional methods. The wide diversity of greens reflects the strong dependence of tribal communities on locally available leafy resources for nutrition and healthcare (Priyadarshini *et al.*, 2024) [26].

Wild Edible Underground Food Sources

During the study, 16 species were documented as important underground food sources. These include *Ceropegia bulbosa*, *Ceropegia vincifolia*, *Desmostachya bipinnata*, *Dioscorea alata*, *Dioscorea bulbifera*, *Dioscorea hispida*, *Dioscorea pentaphylla*, *Ensete superbum*, *Hibiscus hirtus*, *Hymenodictyon orixense*, *Nervilia aragoana*, *Nervilia plicata*, *Pueraria tuberosa*, *Smilax zeylanica*, *Solena amplexicaulis*, and *Vigna vexillata*. These underground food sources, mainly tubers and roots, play a crucial role in ensuring food availability during scarcity periods. They are rich in starch and energy, making important survival food for tribal communities of the Tapi district. The dominance of genera such as *Dioscorea* reflects their cultural preference and traditional knowledge.

Seasonality and Collection of Wild Edible Plants

A variety of wild edible plants are collected during the monsoon season. These include species such as *Amorphophallus commutatus*, *Amorphophallus sylvaticus*, *Amaranthus viridis*, *Aegle marmelos*, *Bauhinia variegata*, *Canavalia gladiata*, *Ceropegia bulbosa*, *Ceropegia vincifolia*, *Chlorophytum tuberosum*, *Capparis zeylanica*, *Celosia argentea*, *Cucurbita pepo*, *Cynanchum annularium*, *Cissus repanda*, *Coccinia grandis*, *Colocasia esculenta*, *Corchorus aestuans*, *Desmostachya bipinnata*, *Digera muricata*, *Ensete superbum*, *Flueggea virosa*, *Hibiscus hirtus*, *Hibiscus radiatus*, *Hibiscus vitifolius*, *Hibiscus sabdariffa*, *Holarrhena pubescens*, *Hymenodictyon orixense*, *Launaea procumbens*, *Leea macrophylla*, *Luffa aegyptiaca*, *Marsilea crenata*, *Morinda pubescens*, *Mukia maderaspatana*, *Nervilia aragoana*, *Nervilia plicata*, *Pergularia pallida*, *Piliostigma malabaricum*, *Plumbago zeylanica*, *Pueraria tuberosa*, *Rivea hypocrateriformis*,

Smilax zeylanica, *Solena amplexicaulis*, *Tamilnadia uliginosa*, *Vigna vexillata*, *Wrightia arborea*, *Hibiscus cannabinus*. The species which are collected during the Winters are *Canavalia gladiata*, *Cucurbita pepo*, *Cissus repanda*, *Coccinia grandis*, *Corchorus aestuans*, *Desmostachya bipinnata*, *Digera muricata*, *Dioscorea alata*, *Dioscorea bulbifera*, *Dioscorea hispida*, *Dioscorea pentaphylla*, *Ensete superbum*, *Flemingia strobilifera*, *Hibiscus hirtus*, *Hibiscus radiatus*, *Hibiscus vitifolius*, *Hibiscus sabdariffa*, *Hymenodictyon orixense*, *Ipomoea aquatica*, *Leea macrophylla*, *Luffa aegyptiaca*, *Marsilea crenata*, *Martynia annua*, *Mukia maderaspatana*, *Portulaca oleraceae*, *Pistia stratiotes*, *Pterocarpus marsupium*, *Pueraria tuberosa*, *Smilax zeylanica*, *Solena amplexicaulis*, *Sphaeranthus indicus*, *Tamarindus indica*, *Vigna vexillata*, *Phyllanthus reticulatus*, *Eleusine coracana*, *Panicum miliaceum*. Plants collected during Summer & Spring *Aegle marmelos*, *Amaranthus viridis*, *Bauhinia racemosa*, *Bauhinia variegata*, *Buchanania cochinchinensis*, *Butea monosperma*, *Carissa spinarum*, *Celastrus paniculatus*, *Capparis zeylanica*, *Cynanchum annularium*, *Cissus repanda*, *Cordia dichotoma*, *Dalbergia latifolia*, *Dendrophthoe falcata*, *Desmostachya bipinnata*, *Dioscorea alata*, *Dioscorea bulbifera*, *Dioscorea hispida*, *Dioscorea pentaphylla*, *Diospyros melanoxylon*, *Flacourtia indica*, *Hibiscus hirtus*, *Hymenodictyon orixense*, *Ipomoea aquatica*, *Lagerstroemia parvifolia*, *Limonia acidissima*, *Luffa aegyptiaca*, *Madhuca indica*, *Meyna spinosa*, *Miliusa tomentosa*, *Morinda pubescens*, *Nervilia aragoana*, *Nervilia plicata*, *Oougeinia oojeinensis*, *Opuntia elatior*, *Piliostigma foveolatum*, *Piliostigma malabaricum*, *Pterocarpus marsupium*, *Pueraria tuberosa*, *Solena amplexicaulis*, *Sphaeranthus indicus*, *Spondias pinnata*, *Sterculia urens*, *Tamarindus indica*, *Tamilnadia uliginosa*, *Treva nudiflora*, *Ziziphus rugosa*. This seasonal collection highlights the community's deep understanding of the local flora's life cycle and their dependency on nature's rhythms for food (Priyadarshini *et al.*, 2024) [26].

Dominating Diseases Treated with Recorded Wild Edible Plants

A total of 53 ailments were documented as being treated with the recorded wild edible plants, reflecting the extensive ethnobotanical knowledge maintained by the tribal communities of Tapi District. Among these, fever is the most frequently treated condition, with nine species reported for its management, followed by sores (eight species). Sugar-related disorders and diarrhea are each treated with seven species. While menstrual regulation and stomachache are managed with five species each.

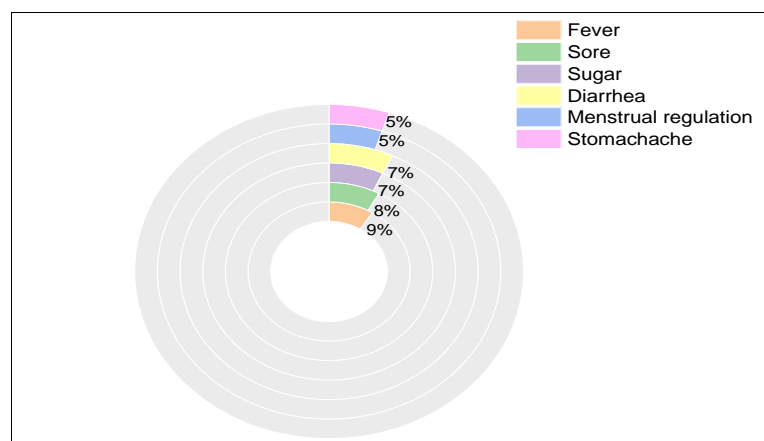


Fig 4: Chart showing Ethno-Medicinal uses of the Edible plants



Fig A: Tender leaves of *Bauhinia variegata*



Fig B: Prepared dish



Fig C: *Bauhinia variegata*'s flower



Fig D: *Dioscorea bulbifera* tubers



Fig E: Sliced tubers



Fig F: *Dioscorea bulbifera*



Fig G: *Amorphophallus commutatus* tender leaves



Fig H: *Chlorophytum tuberosum* tender



Fig I: *Pergularia pallida* flowers



Fig J: *Cynanchum annularium* flowers

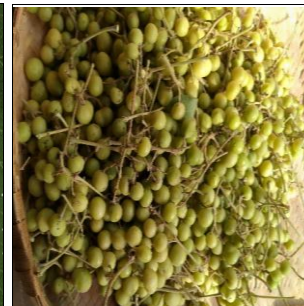


Fig K: *Garuga pinnata* fruits



Fig L: *Ceropegia bulbosa* tuber

Conclusion

The present study presents a comprehensive detail of the wild edible plants used by the tribal communities of Tapi District. A total of 88 wild edible plants belonging to 76 genera and 39 families are documented, reflecting the rich biodiversity of the region and the communities' extensive traditional knowledge. The findings show that wild edible plants continue to play a vital role not only as sources of food but also as traditional remedies for a wide range of ailments, with 53 different health conditions treated using these species. Demographic analysis of informants revealed that traditional knowledge is primarily held by elderly male farmers, indicating a strong link between agriculture and ethnobotanical practices. However, this signals a risk of knowledge erosion as younger generations show less involvement in traditional practices. The study highlights the wide diversity of plant parts used and the prominence of vegetables, raw edible parts, and fruits as key food categories. Seasonal patterns of plant collection and the use of multiple folk names underscore the communities' deep ecological understanding and cultural diversity. By documenting species across different food categories, plant parts, and seasons of availability, this research fills a major knowledge gap in Gujarat's ethnobotanical literature, which has historically focused for future nutritional studies, conservation strategies, and sustainable use plans, as well as for promoting intergenerational transfer of knowledge to safeguard this rich biocultural heritage.

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