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Phenology of wild edible plants of Jawadhu hills, Tirupattur district, Tamil Nadu

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ABSTRACT

India is one of the subtropical nations with the greatest diversity of flora and fauna. There are two kinds of hills in Tamil Nadu, they are continuous Western Ghats and discontinuous Eastern Ghats respectively. The study area Jawadhu hill is located in Tirupattur district, Eastern Ghats of Tamil Nadu. Enumeration of wild edible plants revealed 142 species, belongs to 112 genera and 61 families. The habit of wild edible plants were 64 tree species, 32 herb species, 27 shrub species and 19 climber species. The distribution pattern is used to study plant patterns, habitat preferences and ecological changes. Results showed the good and evident distribution patterns of biodiversity of wild edibles. Tribal informants revealed the seasonal availability of wild edible plants, of these ten wild edibles plants were available throughout Post-monsoon, 14 species during the Pre-monsoon, 62 species during South West monsoon season and 24 species in North East monsoon season. IUCN categories of wild edibles are as follows Least concern (LC) 70 species, Endangered (EN) 1 species, Data deficient (DD) 4 species, Vulnerable (VU) 1 species and Near threatened (NT) 1 species.

Keywords: IUCN, Jawadhu hills, Phenology, Wild edible plants.

INTRODUCTION

Most tribes in India rely on wild edible plants to meet their essential nutritional needs and food requirements, sourced from the surrounding forest. The knowledge of plant distribution is far older than that of human civilization. To meet fundamental requirements like food, clothing and shelter, the identification and domestication of valuable plants began in prehistoric times Kumaraswamy and Abhijhit (2024). The forest provides many edible plants to the tribe; even today, many aboriginals are reliant on wild edibles Manisha *et al.* (2024). They prefer wild edibles since they grow naturally, provide better taste and promote good health. The socio-cultural, spiritual and traditional practices, along with the food, medicine, fodder and overall well-being of people living in mountainous regions, rely heavily on wild edible plants, which also serve as a probable source of earnings Dangwal and Lal (2024). The wild edible plants are nutritionally valuable Lal and Gupta (2017). FAO reported that wild food is a part of tribal people's diet not only during periods of food shortage but also routine and the daily consumption of wild products contributes to overall nutritional well beings of tribes Setiya *et al.* (2016). The development of GIS and geostatistics emphasizes the significance of spatial analysis Zhang and Ma (2008). The geographic distribution played a crucial role in confirming the wild edible plants available in the study areas and ensuring their persistence. The main objective of this study was to enumerate and document the diverse distribution patterns and phenology of wild edible plants explained by Malayali tribal of Jawadhu hills.

MATERIALS AND METHODS

Study area

The study area is situated in the Jawadhu hills, a picturesque hills range located in the North Eastern part of Tirupattur district in the Indian state of Tamil Nadu (Figure 1). There are 35 villages Jawadhu hills in Tirupattur district, located within the forest ranges of Singarapettai, Tirupattur and Alangayam. These hills cover an area of 50 miles (80 km) wide and 20 miles (32 km) long, with granite peaks averaging 3,600 - 3,800 feet (1,100 - 1,150 m) Senthilkumar *et al.* (2014). The forest consists of deciduous forest, semi evergreen forest and thorny forest. Temperature varies with altitude and ranges from 16 to 33^{o}C. The region experiences a tropical climate with an average annual rainfall of 850 mm of which approximately 430 mm is received in the South West monsoon

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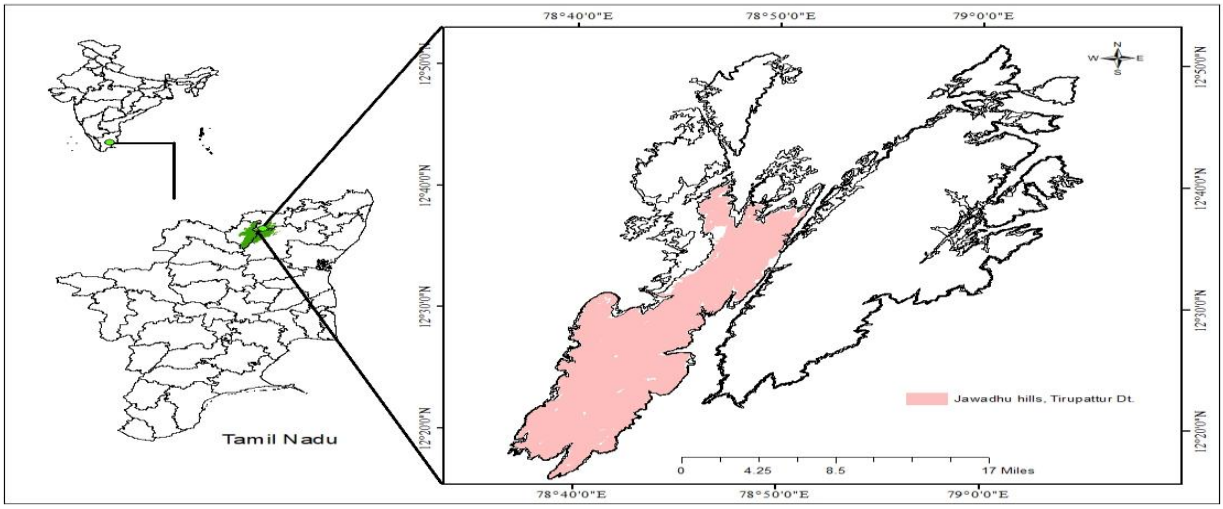

Figure 1**:** Study area of Jawadhu hills

period (June - September) and 420 mm in the North East monsoon period (October - December). Malayali is the largest tribal group constituting 47.6% of the tribe population in Tamil Nadu (https://www.tntribalwelfare.tn.gov.in).

The survey was conducted in all seasons in the forest range of Jawadhu hills. The individual interview and questionnaire method was conducted with the shepherds, younger and elders of the hamlets. The wild edible plant species were collected from the study site and then identified with the help of various herbaria websites, https://bsi.gov.in, https://indiaflora-ces.iisc.ac.in, https://indiabiodiversity.org and Flora of the Presidency of Madras (J.S. GAMBLE, 1928), An excursion of central Tamil Nadu, India. K. M. Matthew (1995). Additionally, herbaria were visited and information was gathered from the Regional Research Institute of Unani Medicine in Chennai. Malayali tribal provided wild edible plant distribution patterns and phenology information of wild edibles IUCN Red lists (https://www.iucnredlist.org/en) and condition of the biodiversity status of enumerated wild edibles.

RESULTS AND DISCUSSION

The study revealed that the Malayali tribal community possesses extensive knowledge of wild edible plants, documenting 142 species belonging to 112 genera and 61 families. Of these, 64 were trees (45%), 32 were herbs (23%), 27 were shrubs (19%) and 19 were climbers (13%). The edible parts recorded included 86 fruits, 44 leaves, 12 underground parts, 6 seeds, 4 flowers, and 3 stems. Table 1 provides detailed information on each species, including its binomial name, vernacular name, family, edible plant parts and phenology. Children primarily consumed fruits, often while tending animals far from home, whereas women harvested leafy vegetables and prepared them for family meals. These plants, collected from surrounding forest areas, were used for food, fodder, and medicine. Of the total species, 106 were consumed by animals, 69 by birds, and 123 by the Malayali tribals. The overlap in consumption showed that 56 species were eaten by animals, birds, and humans; 34 species by animals and humans; 12 species by animals and birds; 29 species exclusively by humans; 4 species by birds and humans; 4 species exclusively by birds; and 4 species exclusively by animals. Wild fruits were further classified into scientific categories as follows 37 species of drupes, 33 species of berries, 7 species of synconia, 3 species of hesperidia, 2 species of legumes, 2 species of soroses, 1 species of capsule, and 1 species of pepo. This comprehensive documentation highlights the deep ecological knowledge of the Malayali tribal and their reliance on forest resources for sustenance and cultural practices.

Distribution of wild edible plants

The topographic conditions of the study area, ranging from foothills to high elevations, feature diverse vegetation that is varied and widely dispersed. The distribution pattern of

Table 1: Phenology of wild edible plants of Jawadhu hills

Botanical Name	Family	Edible Plant Parts	Phenology
Acalypha fruticosa Forssk.	Euphorbiaceae	Leaves	Throughout the year
Achyranthes aspera L.	Amaranthaceae	Leaves	Throughout the year
Aegle marmelos (L.) Correa	Rutaceae	Fruits	October to December
Aglaia elaeagnoidea (A. Juss.) Benth.	Meliaceae	Fruits	July to September
Alangium salviifolium (L.f.) Wangerin	Alangiaceae	Fruits	April to June
Amaranthus spinosus L.	Amaranthaceae	Leaves	Throughout the year
Amaranthus viridis L.	Amaranthaceae	Leaves	Throughout the year
Anacardium occidentale L.	Anacardiaceae	Fruits and Seeds	April to June
Annona reticulata L.	Annonaceae	Fruits	July to September
Annona squamosa L.	Annonaceae	Fruits	July to September
Artocarpus heterophyllus Lam.	Moraceae	Fruits	April to June
Asclepias curassavica L.	Asclepiadaceae	Leaves	Throughout the year
Asparagus racemosus Willd.	Asparagaceae	Underground parts	Throughout the year
Atalantia monophylla DC.	Rutaceae	Fruits	April to June
Azadirachta indica A. Juss.	Meliaceae	Fruits	July to September
Bauhinia purpurea L.	Fabaceae	Leaves	Throughout the year
Bauhinia racemosa Lam.	Fabaceae	Leaves	Throughout the year
Bergera koenigii L.	Rutaceae	Leaves and Fruits	Throughout the year
Boerhavia diffusa L.	Nyctaginaceae	Leaves	Throughout the year
Borassus flabellifer L.	Arecaceae	Underground parts	January to March
Breynia vitis-idaea (Burm.f.) C.E.C.Fisch.	Phyllanthaceae	fruits	July to September
Bridelia retusa (L.) A.Juss.	Phyllanthaceae	fruits	July to September
Buchanania axillaris (Desr.) T.P.Ramamoorthy	Anacardiaceae	Fruits	July to September
Canthium coromandelicum (Burm.f.) Alston	Rubiaceae	Fruits	July to September
Capparis zeylanica L.	Capparaceae	Fruits	April to June
Capsicum frutescens L.	Solanaceae	Fruits	Throughout the year
Cardiospermum helicacabum L.	Sapindaceae	Leaves	Throughout the year
Carissa carandas L.	Apocynaceae	Fruits	July to September
Catunaregam spinosa (Thunb.) Tirveng.	Rubiaceae	Fruits	July to September
Celosia argentea L.	Amaranthaceae	Leaves	Throughout the year
Celtis biondii Pamp.	Cannabaceae	Fruits	July to September
Centella asiatica (L.) Urb.	Apiaceae	Leaves	Throughout the year
Ceropegia juncea Roxb.	Apocynaceae	Stem and Leaves	July to September and October to December
Cipadessa baccifera (Roxb. ex Roth) Miq.	Meliaceae	Fruits	October to December and January to March
Cissus quadrangularis L.	Vitaceae	Stem and Leaves	Throughout the year
Citrus maxima (Burm.) Merr.	Rutaceae	Fruits	July to September
Citrus medica L.	Rutaceae	Fruits	July to September
Citrus limon (L.) Osbeck	Rutaceae	Fruits	Throughout the year
Clausena anisata (Willd.) Hook.f. ex Benth.	Rutaceae	Fruits	July to September
Cleome gynandra L.	Cleomaceae	Leaves	Throughout the year
Cleome viscosa L.	Cleomaceae	Leaves	Throughout the year
Coccinia grandis (L.) Voigt	Cucurbitaceae	Fruits	Throughout the year
Colocasia esculenta (L.) Schott.	Araceae	Underground parts and Leaves	Throughout the year
Cordia dichotoma G.Forst.	Boraginaceae	Fruits	July to September
Curculigo orchioides Gaertn.	Hypoxidaceae	Underground parts	October to December and January to March
Cymbopogon citratus (DC.) Stapf	Poaceae	Leaves	Throughout the year

Decalepis hamiltonii Wight & Arn.	Apocynaceae	Underground parts	October to December and January to March
Dendrocalamus strictus (Roxb.) Nees.	Poaceae	Stems	Throughout the year
Dioscorea oppositifolia L.	Dioscoreaceae	Underground parts	October to December and January to March
Dioscorea pentaphylla L.	Dioscoreaceae	Underground parts	October to December and January to March
Diospyros ferrea (Willd.) Bakh.	Ebenaceae	Fruits	July to September
Diospyros montana Roxb.	Ebenaceae	Fruits	July to September
Diospyros neilgerrensis (Wight) Kosterm.	Ebenaceae	Fruits	July to September
Diospyros ovalifolia Wight	Ebenaceae	Fruits	July to September
Diplocyclos palmatus (L.) C. Jeffrey	Cucurbitaceae	Leaves and Fruits	Throughout the year
Dracaena roxburghiana (Schult. & Schult.f.) Byng & Christenh.	Asparagaceae	Leaves	Throughout the year
Ehretia microphylla Lam.	Boraginaceae	Leaves and Fruits	July to September
Elaeagnus conferta Roxb.	Elaeagnaceae	Fruits	April to June and July to September
Embelia basaal (Roem. & Schult.) A.DC.	Primulaceae	Fruits	January to March
Erythroxylum monogynum Roxb.	Erythroxylaceae	Fruits	July to September
Euphorbia heterophylla L.	Euphorbiaceae	Leaves	Throughout the year
Euphorbia hirta L.	Euphorbiaceae	Leaves	Throughout the year
Ficus amplissima Sm.	Moraceae	Fruits	July to September
Ficus benghalensis L.	Moraceae	Fruits	July to September
Ficus exasperata Vahl	Moraceae	Fruits	July to September
Ficus hispida L.F.	Moraceae	Fruits	July to September
Ficus racemosa Vahl.	Moraceae	Fruits	July to September
Ficus religiosa L.	Moraceae	Leaves and Fruits	July to September
Ficus virens Aiton	Moraceae	Fruits	July to September
Flacourtia indica (Burm. f.) Merr.	Salicaceae	Fruits	April to June
Flueggea virosa (Roxb. ex Willd.) Royle	Phyllanthaceae	Leaves and Fruits	July to September and October to December
Garuga pinnata Roxb.	Burseraceae	Fruits	April to June and July to September
Girardinia diversifolia (Link) Friis	Urticaceae	Leaves	Throughout the year
Gliricidia sepium (Jacq.) Kunth	Fabaceae	Flowers	April to June
Glycosmis pentaphylla (Retz) DC.	Rutaceae	Fruits	Throughout the year
Gynochthodes umbellata (L.) Razafim. & B. Bremer	Rubiaceae	Fruits	July to September
Habenaria plantaginea Lindl.	Orchidaceae	Underground parts	October to December
Huberantha cerasoides (Roxb.) Chaowasku	Annonaceae	Fruits	July to September
Hugonia mystax L.	Linaceae	Fruits	April to June and October to December
Ipomoea batatas (L.) Lam.	Convolvulaceae	Underground parts	October to December and January to March
Ipomoea staphylina Roem. & Schult.	Convolvulaceae	Leaves	October to December and January to March
Jasminum multiflorum (Burm.f.) Andrews	Oleaceae	Fruits	July to September
Kalanchoe pinnata (Lam.) Pers.	Crassulaceae	Leaves	Throughout the year
Lentana camara L.	Verbenaceae	Fruits	Throughout the year
Limonia acidissima L.	Rutaceae	Fruits	July to September
Madhuca longifolia (L.) J.F.Macbr.	Sapotaceae	Fruits	July to September
Maerua oblongifolia (Forssk.) A. Rich.	Capparaceae	Underground parts	October to December
Mangifera indica L.	Anacardiaceae	Fruits	July to September
Melia dubia Cav.	Meliaceae	Fruits	July to September
Memecylon edule Roxb.	Melastomataceae	Fruits	July to September

Mimusops elengi L.	Sapotaceae	Fruits	July to September
Mirabilis jalapa L.	Nyctaginaceae	Underground parts	October to December
Morinda pubescens Sm.	Rubiaceae	Fruits	July to September
Mutarda nigra (L.) Bernh.	Brassicaceae	Leaves	Throughout the year
Naringi crenulata (Roxb.) Nicolson	Rutaceae	Leaves	July to September
Ocimum basilicum L.	Lamiaceae	Leaves	Throughout the year
Ocimum tenuiflorum L.	Lamiaceae	Leaves	Throughout the year
Opuntia vulgaris Mill.	Cactaceae	Fruits	July to September
Oxalis corniculata L.	Oxalidaceae	Leaves	Throughout the year
Pachygone ovata (Poir.) Miers ex Hook.f. & Thomson	Menispermaceae	Leaves	Throughout the year
Passiflora foetida L.	Passifloraceae	Fruits	Throughout the year
Phyllanthus emblica L.	Phyllanthaceae	Fruits	July to September and October to December
Phyllanthus polyphyllus Willd.	Phyllanthaceae	Leaves and Fruits	July to September
Phyllanthus reticulatus Poir.	Phyllanthaceae	Fruits	January to March, July to September and October to December
Piper betle L.	Piperaceae	Leaves	Throughout the year
Piper nigrum L.	Piperaceae	Fruits	Throughout the year
Pithecellobium dulce (Roxb.) Benth.	Fabaceae	Fruits	April to June
Plumbago zeylanica L.	Plumbaginaceae	Leaves	Throughout the year
Trianthema portulacastrum L.	Aizoaceae	Leaves	Throughout the year
Premna tomentosa Willd.	Verbenaceae	Fruits	April to June
Psidium guajava L.	Myrtaceae	Fruits	Throughout the year
Psydrax dicoccos Gaertn.	Rubiaceae	Fruits	July to September
Rubus niveus Thunb.	Rosaceae	Fruits	April to June and October to December
Santalum album L.	Santalaceae	Fruits	July to September
Schleichera oleosa (Lour.) Oken	Sapindaceae	Leaves and Fruits	April to June and July to September
Scutia myrtina (Burm.f.) Kurz	Rhamnaceae	Fruits	July to September
Semecarpus anacardium L.f.	Anacardiaceae	Seeds	July to September
Senegalia caesia (L.) Maslin, Seigler & Ebinger	Fabaceae	Flowers	July to September
Senna auriculata (L.) Roxb.	Fabaceae	Leaves and Flowers	Throughout the year
Senna occidentalis (L.) Link	Fabaceae	Leaves	Throughout the year
Senna tora (L.) Roxb.	Fabaceae	Leaves	Throughout the year
Solanum nigrum L.	Solanaceae	Leaves and Fruits	Throughout the year
Solanum torvum Sw.	Solanaceae	Fruits	Throughout the year
Solanum violaceum Ortega	Solanaceae	Fruits	October to December and January to March
Spermacoce ocymoides Burm.f.	Rubiaceae	Leaves	Throughout the year
Sphagneticola calendulacea (L.) Pruski	Asteraceae	Leaves	Throughout the year
Stephanotis volubilis (L.f.) S.Reuss, Liede & Meve	Apocynaceae	Leaves	Throughout the year
Strychnos potatorum L.f.	Loganiaceae	Fruits	July to September
Syzygium cumini (L.) Skeels.	Myrtaceae	Fruits	July to September
Tamarindus indica L.	Fabaceae	Fruits	July to September
Tarenna asiatica (L.) Kuntze ex K.Schum.	Rubiaceae	Leaves and Fruits	July to September
Terminalia catappa L.	Combretaceae	Fruits and Seeds	July to September
Terminalia chebula Retz.	Combretaceae	Fruits	July to September
Trianthema portulacastrum L.	Aizoaceae	Leaves	Throughout the year
Trichodesma indicum (L.) Sm.	Boraginaceae	Leaves	Throughout the year
Uvaria narum (Dunal) Blume	Annonaceae	Fruits	July to September and October to December
Vitex altissima L.f	Verbenaceae	Fruits	July to September
Zanthoxylum asiaticum (L.) Appelhans, Groppo & J.Wen	Rutaceae	Leaves and Fruits	July to September and October to December
Zingiber zerumbet (L.) Roscoe ex Sm.	Zingiberaceae	Underground parts	October to December and January to March
Ziziphus mauritiana Lam.	Rhamnaceae	Fruits	October to December
Ziziphus oenoplia (L.) Mill.	Rhamnaceae	Fruits	October to December
Ziziphus xylopyrus (Retz.) Willd.	Rhamnaceae	Fruits	October to December

plants is used to study species composition, habitat preferences, and ecological changes. Floristic analysis was employed to identify the distribution of wild edible species diversity, and the results revealed clear and evident patterns of biodiversity. However, the limited availability of distribution data has impeded the interpretation of geographic biodiversity distribution Zhang and Ma, (2008). Geographical data were recorded based on the common distribution of each plant species.

Wild edibles were collected from 19 villages, and their distribution and elevation were measured using GPS. Several notable examples of distribution were observed. For instance, *Aegle marmelos* (L.) Correa., *Atalantia monophylla* DC., *Ceropegia juncea* Roxb., *Huberantha cerasoides* (Roxb.) Chaowasku, *Bridelia retusa* (L.) A. Juss., *Celtis bindii* Pamp., and *Dioscorea pentaphylla* L. were found in remote forest areas near villages such as Arumalpattu, Kavalur, Nellivasal, Puthur Nadu, and Sembarai. *Aglaia elaeagnoidea* (A. Juss.) Benth., *Ficus racemosa* Vahl., and *Madhuca longifolia* (L.) J.F. Macbr. were commonly found in the vicinity of temples near Valasa and Arumalpattu villages. *Psydrax dicoccos* Gaertn., *Decalepis hamiltonii* Wight & Arn., and *Diospyros ovalifolia* Wight were observed in rocky areas of Kavalur, Kombai, and Nellivasal Nadu villages. Species such as *Ficus exasperata* Vahl, *Glycosmis pentaphylla* (Retz) DC., *Gynochthodes umbellata* (L.) Razafim. & B. Bremer, *Melia dubia* Cav., *Memecylon edule* Roxb., *Rubus niveus* Thunb., and *Uvaria narum* (Dunal) Blume were distributed along slopes near villages like Sembarai, Valasa, Nellivasal Nadu, and Mel Pattu. Meanwhile, *Asclepias curassavica* L., *Centella asiatica* (L.) Urb., *Colocasia esculenta* (L.) Schott., *Sphagneticola calendulacea* (L.) Pruski, and *Zingiber zerumbet* (L.) Roscoe ex Sm. were found near riverside villages such as Nellivasal Nadu, Arumalpattu, and Puthur Nadu. The numbers shown in Figure 2 represent the distribution of wild edibles and their binomial names arranged alphabetically in Table 1.

The Note Cam application assisted in recording GPS locations of wild edible plants. The survey classified the distribution of wild edibles across altitudes ranging from 450 feet to 1176 feet. The study area was divided into three zones: 400–700 feet, 701–900 feet, and 901–1200 feet. In the first zone (400–700 feet), where Arumalpattu and Kavalur villages located and revealed 41 wild edible species. Notable examples include *Atalantia monophylla* DC., *Naringi crenulata* (Roxb.) Nicolson, *Vitex altissima* L.f., and *Diospyros neilgerrensis* (Wight) Kosterm., with dominant species such as *Ehretia microphylla* Lam. and *Tarenna asiatica* (L.) Kuntze ex K. Schum. In the second zone (701–900 feet), where Nellivasal Nadu and Malaiyandipatti villages located and resulted 60 wild edible species. Examples include *Strychnos potatorum* L.f., *Memecylon edule* Roxb., and *Premna tomentosa* Willd., with dominant species such as *Zanthoxylum asiaticum* (L.) Appelhans, Groppo & J. Wen, *Huberantha cerasoides* (Roxb.) Chaowasku, and *Terminalia chebula* Retz. In the third zone (901–1200 feet), where Kothanur, Mel Pattu, Palaiyapalayam, Puthur Nadu, and Sembarai villages located and contained 42 wild edible species. Examples include *Rubus niveus* Thunb., *Semecarpus anacardium* L.f., *Annona squamosa* L., *Bridelia retusa* (L.) A. Juss., *Celtis biondii* Pamp., and *Ficus exasperata* Vahl., with dominant species such as *Uvaria narum* (Dunal) Blume and *Glycosmis pentaphylla* (Retz) DC.

Ehretia microphylla Lam. was commonly found at low elevations (450 feet), while *Rubus niveus* Thunb. and *Uvaria narum* (Dunal) Blume were distributed at higher altitudes (1176 feet). Wild edible plants such as *Uvaria narum* (Dunal) Blume, *Zanthoxylum asiaticum* (L.) Appelhans, Groppo & J. Wen, *Senegalia caesia* (L.) Maslin, Seigler & Ebinger, and *Rubus niveus* Thunb. grow profusely near agricultural land and along village footpaths. The Malayali tribals often cut down these plants to clear pathways

Phenology of wild edibles

Information was collected regarding the seasonal availability of wild edible plants and their occurrence during specific season times of the year. Tamil Nadu is categorized into four seasons based on climatic criteria: the Post-Monsoon season (January to March), the Pre-monsoon season (April to June), the South West monsoon season (July to September), and the North East monsoon season (October to December). In the study area (Table 1), wild edible leafy vegetables were available throughout the year, underground parts were available during the North East monsoon

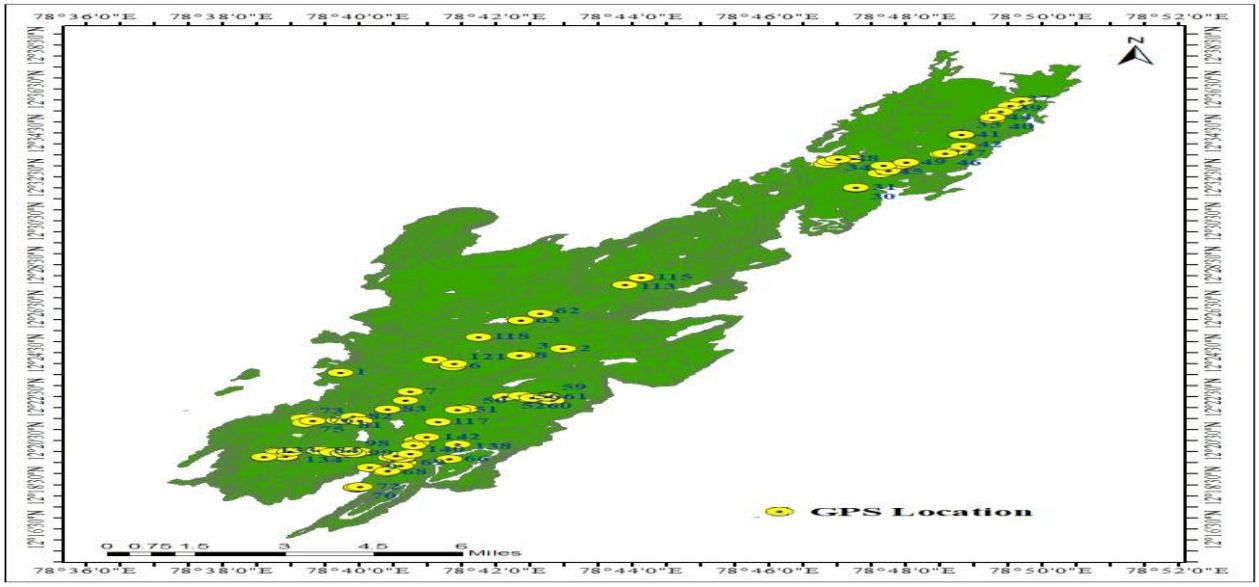

Figure 2: Distribution pattern of wild edible plants in Jawadhu hills, Tirupattur district

season, and flowers and fruits, particularly young and ripe fruits, were available during the South West monsoon season. Ten wild edible plants were recorded in the Post-monsoon season, it includes *Cipadessa baccifera* (Roxb. ex Roth) Miq., *Curculigo orchioides* Gaertn., *Decalepis hamiltonii* Wight & Arn., *Embelia basaal* (Roem. & Schult.) A.DC. and *Phyllanthus reticulatus* Poir. These plants were enumerated from Valasa, Malaiyandipatti, Kombai, and Nellivaasal Nadu villages and nearby forests. Fourteen wild edible plants were available during the Pre-monsoon season, they were as follows *Alangium salviifolium* (L.f.) Wangerin, *Capparis zeylanica* L., *Flacourtia indica* (Burm. f.) Merr., *Gliricidia sepium* (Jacq.) Kunth, *Rubus niveus* Thunb., and *Garuga pinnata* Roxb. These plants were enumerated from Arumalpattu, Mel Pattu, Nellivaasal Nadu, and Kavalur villages surroundings forest. Sixty-three wild edible plants were available during the South West monsoon season. Important examples include *Senegalia caesia* (L.) Maslin, Seigler & Ebinger, *Aglaia elaeagnoidea* (A. Juss.) Benth., *Schleichera oleosa* (Lour.) Oken, *Santalum album* L., *Breynia vitis-idaea* (Burm.f.) C.E.C. Fisch., *Bridelia retusa* (L.) A. Juss., *Psydrax dicoccos* Gaertn., *Celtis biondii* Pamp., *Elaeagnus conferta* Roxb., *Gynochthodes umbellata* (L.) Razafim. & B. Bremer, *Memecylon edule* Roxb., *Huberantha cerasoides* (Roxb.) Chaowasku, *Semecarpus anacardium* L.f., and *Strychnos potatorum* L.f. These plants were enumerated from villages such as Valasa, Kilur, Kothanur, Mel Pattu, Nellivaasal Nadu, and Kavalur.

Twenty-four wild edible plants were available during the North East monsoon season. Examples include *Aegle marmelos* (L.) Correa., *Habenaria plantaginea* Lindl., *Maerua oblongifolia* (Forssk.) A. Rich., *Ziziphus mauritiana* Lam., *Ipomoea staphylina* Roem. & Schult., *Zingiber zerumbet* (L.) Roscoe ex Sm., and *Uvaria narum* (Dunal) Blume. These plants were enumerated from Nellivaasal Nadu, Puthur Nadu, Puliur, and Kavalur villages surroundings. Overall, fifty-two species of wild edible plants were available throughout the year, 122 species were available in a single season, and 20 species were available in two seasons. *Phyllanthus reticulatus* Poir. was available during the Post-monsoon, South West monsoon, and North East monsoon seasons. *Psydrax dicoccos* Gaertn., an edible fruit, becomes available only once every seven years, while *Memecylon edule* Roxb. Fruits are available once every five years.

IUCN categories of wild edible plants

Being significance of nutritional and medicinal uses of these wild edible plants was overharvested, whether legally or illegally, from the wild over the years, and sold in local, markets. Therefore, the endangered wild edible plant species span gets started, due to collecting the plant or plant parts. The IUCN RED list plays a crucial role as an indicator of global biodiversity health. Beyond enumerated wild edible species and their status, it serves as a potent tool to drive awareness and action for

biodiversity conservation, which is essential for safeguarding natural resources. It provides information about the range, threats and conservation actions. During the current investigation of RED-listed wild edible species were surveyed throughout the Jawadhu hills. The IUCN enumeration of wild edible plants list data revealed that Least Concern (LC) 70 species. *Decalepis hamiltonii* Wight & Arn. Endangered (EN) 1 species. *Carissa carandas* L., *Ipomoea batatas* (L.) Lam., *Mangifera indica* L. and *Zingiber zerumbet* (L.) Roscoe ex Sm. Data Deficient (DD) 4 species. *Santalum album* L. Vulnerable (VU) 1 species. *Aegle marmelos* (L.) Correa is Near Threatened (NT) 1 species.

CONCLUSION

The study highlights the rich knowledge of the Malayali tribal community, particularly the wild edible plants. Tamil Nadu's four climatic seasons strongly influence the distribution and accessibility of different plant parts, with leafy vegetables available year-round, underground parts during the North East monsoon, and flowers and fruits predominantly during the South West monsoon. Specific species were documented across villages and forest areas, showing clear ecological and cultural patterns of use. Overall, 52 species were available throughout the year, while most others were restricted to one or two seasons, reflecting the strong link between plant phenology and tribal subsistence practices. Remarkably, certain species such as *Psydrax dicoccos* and *Memecylon edule* fruit only once in several years, underscoring the importance of long-term ecological knowledge in sustaining food security. This seasonal mapping of wild edibles not only demonstrates the biodiversity richness of the region but also emphasizes the adaptive strategies of the Malayali tribals in utilizing forest resources for nutrition, culture, and livelihood.

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