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Documentation of folk knowledge on wild edible plants of Amadagur, Sri Sathyasai District, Andhra Pradesh

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In this current study we have recorded the comestible wild plants (CWPs) commonly used by the residents of Amadagur, Sri Sathyasai District, Andhra Pradesh, India. A thorough methodical ethnobotanical survey was carried out across several villages to retrieve information on CWPs. The data collected, gathered through interviews, were reviewed by using various indices to calculate the cultural importance of CWPs and the level of consensus among respondents conserning their knowledge of CWPs. In total, there are 65 species belonging to 30 families were found consumable and served as wild food materials. Among the 65 species, Amaranthaceae and Apocynaceae families demonstrated highest species richness. In terms of wild edible parts, maximum richness was recorded for leafy vegetables, followed by fruits. The highest use reports recorded for *Allmania nodiflora* (L.) R.Br. ex Wight (65) followed by *Celosia argentea* L. (57), *Amaranthus polygonoides* L. (56). The highest Informant Consensus Factor was shown for flowers and shoot tips, followed by fruits, leafy vegetables, seeds, succulent stems, and underground parts. *Allmania nodiflora* (L.) R.Br. ex Wight has the highest Use Value (UV) of 0.61, followed by *Celosia argentea* L. (0.54), and *Amaranthus polygonoides* L. (0.53). Neighbor-Joining clustering analysis revealed 16 species that were not reported in previous study as edible plants. The present study provides an intensive traditional knowledge on CWPs of Amadagur, Sri Satyasai Distrct, Andhra Pradesh. This study provides a significant contribution for preservation and promotion of traditional knowledge on CWPs in the region.

Keywords: Amadagur, Comestible wild plants, Ethnobotany, Informant Consensus Factor, Jaccard index, Use value

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The world has over three lakh plant species[1], but only about 27,000 have been used for food[2]. 150 of them have been cultivated on a large scale[3]. Comestible wild plants (CWPs) are a vital food source globally, especially in regions with food scarcity. They provide essential nutrients, supplement diets during seasonal shortages, and have high significance in routine lifestyle, particularly for indigenous communities. These species usually have great number of vitamins, minerals, along with dietary fibre that might be lacking in other food resources. In Addition to this, they play a very important role in local economies and traditional practices around the world[4].

Because of the diverse climatic conditions and topographical features, there are around 44,000 species of plants in India, which made it to be the tenth richest country in the world based on the flora[5]. Around 1.500 species are used as CWPs having medicinal properties along with nutritional value[6,7]. Domesticating CWPs may provide marked potential for producing new crops rather than genetically modified crops[3]. Genetically modified crops may usually improve the crop yield and resistance but the food and nutrition security is ensured by domestication of comestible wild species. Most wild species contain properties like water deficit tolerance, pest resistance, and heavy nutritional value, which can be directed through specialized domestication. Besides conservation of biodiversity and development of sustainable agricultural practices related to the local cultural practices is supported by incorporating traditional ecological knowledge in domestication of CWPs. There are a lot of benefits that can be obtained from CWPs like eradication of poverty, food security, income generation, and reducing malnutrition. Due to diverse climatic conditions, the presence of CWPs and related traditional information is rapidly diminishing. Previous studies have shown that

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environmental degradation, habitat loss, and modernization have led to the decline of comestible wild plant diversity and the erosion of indigenous knowledge associated with their use[8-10]. The present study supports these observations through local perceptions collected during fieldwork.

The inhabitants possess ancestral knowledge of consuming various wild plants and their parts, along with tubers, shoots, leaves, fruits, etc. As a result of their intimate relationship with nature and generations of passed-down traditional practices, ethnic communities possess an extensive understanding of CWPs, including the specific timing for harvest[11].

There is a notable increase in number and diversity of information on comestible plants in India due to rigorous ethnobotanical research that is being carried out over last few decades. In Andhra Pradesh, while many studies focus on CWPs, there are limited sources of traditional ethnic knowledge in Sri Sathyasai District, where the present research was conducted. Therefore, this investigation aims to (i) catalogue extensive traditional knowledge possessed by villagers of the Sri Sathyasai District, (ii) assess the traditional importance of CWPs, and (iii) gauge the level of agreement among the locals regarding their traditional knowledge of CWPs.

Materials and Methods

Area of study

This study was conducted in Sri Sathyasai District (13°-40’ and 14°-6’ N and, 76°-88' and 78°-30' E) Andhra Pradesh, situated in the South West corner of Andhra Pradesh. It is bounded by YSR Kadapa and Annamayya District to the east, Anantapuramu District to the north, and Karnataka state to the West and South West. The district with erratic rainfall is considered one of the drought-prone districts in Andhra Pradesh. The predominant soil type in the district is red soil with arid and semi-arid habitats.

The study was confined to Amadagur, Sri Sathyasai District, Andhra Pradesh (Fig. 1) spread over 3605 hectares and characterized by terrain with rocky boulders comprising geographical features like agricultural plains and hill terrains. The total forest coverage in this area is 450 hectares with scrub forest[12]. The total Amadagur mandal is chosen for this study as it forms the primary source of CWPs.

Ethnobotanical data collection

A systematic and extensive field visits was conducted in various localities of Amadagur mandal from June 2021 to August 2024. In order to achieve the aforementioned aim of the present work, the information on CWPs was collected through direct field observation, semi structured interviews and questionnaires. The ages of informants ranged from 40 to 80 years. The selection of these groups was based on their extensive ethnobotanical knowledge, derived from cumulative life experience, cultural practices, and intergenerational transmission of traditional ecological knowledge related to CWPs. This rich tapestry of experience and cultural importance makes them invaluable resources for

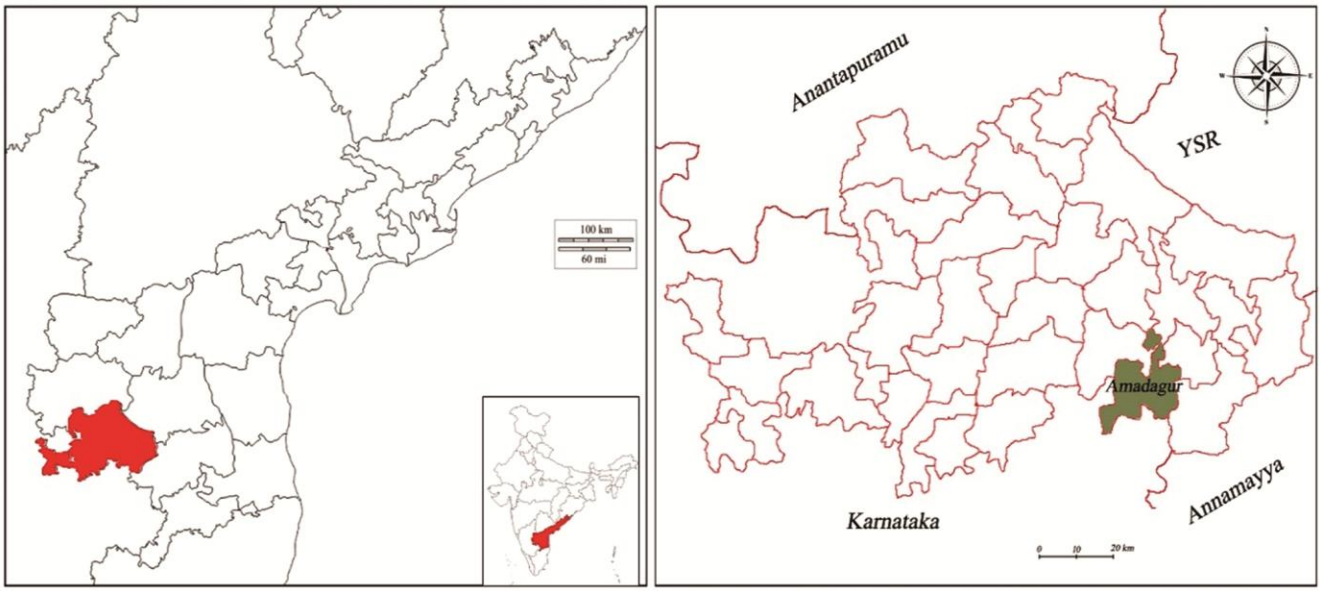

Fig. 1 — Study area of Amadagur Mandal, Sri Satyasai District, Andhra Pradesh, India

knowledge about CWPs. A total of 101 local informants (89 females and 12 males) were interviewed. Field visits with interviewers are conducted in nearby agricultural fields and swamp habitats where edible plants are available at the time of the survey. Moreover, the questionnaire focused on the local name(s) of the plant, part used, and mode of use. During the field study, the specimen and pictures of plants and its parts were taken for documentation.

Identification of CWPs

Each plant (with usage part) is collected with photographs and identified using the local floras and online databases such as Flora of Peninsular India-Herbarium JCB (https://indiaflora-ces.iisc.ac.in/FloraPeninsular/), Plants of the World Online (https://powo.science.kew.org/), and Flora of Andhra Pradesh[13]. Voucher specimens were deposited in the National Institute of Indian Medical Heritage, Hyderabad, for future reference.

Quantitative indices and data analysis

Various ethnobotanical indices were used to analyse data on CWPs from informants, and all data interpretations were calculated using MS-Excel.

***Informant Consensus Factor* (*ICF*)**

The ICF is widely used to assess the agreement among informants regarding the use of plants for specific ailment categories. This approach is useful in identifying the plant species that are most culturally and traditionally significant within a community. The ICF was calculated as[14].

$$\text{Informant Consensus Factor (ICF)} = \frac{(N_{ur} - N_t)}{(N_{ur} - 1)}$$

Where N_{ur} represents the number of use reports for a particular use category and N_t indicates the number of plant taxa attributed to a specific use category as reported by all informants. The ICF ranges from 0 to 1. An ICF close to 1 indicates high consensus among informants, suggesting strong traditional knowledge and reliability in plant use for a given ailment, while an ICF close to 0 indicates low consensus, implying random plant selection or variation in knowledge among informants.

***Use Value* (*UV*)**

The UV is used to quantify the relative importance of a plant species based on the frequency with which it is mentioned by informants. It helps assess the significance of a plant in traditional knowledge systems. The RFC is defined as[15].

$$\text{Use Value (UV)} = \frac{\sum \text{U}}{\text{N}}$$

Where U is the total number of use reports for a particular plant species. N is the total number of informants who mentioned the plant. The more is the UV, the high is the frequency of citation for diverse usage. A species which is not mentioned by informant will have UV 0.

***Jaccard Index* (*JI*)**

In order to measure similarity between various communities by studying the types of plants they utilize, to provide comparison of ethnobotanical knowledge among numerous cultures, regions, or groups the Jaccard Index (JI) is used. The JI value was determined using the formula below, that is depicted earlier by Jaccard[16] and González-Tejero *et al*.[17].

$$\text{Jaccard Index (JI)} = \frac{C}{A + B - C}$$

Where A is the number of species used in Community 1. The number of species used in Community 2 is indicated by B and the number of species common to both communities is indicated by C.

A chord diagram was used to analyse the consumption habits of various plant parts among the wild comestible species that are documented in the study area. OriginPro software was used for performing analysis. In order to compare the previously reported data among different studies, a neighbor-joining cluster was performed by using PAST software based on the Jaccard similarity index. This integrative analytical method has given a deeper understanding of dataset, unveiling species that are documented for the first time and emphasizing novelty of the present investigation.

Result and Discussion

Demographic information

CWPs remain a vital source of nourishment and livelihood for rural communities worldwide. In this study, agriculture serves as the primary livelihood for the local population. However, limited land holdings compel many men to seek employment as labourers, shepherds, or in other related occupations. Women predominantly held knowledge of wild vegetables and their recipes. The unequal distribution of knowledge about wild vegetables and their recipes is because women gather CWPs. They collect CWPs during agricultural tasks and while traveling to and from

fields and forests for livestock-rearing, making them the primary holders of this traditional knowledge.

Based on age, gender, and profession, informants were categorised into distinct groups. Of those, 44 were between the ages of 40-50 (41.5%), 34 were between the ages of 51-60 (32.07%), 17 were between the ages of 61-70 (16.03%), and 11 were between the ages of 71-80 (10.37%). In terms of gender, 26 (24.52%) of the informants were male, and 80 (75.47%) were female. Housewives (75.47%) were the most common informants, followed by farmers (13.2%) and shepherds (11.3%) (Table 1).

Diversity of comestible wild plants

A total of 65 plants belong to 30 families and 50 genera serve as CWPs in the study area (Table 2). Among the recorded taxa, Amaranthaceae and Apocynaceae exhibited highest species richness, each represented by 11 species. The genus *Amaranthus* had highest species count (5), followed by *Solanum* (4 species), *Portulaca* and *Caralluma* (3 species each), while *Ceropegia*, *Vigna*, and *Ziziphus* comprised 2 taxa each. The rest of the genera indicate single species. Earlier studies have reported the diversity of comestible wild species in Andhra Pradesh. A total of 419 wild species were recorded from the state[18], while another study documented 156 species from the erstwhile united Andhra Pradesh[19]. In the northern districts of Visakhapatnam, Vizianagaram, and Srikakulam, 80 species were reported[20]. Likewise, 67 species were identified in Chittoor District[21], and 55 edible plants were recorded from Visakhapatnam District[22]. Furthermore, 75 species of CWPs were documented from Kotia Hills of Vizianagaram District[23,24].

Table 1 — Informants demographic profile from selected area

Factors	Categories	No. of Informants	Percentage
Age	40-50	44	41.5
	51-60	34	32.07
	61-70	17	16.03
	71-80	11	10.37
Gender	Male	26	24.52
	Female	80	75.47
Profession	Farmers	14	13.2
	Housewives	80	75.47
	Shepherds	12	11.3

Table 2 — Plant usage with total number of use reports and UV of CWPs from Amadagur, Sri Sathyasai District, Andhra Pradesh

S. No.	Botanical Name and Family	Sanskrit Name	Local Name	Part(s) used	Mode of Use	UR	UV
1	*Allmania nodiflora* (L.) R.Br. ex Wight (Amaranthaceae)	NA	Yerrabadhaku	Leaves	Leaves are used as vegetable	65	0.61
2	*Alternanthera sessilis* (L.) DC. (Amaranthaceae)	मत्स्याक्षी	Ponnaganti	Leaves	Leaves are used as vegetable	31	0.29
3	*Amaranthus blitum* L. (Amaranthaceae)	मारिष	Totakura	Leaves	Leaves are used as vegetable	7	0.07
4	*Amaranthus polygonoides* L. (Amaranthaceae)	तण्डुलीय	Kodijuttaku	Leaves	Leaves are used as vegetable	56	0.53
5	*Amaranthus spinosus* L. (Amaranthaceae)	तण्डुलीय	Mulla totakura	Leaves	Leaves are used as vegetable	4	0.04
6	*Amaranthus tricolor* L. (Amaranthaceae)	रक्तमारिष	Dantaku	Leaves	Leaves are used as vegetable	24	0.23
7	*Amaranthus viridis* L. (Amaranthaceae)	तण्डुलीय	Sirraku	Leaves	Leaves are used as vegetable	24	0.23
8	*Annona squamosa* L. (Annonaceae)	सीताफल	Sitaphalamu	Ripe and Unripe fruits	Ripen fruits are eaten raw and Unripe fruits are made edible by indirect heating under buried fire	48	0.45
9	*Bergera koenigii* L. (Rutaceae)	कैडर्य	Karivepa	Leaves	Leaf used in curries and the leaf used as one of the ingredients in bonda	3	0.03
10	*Boerhavia diffusa* L. (Nyctaginaceae)	पुनर्नवा	Atika mamidi	Leaves	Leaves are used as vegetable	2	0.13
11	*Boucerosia indica* (Wight & Arn.) Plowes (Apocynaceae)	NA	Elukachevulu	Succulent stem	Young plant parts are eaten raw to control hunger.	16	0.15
12	*Boucerosia umbellata* (Haw.) Wight & Arn. (Apocynaceae)	NA	Banda Kundeti Kommulu, Bandikundurukommulu	Succulent stem	Young plant parts are used for making chutney	11	0.1

… *Contd.*

Table 2 — Plant usage with total number of use reports and UV of CWPs from Amadagur, Sri Sathyasai District, Andhra Pradesh (Contd.)

S. No.	Botanical Name and Family	Sanskrit Name	Local Name	Part(s) used	Mode of Use	UR	UV
13	*Cadaba fruticosa* (L.) Druce (Capparaceae)	NA	Uttarasi, Gabbukampa	Leaves	Leaves used as medicine for piles	1	0.01
14	*Canthium coromandelicum* (Burm.f.) Alston (Rubiaceae)	NA	Balija, Balusu	Fruits	Ripen fruits are eaten raw	33	0.31
15	*Caralluma attenuata* Wight (Apocynaceae)	NA	Sanna Kundeti Kommulu, Kundurukommulu	Succulent stem	Young plant parts are edible	20	0.19
16	*Caralluma fimbriata* Wall. (Apocynaceae)	NA	Kundeti Kommulu	Succulent stem	Young plant parts are edible	12	0.11
17	*Caralluma stalagmifera* C.E.C. Fisch. (Apocynaceae)	NA	Nalla Kundetikommulu	Succulent stem	Young plant parts are edible	7	0.07
18	*Carissa spinarum* L. (Apocynaceae)	करमर्दिका	Kalivi	Fruits	Ripen Fruits are edible	11	0.1
19	*Celosia argentea* L. (Amaranthaceae)	वितुन्ना	Gurugu	Leaves	Leaves are used as vegetable	57	0.54
20	*Ceropegia bulbosa* Roxb. (Apocynaceae)	NA	Nemathigadda, Gundu nemati, Kola menati	Tubers, Leaves	Roasted tubers and leaves are edible	35	0.33
21	*Ceropegia juncea* Roxb. (Apocynaceae)	NA	Goddipullangiteega	Shoots	Young shoots are edible	6	0.06
22	*Chenopodium album* L. (Amaranthaceae)	वास्तुक	Chankranthi Kura	Leaves	Leaves are used as vegetable	10	0.09
23	*Cissus quadrangularis* L. (Vitaceae)	अस्थिसंहार	Nalleru	Young shoots	Young shoots used as vegetable	18	0.17
24	*Cleome gynandra* L. (Cleomaceae)	तिलपर्णी	Vaminta	Leaves	Leaves used as medicine for body pains	1	0.01
25	*Coccinia grandis* (L.) Voigt (Cucurbitaceae)	बिम्बी	Donda	Fruits	Ripen fruits are eaten raw	7	0.07
26	*Commelina benghalensis* L. (Commelinaceae)	कञ्चट	Vennuveduruaaku	Leaves	Leaves used as vegetable	18	0.17
27	*Cordia dichotoma* G. Forst. (Boraginaceae)	श्लेष्मातक	Bankeera	Fruits	Ripen fruits are eaten raw	7	0.07
28	*Cucumis melo* L. (*Cucumis melo* var. *agrestis* Naudin) (Cucurbitaceae)	एर्वारु	Budama	Fruits	Ripen fruits are eaten raw	17	0.16
29	*Cucurbita maxima* Duchesne (Cucurbitaceae)	कूष्माण्ड	Gummadi	Tender shoots and young leaves	Tender shoots with young leaves used as vegetable	10	0.09
30	*Decalepis hamiltonii* Wight & Arn. (Apocynaceae)	सारिवा	Sugandhi, Raallagaddalu	Roots	Roots used for the preparation of pickles	1	0.01
31	*Digera muricata* (L.) Mart. (Amaranthaceae)	अरण्यवास्तुक	Chenchulaku	Leaves	Leaves are used as vegetable	40	0.38
32	*Erythroxylum monogynum* Roxb. (Erythroxylaceae)	NA	GaadiriChettu	Young leaves	Young leaves are used as vegetable	10	0.09
33	*Ficus racemosa* L. (Moraceae)	उदुम्बर	Medi	Fruits	Ripen fruits are eaten raw	15	0.14
34	*Flacourtia indica* (Burm.f.) Merr. (Salicaceae)	विकङ्कत	Puli Velaga Pallu	Fruits	Ripen fruits are eaten raw	43	0.41
35	*Gardenia latifolia* Aiton (Rubiaceae)	पर्पटकी	Adavi Bikki	Fruits	Mature fruit pulp eaten	10	0.09
36	*Hemidesmus indicus* (L.) R.Br. (Apocynaceae)	श्वेतसारिवा	Nannari	Roots	Roots are used for making Nannari for blood purifying	3	0.03
37	*Holoptelea integrifolia* (Roxb.) Planch. (Ulmaceae)	चिरबिल्व	Tapasi chettu, Nemali nara, Tapasi	Seeds	Seeds are eaten	1	0.01
38	*Leptadenia reticulata* (Retz.) Wight &Arn. (Apocynaceae)	जीवन्ती	Mukku paalu Teega	Flowers	Flowers are used as vegetable	9	0.08
39	*Muntingia calabura* L. (Muntingiaceae)	NA	Chekkara kaya Chettu	Fruit	Ripen fruits are eaten raw	7	0.07

… *Contd.*

Table 2 — Plant usage with total number of use reports and UV of CWPs from Amadagur, Sri Sathyasai District, Andhra Pradesh (Contd.)

S. No.	Botanical Name and Family	Sanskrit Name	Local Name	Part(s) used	Mode of Use	UR	UV
40	*Nymphaea nouchali* Burm.f. (Nymphaeaceae)	कुमुद	Konkiri Gaddalu	Tubers	Roasted tubers edible	2	0.02
41	*Opuntia stricta* (Haw.) Haw. (Cactaceae)	NA	Nagadari	Fruits	Ripen fruits are eaten raw	45	0.42
42	*Ottelia alismoides* (L.) Pers. (Hydrocharitaceae)	NA	Niti budaga	Tubers	Roasted tubers are edible	2	0.02
43	*Ouret lanata* (L.) Kuntze (*Aerva lanata* (L.) Juss. ex Schult.) (Amaranthaceae)	गोरक्षगञ्जा	Kondapindi	Leaves	Leaves are used as vegetable	6	0.06
44	*Phoenix sylvestris* (L.) Roxb. (Arecaceae)	खर्जूर	Eeta	Fruits, Soft stem pith	Ripen fruits are eaten raw and the soft white tissue of the upper part of the shoot is also edible for reducing body heat	38	0.36
45	*Physalis angulata* L. (Solanaceae)	टङ्कारी	Budda busara	Fruit/ Berries	Mature berries edible	17	0.16
46	*Pithecellobium dulce* (Roxb.) Benth. (Fabaceae)	NA	Pulichinta	Fruit/ Aril	Aril / pulpy flesh eaten raw	16	0.15
47	*Portulaca linearifolia* (Sivar. & Manilal) D.Panwar (Portulacaceae)	NA	Sanna Nirupayalaku, Neeralamu, Neeru allamu	Leaves	Leaves used as vegetable	9	0.08
48	*Portulaca oleracea* L. (Portulacaceae)	लोणिका	Nirupayalaku	Leaves	Leaves used as vegetable	16	0.15
49	*Portulaca quadrifida* L. (Portulacaceae)	लघुलोणिका	Sannapayalaku	Leaves	Leaves used as vegetable	23	0.22
50	*Premna tomentosa* Willd. (Lamiaceae)	अग्निमन्थ	Naarava Chettu	Fruits	Ripen fruits are eaten raw	26	0.25
51	*Santalum album* L. (Santalaceae)	श्वेतचन्दन	Srigandham, Tella gandham	Seeds	Seeds are eaten	1	0.01
52	*Senna italica* Mill. (Fabaceae)	मार्कण्डिका	Nela tangedu	Leaves	Leaves used as vegetable	12	0.11
53	*Solanum americanum* Mill. (Solanaceae)	काकमाची	Kasi	Leaves, Fruits	Leaves used as medicine for body pains and ripe fruits are edible	40	0.38
54	*Solanum nigrum* L. (Solanaceae)	काकमाची	Kasi	Leaves, Fruits	Leaves used as medicine for body pains and Ripen Fruits edible	9	0.08
55	*Solanum torvum* Sw. (Solanaceae)	बृहती	Vanka vankayalu	Fruits	Fruits are used as vegetable	10	0.09
56	*Solanum villosum* Mill. (Solanaceae)	NA	Yerra Kasi	Leaves, Fruits	Ripen fruits are eaten raw, Leaves used for potherb	14	0.13
57	*Syzygium cumini* (L.) Skeels (Myrtaceae)	जम्बू	Neredu, Kukka neredu	Fruit	Ripen fruits are eaten raw	37	0.35
58	*Talinum fruticosum* (L.) Juss. (Talinaceae)	NA	Nela Bachali	Leaves	Leaves used for cooking	2	0.02
59	*Tamarindus indica* L. (Fabaceae)	चिञ्चा	Chinta	Tender leaves	Tender leaves are used as vegetable	42	0.40
60	*Trianthema portulacastrum* L. (Aizoaceae)	वर्षाबु	Galijeru	Leaves	Leaves are used as vegetable	3	0.03
61	*Trianthema triquetrum* Willd. ex Spreng. (Aizoaceae)	NA	Banda Galijeru/ SavataGalijeru	Leaves	Leaves are used as vegetable	31	0.29
62	*Vigna aconitifolia* (Jacq.) Maréchal (Fabaceae)	मकुष्ठक	Gutta pesara	Young pods, Seeds	Young fruits and Seeds edible	6	0.06
63	*Vigna stipulacea* (Lam.) Kuntze (Fabaceae)	NA	Gaddi Pesara	Young pods, Seeds	Young fruits and Seeds edible	7	0.07
64	*Ziziphus mauritiana* Lam. (Rhamnaceae)	बदर	Regu	Fruits	Ripen fruits are eaten raw	39	0.37

… *Contd.*

Table 2 — Plant usage with total number of use reports and UV of CWPs from Amadagur, Sri Sathyasai District, Andhra Pradesh (Contd.)

S. No.	Botanical Name and Family	Sanskrit Name	Local Name	Part(s) used	Mode of Use	UR	UV
65	*Ziziphus oenopolia* (L.) Mill. (Rhamnaceae)	शृगालकोली	Pariki	Fruits	Ripen fruits are eaten raw	39	0.37

UR: Use Reports, UV: Use Value, NA: Not Available

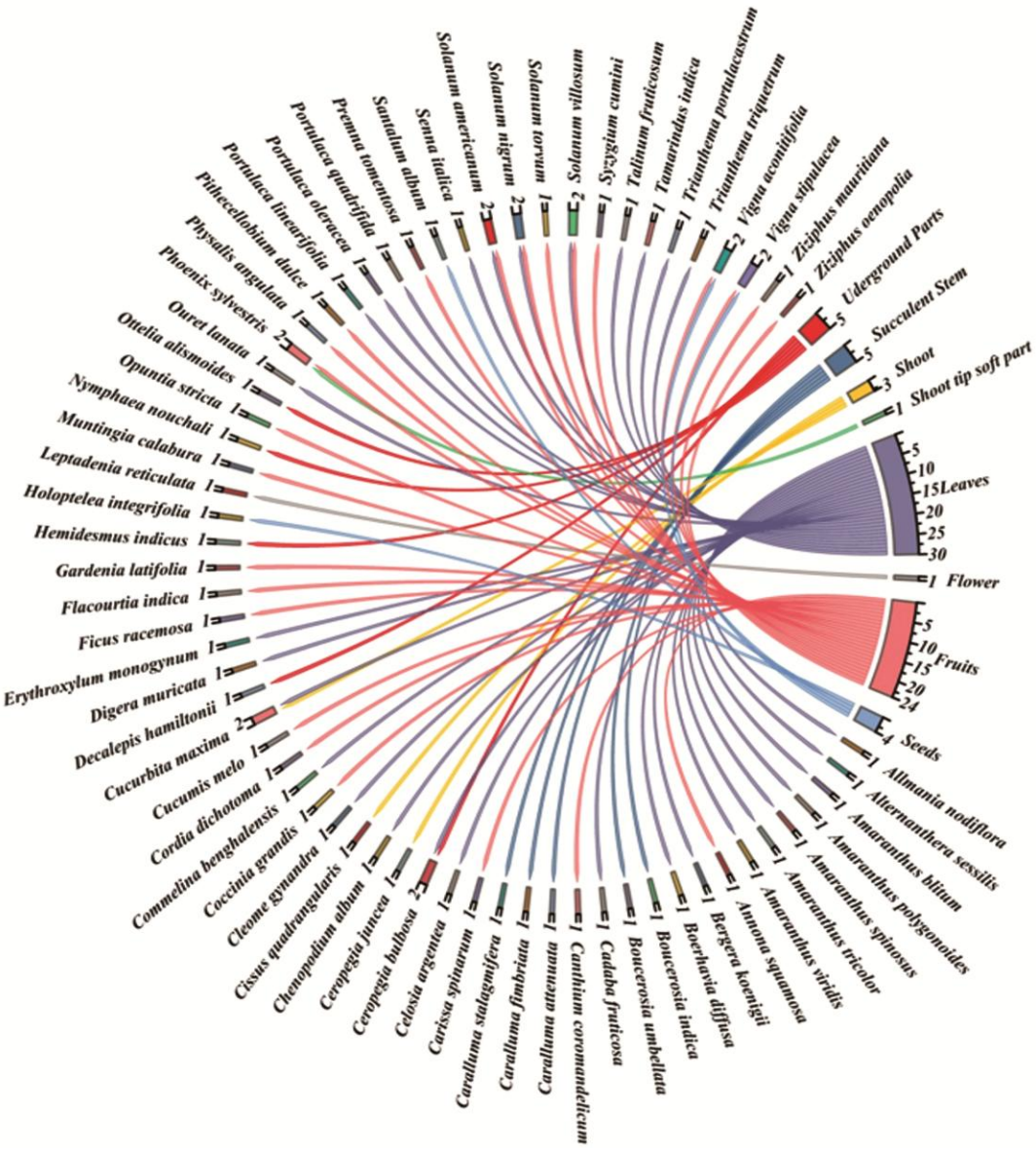

Fig. 2 — Chord diagram depicting the part used and species name recorded from study area

Usages of comestible wild plants and modes of consumption

The CWPs were primarily classified into five groups based on plant parts used by informants. Among the 65 documented taxa, leafy vegetables were the most frequently consumed plant parts, accounting for 30 taxa (41.09%), followed by fruits and pods (24 species, 32.87%). Additionally, succulent stems and underground parts were consumed from 5 species each. Other consumed plant parts included seeds (4 species), shoots (4 species) and flowers (1 species) (Fig. 2). The tender apical tissue of *Phoenix sylvestris*, commonly referred to as

the shoot or palm heart, is edible and used to alleviate excess body heat due to its cooling effect (Table 3). Most of the plant species used as vegetables are typically consumed after cooking, although numerous plant parts are also consumed raw, depending on their edibility and nutritional properties. Unripe fruits of *Annona squamosa* are buried and covered with soil. These fruits are heated from the surface by using wood fire making them edible. After proper heating, the fruits are retrieved and consumed. This is a unique traditional thermal processing method used by the ethnic communities. The tubers of species like *Ceropegia bulbosa*, *Nymphaea nouchali*, and *Ottelia alismoides* are roasted before consumption. Nannari a very good blood purifier and body temperature regulator is prepared from the roots of the plant *Hemidesmus indicus*. The tuberous roots of *Decalepis hamiltonii* are used in the preparation of pickles, owing to their distinctive aroma, flavour, and potential medicinal properties (Table 4).

The ICF is a statistical method used in ethnobotanical research to determine the degree of agreement among informants regarding the use of specific plant species for a particular purpose, such as edible, medicinal, or functional uses. The ICF for flowers and shoot tips is 1, while it is 0.953 for raw edible fruits, 0.948 for leafy vegetables, 0.938 for seeds, and 0.938 for succulent stems. The lowest ICF value, 0.666, is recorded for parts like roots and tubers (Table 5). This high ICF in both cases (leaves and fruits) suggests that these parts are well-recognised, culturally important, and widely accepted as edible across communities, making them the most commonly used and agreed upon among CWPs. Leaves and fruits are the most commonly used vegetables among CWPs compared to other plant parts due to several biological, nutritional, and ecological reasons. Unlike roots, tubers, or fruits, which may take time to mature, leaves are available almost year-round in many plant species. Compared to all parts, leaves have notably high amount of Vitamins like A, C, K, and folic acid), minerals like iron, calcium, magnesium, and potassium), fibre, and antioxidants[9,25].

UV refers to species deemed most significant by a specific population. *Allmania nodiflora* has the highest UV of 0.61, making it most widely used plant. Followed by *Celosia argentea* with a UV of 0.54, *Amaranthus polygonoides* with a UV of 0.53, *Annona squamosa* with a UV of 0.45, *Opuntia stricta* with a UV of 0.42, *Flacourtia indica* with a UV of 0.41, and *Tamarindus indica* with a UV of 0.40. There are 58 plants with a UV less than 0.4.

The results of the Jaccard Similarity Index (JI) indicate invariably minimal scores among all cases, with a range of 0.09 to 0.21. This indicates a significant discrepancy in the ethnobotanical knowledge among the residents of various regions. The highest similarity is observed with Sudhakar & Vedavathy[21] research report at 0.21, indicating that only 21% of the species recorded in the current study are shared with their documented taxa from Chittoor District. The study by Reddy *et al*.[19] shares 18% of the taxa, while Rao *et al*.[22] shows 17% similarity. The Jaccard Index similarity with previously published data[18,19,21-24,26,27] is presented in (Table 6). These low similarity values may be attributed to: (i) differences in study area microhabitats, ecological zones, or streamside vegetation; (ii) temporal changes in vegetation due to urbanization, agriculture, or climate shifts; (iii) variations in ethnobotanical knowledge, plant usage, or documentation methods; and (iv)

Table 3 — Taxonomic diversity of edible species, assessed in terms of part-specific usage

Edible part(s)	Number	Percentage
Underground parts (Root/ Tuber)	5	6.84
Shoot	4	5.47
Leaf	30	41.09
Flower	1	1.36
Fruit	24	32.87
Seed	4	5.47
Succulent Stem	5	6.84

Table 4 — Diversity of edible species based on use pattern

Type of Usage	Number	Percentage (%)
Earthen Fire Cooking	01	1.42
Raw	31	44.28
Vegetable	33	47.14
Roasted	03	4.28
Pickle	01	1.42
Sarabat	01	1.42

Table 5 — Informant Consensus Factor (ICF) of comestible edible plant parts in study area

Utilized Category/ Sub-categories	Number of Species (N_t)	Use report (N_{ur})	ICF
Underground parts (Root/ Tuber)	5	13	0.666
Shoot	3	33	0.937
Leaf	30	567	0.948
Flower	1	9	1
Fruit	24	490	0.953
Seed	4	12	0.72
Succulent Stem	5	66	0.938
Shoot tip	1	2	1

Table 6 — A comparative account of data similarity among seven ethnobotanical studies on CWPs conducted in different parts of Andhra Pradesh and adjacent areas, in relation to the present study

Previous work and study site	Similar plant species recorded earlier (N)	Total no. of taxa in this study	JI
	Adjacent areas		
Chittoor District, Andhra Pradesh[21]	*Bergera koenigii*, *Boerhavia diffusa*, *Cadaba fruticose*, *Canthium coromandelicum*, *Carissa spinarum*, *Celosia argentea*, *Cissus quadrangularis*, *Coccinia grandis*, *Decalepis hamiltonii*, *Digera muricata*, *Erythroxylum monogynum*, *Ficus racemosa*, *Flacourtia indica*, *Hemidesmus indicus*, *Phoenix sylvestris*, *Pithecellobium dulce*, *Portulaca oleracea*, *Solanum nigrum*, *Solanum torvum*, *Syzygium cumini*, *Tamarindus indica*, *Ziziphus mauritiana*and *Ziziphus oenopolia* (N=23)	67	0.21
Ballari District, Karnataka[27]	*Annona squamosa*, *Carissa spinarum*, *Canthium coromandelicum*, *Coccinia grandis*, *Erythroxylum monogynum*, *Ficus racemosa*, *Flacourtia indica*, *Gardenia latifolia*, *Opuntia stricta*, *Phoenix sylvestris*, *Pithecellobium dulce*, *Solanum nigrum*, *Solanum torvum*, *Syzygium cumini*, *Tamarindus indicus*, *Ziziphus mauritiana* and *Ziziphus oenoplia* (N=17).	70	0.14
	Within the state		
Andhra Pradesh[18]	*Alternanthera sessilis*, *Amaranthus spinosus*, *Amaranthus tricolor*, *Amaranthus viridis*, *Annona squamosa*, *Bergera koenigii*, *Boerhavia diffusa*, *Boucerosia umbellata*, *Canthium coromandelicum*, *Caralluma attenuate*, *Carissa spinarum*, *Celosia argentea*, *Ceropegia bulbosa*, *Chenopodium album*, *Cissus quadrangularis*, *Cleome gynandra*, *Coccinia grandis*, *Commelina benghalensis*, *Cordia dichotoma*, *Decalepis hamiltonii*, *Digera muricata*, *Erythroxylum monogynum*, *Ficus racemosa*, *Flacourtia indica*, *Gardenia latifolia*, *Holoptelea integrifolia*, *Opuntia stricta*, *Ottelia alismoides*, *Ouret lanata*, *Phoenix sylvestris*, *Physalis angulata*, *Pithecellobium dulce*, *Portulaca oleracea*, *Portulaca quadrifida*, *Premna tomentosa*, *Solanum nigrum*, *Solanum torvum*, *Syzygium cumini*, *Tamarindus indica*, *Trianthema portulacastrum*, *Ziziphus mauritiana* and *Ziziphus oenopolia* (N=43)	419	0.09
Andhra Pradesh[19]	*Allmania nodiflora*, *Alternanthera sessilis Amaranthus spinosus*, *Amaranthus tricolor*, *Amaranthus viridis*, *Boerhavia diffusa*, *Canthium coromandelicum*, *Caralluma adscendens*, *Caralluma attenuata*, *Senna italica*, *Celosia argentea*, *Ceropegia bulbosa*, *Cissus quadrangularis*, *Cleome gynandra*, *Decalepis hamiltonii*, *Digera muricata*, *Erythroxylum monogynum*, *Ficus racemosa*, *Flacourtia indica*, *Gardenia latifolia*, *Hemidesmus indicus*, *Murraya koenigii*, *Opuntia srticta*, *Phoenix sylvestris* , *Physalis angulata*, *Pithacellobium dulce*, *Portulaca oleracea*, *Portulaca quadrifida*, *Premna tomentosa*, *Solanum nigrum*, *Syzygium cumini* , *Trianthema portulacastrum*, *Ziziphus mauritiana* and *Ziziphus oenoplea* (N=35)	156	0.18
Eastern Ghats[26]	*Annona squamosa*, *Bergera koenigii*, *Canthium coromandelicum*, *Carissa spinarum*, *Cordia dichotoma*, *Erythroxylum monogynum*, *Ficus racemosa*, *Gardenia latifolia*, *Opuntia stricta*, *Phoenix sylvestris*, *Pithecellobium dulce*, *Solanum nigrum*, *Syzygium cumini*, *Ziziphus mauritiana*, and *Ziziphus oenoplia.* (N=15)	69	0.12
Vishakhapatnam District, Andhra Pradesh[22]	*Alternanthera sessilis*, *Amaranthus spinosus*, *Amaranthus viridis*, *Boerhaavia diffusa*, *Canthium coromandelicum*, *Celosia argentea*, *Cissus quadragularis*, *Cucurbita maxima*, *Digera muricata*, *Murraya koenigii*, *Phoenix sylvestris*, *Pithecellobium dulce*, *Portulaca oleraceae*, *Solanum nigrum*, *Syzygium cumini*, *Tamarindus indica*, *Trianthema portulacastrum* and *Zizyphus oenoplea* (N=18)	55	0.17
Kotia Hills, Vizianagaram District, Andhra Pradesh[23,24]	*Allmanianodiflora*, *Alternanthera sessilis*, *Amaranthus spinosus*, *Amaranthus tricolor*, *Amaranthus viridis*, *Caralluma adscendens*, *Caralluma attenuata*, *Cucurbita maxima*, *Decalepis hamiltonii*, *Ficus racemosa*, *Flacourtia indica*, *Murraya koenigii*, *Phoenix sylvestris*, *Physalis angulata*, *Pithacellobium dulce*, *Solanum nigrum*, *Trianthema portulacastrum* and *Ziziphus mauritiana* (N=18)	75	0.14

differences in sampling effort, methodology, or the focus of the earlier studies. Similar results were shown by Mandal *et al*.[28] from West Bengal.

Importantly, this investigation also records several species previously unreported from this region, thereby providing novel insights into the existing body of knowledge. To corroborate the present findings, a comparative analysis with previous studies was conducted using PAST v4.03, applying Neighbor-Joining clustering based on the Jaccard

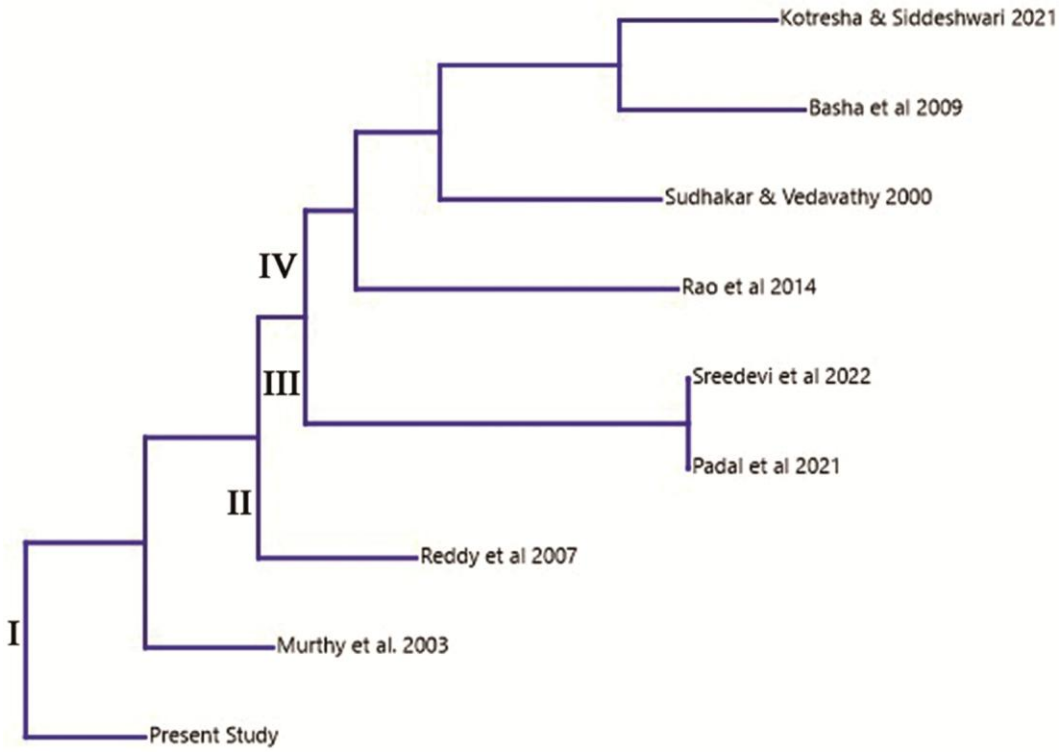

Fig. 3 — Neighbour-joining cluster indicating the Jaccard similarity index for the various studies of adjacent areas and within the state

similarity index. With our results revealed 16 species that were not reported in the previous study as edible plants. These includes *Amaranthus blitum* (leaves), *Amaranthus polygonoides* (leaves), *Boucerosia indica* (succulent stem), *Caralluma stalagmifera* (succulent stem), *Ceropegia juncea* (succulent stem), *Cucumis melo* (young shoots and young leaves), *Leptadenia reticulata* (flowers), *Muntingia calabura* (fruit), *Portulaca linearifolia* (leaves), *Santalum album* (seeds), *Solanum americanum* (leaves and fruits), *Solanum villosum* (leaves and fruits), *Talinum fruticosum* (leaves), *Trianthema triquetrum* (leaves), *Vigna aconitifolia* (seeds and young pods) and *Vigna stipulacea* (seeds and young pods). Although *Muntingia calabura* and *Talinum fruticosum* are introduced species, they have naturalized in certain areas, particularly along streams. Cluster analysis of Jaccard similarity index for the different studies of adjacent areas and within the state shows four clusters. The present study exhibited a close relationship with the first cluster (Murthy *et al*.[18]), suggesting a high degree of similarity in species composition or ethnobotanical knowledge shared with the studies or locations grouped within that cluster. This closeness may reflect similar ecological zones, cultural practices, dietary habits, or ethnobotanical traditions prevalent among the communities included in that cluster. Clusters II, III, and VI contain the other relative studies, leading to middling similarity in the composition and usage patterns of CWPs, therefore below is the highlighted regional or cultural variations in ethnobotanical knowledge (Fig. 3).

Conclusion

Most of the ethnic knowledge is not documented as it is transferred from generation to generation orally. Because of this there is a very high risk of knowledge being lost due to generational gap or modernization. In this regard, detailed documentation of ethnic knowledge promotes safeguarding cultural heritage, supports scientific studies and enables the identification of species with rich nutrient and medicinal properties. It also helps the local communities to verify their practices and find ways for livelihoods. Similarly, the knowledge of CWPs has to be recorded and preserved for food and nutritional security and also for the preservation of biodiversity. The current research gives data related to the CWPs of Amadagur, Sri Sathyasai District. This data collected indicates that there are a variety of leafy vegetables, fruits, roots, tubers, and other edible plant parts which are used for consumption and also

for the treatment of various other ailments. Jaccard similarity index provided remarkable coincidence with the data reported from other regions of Andhra Pradesh, indicating resemblance in ethnobotanical knowledge and cultural practices.

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Conflict of Interest

We declare that there is no conflict of interest applicable for the publication of this manuscript.

Author Contributions

Data collection, compilation and systematic analysis was done by NV and HP. PPG conceptualized, edited and revised the manuscript. The final version of manuscript was read and approved by all authors.

Ethics Approval

Consent was obtained from community knowledge holders prior to knowledge survey.

Prior Informed Consent

Prior to the knowledge gathering, consent was obtained from each informant.

Data Availability

The author confirms that all data generated or analyzed during study are included in this published article.

References

1 Christenhusz M J & Byng J W, The number of known plants species in the world and its annual increase, *Phytotaxa*, 261 (3) (2016) 201-217. DOI: 10.11646/phytotaxa.261.3.1

2 French B, Food plants international database of edible plants of the world, a free resource for all, *Acta Hortic*, 1241 (2019) 1-6. DOI: 10.17660/ActaHortic.2019.1241.1

3 Ali-Shtayeh M S, Jamous R M, Al-Shafie' J H, Elgharabah W A, Kherfan F A, *et al.*, Traditional knowledge of Wild edible plants used in Palestine (Northern West Bank): a comparative study, *J Ethnobiol Ethnomed*, 4 (2008) 13. DOI: 10.1186/1746-4269-4-13

4 Duguma H T, Wild edible plant nutritional contribution and consumer perception in Ethiopia, *Int J Food Sci*, 2020 (2020) 2958623. DOI: 10.1155/2020/2958623

5 Botanical survey of India, Plant Discoveries, Available [online] https://bsi.gov.in/page/en/national-wild-life-action-plan(accessed on 10 April 2025).

6 Ray A, Ray R & Sreevidya E A, How many wild edible plants do we eat-their diversity, use, and implications for sustainable food system: An exploratory analysis in India, *Front Sustain Food Syst*, 4 (2020) 56. DOI: 10.3389/fsufs.2020.00056

7 Priyadarshini S, Tudu S, Dash S S, Biswal A K & Sahu S C, Wild edible plants: diversity, use pattern and livelihood linkage in Eastern India, *Genet Resour Crop Evol*, 71 (6) (2024) 3111-3133. DOI:10.1007/s10722-023-01833-z

8 Anju T & Kumar A, Traditional ecological knowledge and medicinal plant diversity usage among the Mullu Kuruman tribes of Wayanad district of Kerala, India and its implications for biodiversity conservation in the face of climate change, *Trees For People*, 16 (2024) 100595. DOI: 10.1016/j.tfp.2024.100595

9 Hassan M, Mir T A, Jan M, Amjad M S, Aziz M A, *et al.* Foraging for the future: traditional culinary uses of wild plants in the Western Himalayas-Kashmir Valley (India),*J Ethnobiol Ethnomed*, 20 (1) (2024) 66. DOI: 10.1186/s13002-024-00707-7

10 Mishra A, Swamy S L, Thakur T K, Bhat R, Bijalwan A, *et al.*, Use of wild edible plants: Can they meet the dietary and nutritional needs of indigenous communities in Central India, *Foods*, 10 (7) (2021) 1453. DOI: 10.3390/foods10071453

11 Sharma A & Wagh V V, Wild food plants of Bhil and Bhilala ethnic community of Western Madhya Pradesh, India-an implication for food security, *For Tree Livelihoods*, 34 (2) (2025) 118-146. DOI:10.1080/14728028.2025.2453987

12 Narayana Swamy A, Plant resources and conservation in Anantapur district Andhra Pradesh India. Ph.D. Thesis, Sri Krishnadevaraya University, Anantapuramu, 2011.

13 Pullaiah T & Chennaiah E, *Flora of Andhra Pradesh*, Vol. 1-5, (Scientific publishers, India), 1997.

14 Trotter R T & Logan M H, Informant consensus: A new approach for identifying potentially effective medicinal plants, In: *Plants in Indigenous Medicine and Diet: Biobehavioral Approaches*, (Redgrave Publishing Company, New York), (1986) 91-112.

15 Phillips O, Gentry A H, Reynel C, Wilkin P & Galvez D B C, Quantitative ethno-medicine and Amazonian conservation, *Conserv Biol*, 8 (1994) 225-248.

16 Jaccard P, Study of the floral distribution in a part of the Alps and the Jura, *Bull Soc Vaud Sci Nat*, 37 (1901) 547-579.

17 González-Tejero M R, Casares-Porcel M, Sánchez-Rojas C P, Ramiro-Gutiérrez J M, Molero-Mesa J, *et al.* Medicinal plants in the Mediterranean area: synthesis of the results of the project Rubia, *J Ethnopharmacol*, 116 (2) (2008) 341-357. DOI: 10.1016/j.jep.2007.11.045

18 Murthy K R, Rani S S & Pullaiah T, Wild edible plants of Andhra Pradesh, India, *J Econ Taxon Bot*, 27 (3) (2003) 613-630.

19 Reddy K N, Pattanaik C, Reddy C S & Raju V S, Traditional knowledge on wild food plants in Andhra Pradesh, *Indian J Tradit Know*, 6 (1) (2007) 223-229.
20 Satyavani S, Satyavathi K & Padal S D, Wild edible plants used for indigenous community of North-Coastal Andhra Pradesh, India, *BMR Phytomed*, 2 (1) (2015) 1-7.
21 Sudhakar A & Vedavathy S, Wild edible plants used by the tribals of Chittoor district (Andhra Pradesh), India, In: *Ethnobotany and Medicinal plants of Indian Subcontinent*, (Scientific Publishers), (2000) 321-329.
22 Rao M S, Yesudas S & Sakkari K, Indigenous plant foods which are commonly consumed by the tribal communities in Dumbriguda area of Visakhapatnam district, Andhra Pradesh, India, *Biolife*, 2 (3) (2014) 866-875.
23 Sreedevi K, Sowmithri C, Apparao D & Padal S B, Wild edible plants consumed by primitive tribes of Kotia Hills, Vizianagaram District, Andhra Pradesh, India. *Int J Bot Res*, 12 (1) (2022) 1-8.
24 Padal S B & Apparao D, Wild edible plants consumed by primitive tribes of Kotia Hills, Vizianagaram District, Andhra Pradesh, India, *Ann Bio Sci*, 12 (2) (2021) 80.
25 Talang H, Yanthan A, Rathi R S, Pradheep K, Longkumer S, *et al.* Nutritional evaluation of some potential wild edible plants of North Eastern region of India, *Front Nutr*, 10 (2023) 1052086. DOI: 10.3389/fnut.2023.1052086
26 Basha S K, Sadasivaiah B & Rao B R P, Wild edible fruit resources in southern Eastern Ghats of Andhra Pradesh, *Int J For Usuf Mngt*, 10 (2) (2009) 20-25.
27 Kotresha K & Siddeshwari M, Wild edible fruits and their medicinal uses in Ballari District of Karnataka, *Pensee*, 51 (6) (2021) 1136-1143
28 Mandal S K, Saha S & Saha S, The importance of wild edible plant and macrofungi diversity to attain food security for the tribes of eastern India-Aquantitative study, *Front Sustain Food Syst*, 7, (2023) 1198187. DOI: 10.3389/ fsufs.2023.1198187