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Ethno botanical survey of wild edible fruits from two selected regions of Karnataka, India

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Abstract

The diversity of India's flora is a vital component of its rich cultural and ecological tapestry, with the state of Karnataka hosting an exceptional variety of wild edible fruits. These fruits, beyond their basic nutritional value, play a significant role in the local diet and healthcare reflecting a deep reservoir of traditional knowledge. In the current study, we investigated 25 distinct species of wild edible fruits within the forested regions of Sirsi and Shikaripur, Karnataka, aiming to uncover and document their presence and ethno botanical usage. The findings indicate that the percentage occurrence of these species varies significantly, highlighting the ecological diversity and the potential cultural reliance on these fruit species across the regions surveyed. In our investigation, we observed that Myrtaceae species exhibited the highest occurrence, representing 33.33% of the total wild edible fruit species documented. This was closely followed by species belonging to the Phyllanthaceae family (26.66%). By mapping ethno botanical uses of these fruits, the research offers insights into their potential for enriching diets, promoting health, and fostering a sustainable integration of traditional wisdom and modern science in the management of natural resources. This work not only contributes to the field of ethno botany and conservation biology but also advocates for the recognition and preservation of Karnataka's rich biodiversity and cultural heritage for future generations.

Keywords: Wild edible fruits, traditional knowledge, Sirsi, Shikaripur

1. Introduction

Fruits stand as nature's benevolent gift to humanity, offering not just their delightful flavors and refreshing essence but also a treasure trove of nutritional wealth that supplements our daily dietary needs. In the rich tapestry of biodiversity that adorns the Indian subcontinent, Karnataka stands out as a region of immense ecological and cultural diversity. Its varied landscapes, ranging from the lush Western Ghats to the sprawling plains, nurture a wealth of plant species, many of which hold a special place in local traditions and livelihoods. Among these, wild edible fruits are of particular interest, not only for their nutritional value but also for their roles in local economies, healthcare systems, and cultural practices. A number of wild plants, used by rural and tribal populations and contributing significantly to their livelihood and food security have escaped recognition and scientific inquiry. Their distribution, conservation, mode of harvest by locals and optimal use require region-specific assessment in order to integrate them into developmental interventions (Mahapatra and Panda, 2012) ^[13]. The wild fruits are refreshing, delicious and cheap supplements of vitamins, minerals and proteins for the users (Shirsat and Koche, 2020) ^[31]. In rural countryside of many developing nations, wild fruits are the only fruits consumed as people cannot afford cultivated commercial fruits as apple, grapes, pomegranate or orange. In India, the indigenous fruits collected from wild, play significant role in the food and nutrient security of rural poor and tribal (Mahapatra *et al.*, 2012) ^[13]. This research paper explores the ethno botanical uses of wild edible fruits in Sirsi and Shikaripur, of Uttara Kannada and Shimoga district respectively, Karnataka, aiming to document traditional knowledge, assess medicinal values, and highlight the potential for sustainable use and conservation. In the face of global challenges such as food security and climate change, understanding and integrating traditional ecological knowledge can offer innovative solutions. The documentation and scientific validation of the nutritional and medicinal properties of these fruits can open new avenues for research in food science, nutrition, and pharmacology.

2. Materials and Methods

Uttara Kannada District, lies between 13° 55' and 15° 31' N latitude and 74° 9' units and 75° 10' E longitude. Shimoga lies between the latitudes 13°27' and 14°39' N and between the longitudes 74°38' and 76°04' E. Sirsi which is situated in the heart of the Western Ghats and Shikaripur, one of the Malenadu district of Karnataka were selected as study areas (Figure 1). Sirsi experiences pleasant weather all over the year with an annual rainfall of 2,500 mm to 3,500 mm. Shikaripur which has dry landscapes, tropical forests with less mountains and valleys with an average rainfall of 3500 – 5500 mm. A comprehensive survey of wild edible fruits was conducted in the Sirsi and Shikaripur region from January 2023 to September 2023. This study aimed to document the diversity of wild fruit species in various seasons, utilizing established botanical references for species identification and preparing

specimens for herbarium collection following standard procedures. Wild edible fruits were collected across different seasons to capture the full range of species present in both the regions. The collection process was systematically organized to ensure a representative sample of the fruit species diversity. The identification of collected specimens was rigorously performed using key botanical references: Flora of Karnataka (Saldanha, 1984) [28], Flora of Eastern Karnataka (Singh, 1988), and Flora of the Presidency of Madras (Gamble, 1915) [6]. Specimens were preserved following standard herbarium preparation techniques which involved pressing the collected fruits between blotting sheets and newspapers to ensure optimal preservation for future reference and study. The prepared specimens were then catalogued for inclusion in the herbarium collection.

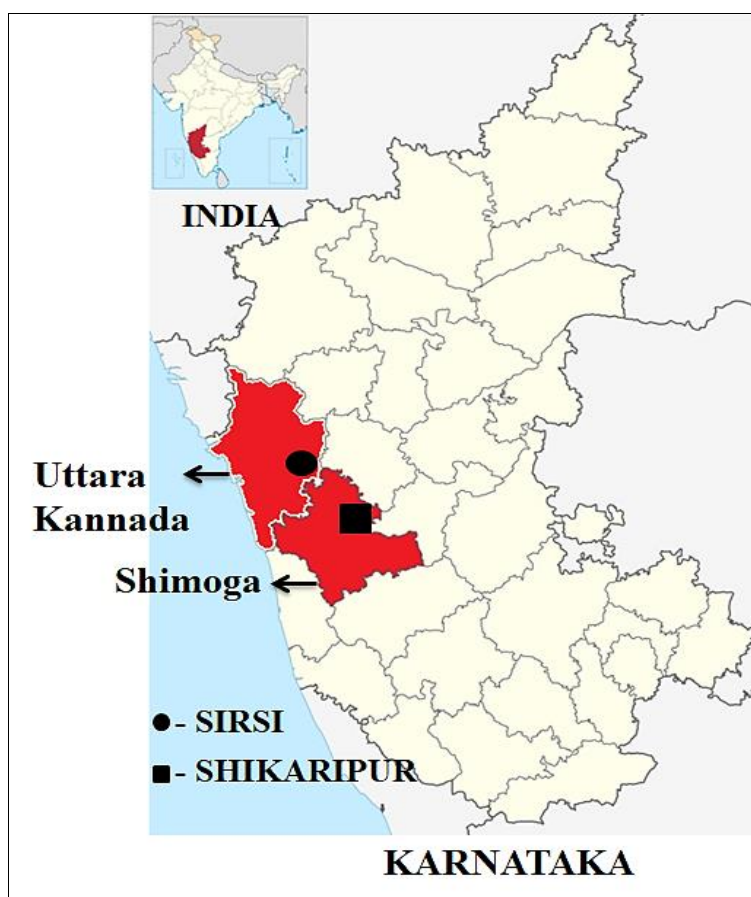


Fig 1: Map showing the location of areas surveyed for wild edible fruits

3. Results

The present study reported wild edible fruits belonging to 25 species across 18 genera and 15 families. Based on their habitats, 17% are trees and 8% are shrubs (Figure 2). The table 1 outlines comprehensive details, including the fruiting season, common names, descriptions of the fruits, modes of utilization, and their ethno botanical uses. The percentage of occurrence of wild edible fruits is graphically represented in Figure 3. Myrtaceae species exhibited the highest occurrence, representing 33.33% of the total wild edible fruit bearing plant species documented which was closely followed by plant species belonging to the Phyllanthaceae family (26.66%), followed by Arecaceae and Clusiaceae with 13.33% of occurrence respectively.

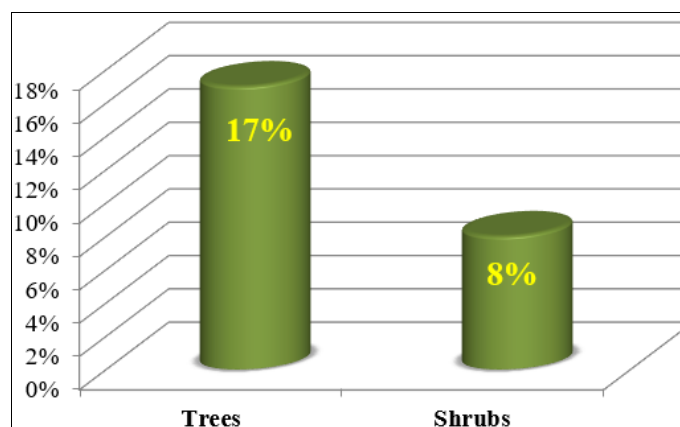


Fig 2: Categorization of wild edible fruits based on their habitats

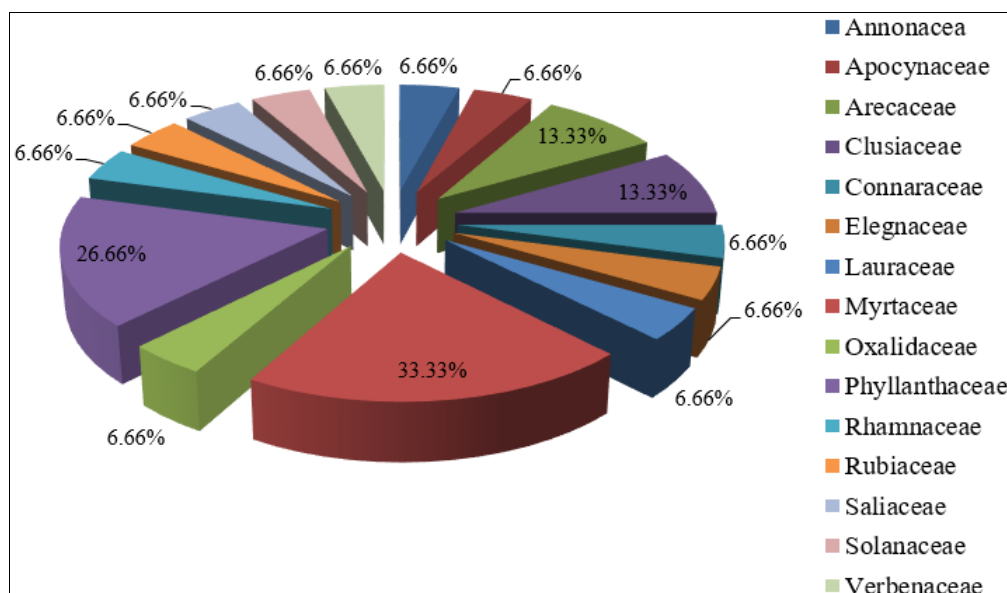


Fig 3: Percentage of occurrence of wild edible fruits surveyed in Sirsi and Shikaripur of Karnataka.



Fig 4: Wild edible fruits surveyed in Sirsi and Shikaripur. A- *Annona reticulata* Linn.; B- *Aporosa lindleyana* (Wight) Baill.; C- *Averrhoa carambola* L.; D- *Carissa carandas* L.; E-*Elaeagnus conferta* Roxb.; F- *Flacourtia montana* J. Graham; G- *Flueggea virosa* (Roxb. ex Willd.) Royle; H- *Garcinia indica* Choisy; I- *G. gummi-gutta* (L.) N. Robson; J- *Gardenia gummiifera* L.f.; K- *Ixora coccinea* L.; L- *Lantana camara* L.; M- *Persia americana* Mill.; N- *Phoenix acaulis* Roxb.; O- *P. sylvestris*; P- *Phyllanthus acidus* (L.) Skeels; Q- *P. emblica* L.; R- *Rourea santaloides* Aubl; S- *Solanum nigrum*; T- *Syzygium aqueum* (Burm. f.) Alston; U- *S. caryophyllatum* (L.) Alston; V- *S. cumini* (L.) Skeels.; W- *S. jambos* L. (Alston); X- *S. samarangense* (Blume) Merr.&L.M.Perry; Y- *Ziziphus rugosa* Lam.

Conversely, among the 18 genera, the dominant species were associated with *Syzygium*, which constituted 5 different species: *S. aqueum*, *S. caryophyllatum*, *S. cumini*, *S. jambos*, and *S. samarangense*. This was followed by the genera *Garcinia*, *Phoenix*, and *Phyllanthus* each represented by 2 species. Additionally, among the 25 species reported in the present study, 16 species were common in both the selected regions. However, some species, such as *Aporosa lindleyana*,

Flacourtia montana, *Flueggea virosa*, *Phoenix acaulis*, and *Syzygium samarangense* were found only in Sirsi. In contrast, *Annona reticulata*, *Phoenix sylvestris*, and *Solanum nigrum* were found only in Shikaripur being unique to specific region. The photographs of wild edible fruits captured during the survey and documentation in two selected regions are presented in Figure 4.

Table 1: Habit, fruiting season, description, mode of use and ethno-medicinal uses of wild edible fruits investigated in Sirsi and Shikaripur, Karnataka.

Botanical Name	Family	Local/Kannada Name	Habit	Fruiting season	Description of fruit	Mode of use	Ethno-medicinal uses	References
<i>Annona reticulata</i> Linn.	Annonaceae	Rama-phala	T	March-April	Heart-shaped, spherical, oblong or irregular. The size ranges from 7 centimetres (2.8 in) to 12 centimetres (4.7 in), depending on the cultivar. When ripe, the fruit is brown or yellowish, with red highlights and a varying degree of reticulation.	The flesh has sweet and pleasant flavor akin to the taste of 'traditional' custard.	Traditionally used for the treatment of epilepsy, dysentery, cardiac problems, worm infestation, constipation, haemorrhage, antibacterial infection, dysuria, fever, ulcer etc. It also has antifertility, antitumour and abortifacient properties.	Pathak and Zaman, (2013) ^[22]
<i>Aporosa lindleyana</i> (Wight) Baill.	Phyllanthaceae	Challe hannu	T	December-January	Capsule 10-12 mm across, globose, yellow, glabrous, pointed with the style; aril orange-yellow; seed one, brown, plano convex.	The seeds with fleshy arils are separated from mature fruits and consumed. Arils are sweet and sour in taste.	Used as a Coolant	Jothi <i>et al.</i> (2008) ^[10]
<i>Averrhoa carambola</i> L.	Oxalidaceae	Nakshatra hannu	T	October-November	The fruits are oblong, star shaped with five prominent ridges about 7 - 15 cm long and 9 cm wide. The fruits have a thin yellow color waxy skin. The juicy fruit is yellow inside when ripe with about 12 seeds which are flat, thin and brown.	Fruits are refreshing eaten fresh, mixed with other fruits, in salads, or processed into drinks. They are also stewed, pickled or used for chutney and jam. The fruit flavor is enhanced by peeling off the 'wing' edges, which removes most of the oxalic acid.	Anti-oxidant, anti-hyperglycemic, anti-obesity, anti-hyperlipidemic, anti-tumor, anti-inflammatory, hepatoprotective, cardioprotective, anti-hypertensive, neuroprotective	Luan <i>et al.</i> (2021) ^[12]
<i>Carissa carandas</i> L.	Apocyanaceae	Kavali kayi	S	July-September	Most fruits are about three-quarters of an inch in diameter with a few seeds. Fruits usually occur in clusters resembling large purple grapes	Ripe fruits are taken raw or dried. The mature fruits are harvested for pickles. It contains pectin and accordingly is a useful ingredient in jelly, jam, syrup and chutney.	The fruit is used as appetizer. The unripe fruits have astringent taste owing to rich in iron and vitamin C which has anti-scorbutic property and can be used for the treatment of anemia. Fruits has been used to treat various human ailments such as: colic, oedema, hepatomegaly, splenomegaly, indigestion, cardiac diseases, amenorrhoea, and it is useful in treating of brain anorexia disease.	Tesfaye and Ravichandran, (2018) ^[37]
<i>Elaeagnus conferta</i> Roxb.	Elaeagnaceae	Halage hannu	S	October-February	Fruit is a nut covered with thickened perianth base, 2.6 x 1.2 cm, reddish, fleshy.	The fruits are juicy, and can be eaten fresh. The fruits can also be made into juice, soda water, canned fruits and syrups etc. since the fruits get ripe earlier, and they can be used as a new variety of fruits in the off-	Berries are playing an important role in tribal diets. Various phytochemicals from fruit function as antioxidants, anticancer agent. Bioactive compounds of berries possibly block the entry of microorganisms by preventing	Selvakumar <i>et al.</i> (2022) ^[30]

						season.	them from adhering to the human cells. Epidemiological studies correlate ROS (Reactive Oxygen Species) values with DNA damage, heart diseases, cancer, and other chronic and degenerative diseases.	
<i>Flacourtia montana</i> J. Graham	Salicaceae	Sampige hannu	T	November-April	Fruit is a berry, globose, obtusely ribbed, 1-1.5 cm across, bright red, of an agreeable acid flavor.	Fruits are edible, pleasantly acidic, also made into jellies.	Eaten as raw after ripening by Kattunaikka community	Ratheesh Narayanan <i>et al.</i> (2011) ^[24]
<i>Flueggea virosa</i> (Roxb. ex Willd.) Royle	Phyllanthaceae	Belahuli, Bilisuli	S	October-January	Fruits are white and fleshy, 3 mm or a little more in diameter.	The small fruit is sweet and eaten by people, animals and birds when ripe.	The fruit, mixed with pulses, is eaten to relieve digestive disorders. Women are said to eat the fruit in order to promote fertility	Burkil (1985) ^[3]
<i>Garcinia indica</i> (Thouars) Choisy	Clusiaceae	Murugalu	T	November-February	Fruit fleshy berry, globose, 2-2.5 x 1.5-2 cm across, sulcate, maroon, wine brown or dark reddish, 4-8 loculed, encased by persistent sepals and crowned by stigma.	As a souring agent, it is used as an alternative to tamarind in curries and other dishes from south India. It is also used in cuisine from Gujarat, where it is frequently used to add flavor and tartness to dal (lentil soup) for flavor balance.	Fruit has been used to treat wounds, dermatitis, diarrhoea, dysentery, ear infections, and digestive problems, antioxidant and cytotoxic properties, antibacterial, anti-helminthic, anti-inflammatory, antacid, anti-ulcer, cardio protective, UV protection, anti-hyperglycemic, protective effect against Parkinson disease, treatment for newly acquired or recently active traumatic disease, anti-cancer, anti-hyaluronidase and elastase, anti-obesity, anti-arthritis.	Maurya <i>et al.</i> , (2023) ^[16] .
<i>G. gummi-gutta</i> (L.) N. Robson	Clusiaceae	Uppage	T	June-September	Fruits are ovoid, 2 inches in diameter, yellow when ripe, with 6-8 grooves; seeds 6-8 surrounded by succulent aril.	The aril and the fleshy covering encasing the seed is edible when ripe.	The traditionally smoke dried fruit rind is known as ‘Malabar tamarind’ was used for “Colombo curing” of fish, where the pickling was done in brine along with the smoke dried rinds. The fruit rind has traditionally been used to treat gastrointestinal problems, diarrhea, and ulcers.	Anilkumar <i>et al.</i> (2023) ^[1]
<i>Gardenia gummiifera</i> L.f.	Rubiaceae	Bikke hannu	T	June-August	Fruit a berry, 4 x 3 cm, ellipsoid or oblong; seeds rugose.	Pulp is eaten raw	As an antioxidant and hepatoprotective activities of fruit methanol extract have been reported.	Vinaykumar <i>et al.</i> (2020) ^[38] .
<i>Ixora coccinea</i> L.	Rubiaceae	Rugmini	S	April-July	Berry fruits are round and dark purple to black.	Fruits when fully ripe, are used as a dietary source.	Fruits and roots are given to females when the urine is high coloured	Dontha <i>et al.</i> (2015) ^[5] .

<i>Lantana camara</i> L.	Verbenaceae	Chaduranga	S	Year round	The fruits are small drupes fleshy, about 3 mm in diameter, varying in color from blue to black.	Only the dark bluish-black <i>Lantana</i> berries are safe for consumption and eaten out of hand or made into jams and jellies. When crushed, they leave a deep inky stain which is used to create a light purple dye	A decoction of leaves and fruits is used as a lotion for wounds.	Negi <i>et al.</i> (2019) ^[19]
<i>Persea americana</i> Mill.	Lauraceae	Avocado	T	March-April	Fruit pear-shaped measuring 3 to 8 inches, fleshy, smooth to pebbly texture, yellow green to dark purple or almost black when ripe. Fruit ripens late summer to early spring.	Fruits are used in reducing cholesterol and preventing cardiovascular diseases. The processed avocado pulp is an alternative to utilize fruits, which can be used in various value-added food products.	Used to treat Poliomyelitis, Chicken pox, measles	Oladunmoye and Kehinde, 2011
<i>Phoenix acaulis</i> Roxb	Arecaceae	Ichalu	T	May-June	Fruit is obovoid, 12-18 x 8 mm, ripening from green with scarlet tips to blue-black, with mesocarp scarcely fleshy and stigmatic remains prominently pointed (1 - 2 mm long).	Pulp is eaten raw	Immature-fruit is made in to a fine paste and the paste thus obtained is taken with rice washed water to check vomiting.	Tropical Plants Database, Ken Fern. tropical.theferns.info. 2023-12-07. <tropical.theferns.info/viewtropical.php?id=Phoenix+acaulis>
<i>P. sylvestris</i> L. Roxb	Arecaceae	Kharjura	T	August - July	Fruiting spadix about 90 cm long, bearing oblong-ellipsoid berries, 2.5-3.2 cm long, orange-yellow when ripe.	Fruit is consumed by extracting the fibrous pulp. The fruit is smaller in size, and its consumption is often overshadowed by the traditional use of the palm for sap extraction to produce toddy or palm wine.	Fruit kernel as anti-aging tonic. The fruit also serves as a tonic and restorative, and is also used as an analgesic to mitigate pain from backache and in the buttocks. It also used as an aphrodisiac, sweetener and <u>diuretic</u> and in the treatment of vomiting, vertigo and unconsciousness. Dates contain a good amount of dietary fiber and facilitate evacuation of the bowels. Dried dates improve cardiovascular health by soaking out all the cholesterol from the arteries. They have high calcium content and improve bone health. Generally the juice of <i>P. sylvestris</i> is consumed as a cooling beverage.	Ishtiaq <i>et al.</i> (2007) ^[7] ; Jain <i>et al.</i> (2018) ^[8]
<i>Phyllanthus acidus</i> (L.) Skeels	Phyllanthaceae	Raja nelli	T	June-October	The fruits are numerous, oblate, with 6 to 8 ribs, and are densely clustered. They are pale yellow or	Its fruits can be eaten raw or cooked. It is frequently used in relishes and	Used in treating inflammatory, <u>rheumatism</u> , <u>bronchitis</u> , asthma, <u>respiratory</u>	Tan <i>et al.</i> (2020) ^[36]

					white, waxy, crisp, juicy and very sour.	chutneys, as well as boiled as a flavouring in sweets. The fruit is occasionally used in place of tamarind.	disorder, hepatic diseases and diabetes in India, Asia, the Caribbean region, and Central and South America.	
<i>P. emblica</i> L.	Phyllanthaceae	Nellikayi	T	November-January	Fruit a capsule 1.5-2.5 cm across, subglobose, dehiscent into 6 cocci, disc enlarged to give an appearance of fleshy yellowish-green, indehiscent berry.	Fruit is an important dietary agent, and is used to make murabbah, burfi, ladu, fresh juice, pickle, chutneys, and curries in India.	Fruit is used cure anemia, biliousness, common cold, fever, cough, asthma, bronchitis, diabetes, cephalalgia, ophthalmopathy, dyspepsia, colic, flatulence, hyperacidity, peptic ulcer, erysipelas, skin diseases, leprosy, hematogenesis, inflammation, anemia, emaciation, hepatopathy, jaundice, diarrhea, dysentery, hemorrhages, leucorrhea, menorrhagia, cardiac disorders, and premature greying of hair.	Ishtiaq <i>et al.</i> (2007) ^[7] , Saini <i>et al.</i> , (2022) ^[11] .
<i>Rourea minor</i> (Gaertn.) Merr.	Connaraceae	Huli majjige	S	September-August	Fruits are in follicles, about one inch long, oblique, curved. They are small orange red in color.	The aril of the ripe fruit is eaten	They are widely used in for various health complaints such as rheumatism, diabetes, tumor, asthma, and diarrhea.	Osman <i>et al.</i> (2019) ^[21]
<i>Solanum nigrum</i> Linn	Solanaceae	Kaaki hannu	S	April-May	The berry is 6 to 8 mm (0.24 to 0.31 in) in diameter, dull black or purple-black.	Ripe berries are sweet and salty and were reported to have been used as a famine food in China in the 15th century.	Berries juice is used as a tonic, laxative, appetite stimulant, treating asthma and excessive thirst	Jain (1968) ^[9] ; Read (1977) ^[25]
<i>Syzygium aqueum</i> (Burm.f.) Alston	Myrtaceae	Neer jambe	S	March-April	Fruits are pear-shaped berries (5 cm long). The apex has a shallow cavity that is partially covered by 4 fleshy sepals. The skin is shiny, thin and waxy, while the flesh is white, juicy and crisp. Fruits are often seedless, but sometimes have 1 - 4 small seeds.	The fruits are eaten fresh or preserved. It has a sweet but slightly astringent taste. Sometimes they are boiled briefly and sweetened with sugar. They are added to soups and salads in Indonesia.	The fruit skin is rich in Vitamin A. In the past, Malaysian women who had given birth would eat a ceremonial salad containing the fruit. It is also used in fever treatment, detoxify the liver, headaches, digestive issues, diabetes, lower cholesterol, skin conditions and prevention against certain types of cancers.	Sonawane (2018) ^[34]
<i>Syzygium caryophyllatum</i> (L.) Alston (endangered)	Myrtaceae	Kuntu nerale	T	March July	Fruit is a berry, 5 mm across globose, black.	Fresh fruit appreciated for their juiciness, sweetness, or tanginess. Their natural pectin content and flavors might make fruits suitable for processing into jams, jellies, or preserves. Ripe fruits are eaten by tribal community of kerala	Fruit is used to treat acidity in stomach	Kala and Antony (2021) ^[11]
<i>Syzygium cumini</i> (L.) Skeels.	Myrtaceae	Nerale	T	May-June	The fruits are berry, oblong, black, juicy shining when thoroughly	Fruits can be relished in the form of juices, smoothies,	Seeds and pulp of the fruit have been reported to lower blood	Swami <i>et al.</i> (2012) ^[35]

					ripe.	ice cream, salad, pies and transformed into jam to savour its taste.	glucose levels and delaying diabetic complications including neuropathy and cataracts. The fruit is also recognized as an adjuvant therapy in type-2 diabetes. This has been traced not only to its anthocyanin-rich, dark-purple fleshy pulp.	
<i>Syzygium jambos</i> L. (Alston)	Myrtaceae	Pannerale	T	February-June	Fleshy, pitted fruits are known as drupes (2.5 - 5 cm wide). They are whitish to yellow, round to egg-shaped and smell like rosewater.	Fruits can be consumed directly after picking from the tree	In India, the fruit tonic helps to improve brain and liver health while fruit infusions convey diuretic property	Morton (1987) [17]
<i>Syzygium samarangense</i> (Blume) Merr.& L.M. Perry	Myrtaceae	Jambe hannu	T	May-June	The fruit is a bell-shaped edible berry with colors ranging from white, pale green, green, red, purple, crimson, to deep purple or even black, 4-6 cm long.	Eaten raw with salt	Fruits have been utilised for a range of ailments and conditions in various traditional medical methods. The fruit of this tree in India as a tonic for the brain and for liver problems, as an astringent, digestive and moreover, fruit decoction is utilised to treat fever.	Saroj and Shah, 2022 [29]
<i>Ziziphus rugosa</i> Lam.	Rhamnaceae	Mullannu	T	December-January	Fruits orange to black, obovoid-globose or subglobose. Fruit is 9 - 12mm long and 8-10mm wide.	Eaten raw	The Kodava community in the Kodagu region of the Western Ghats eats the raw and ripened fruit for nutritional source traditionally. The fruit was also used as coolant and to keep body hydrated used by villages of upper-Ghat (Salkani and Killara) and two of the coastal zone (Murur and Kallabbe) in the central Western Ghats, Karnataka, India. The fruit is used by the rural communities of Tiruchirappalli District, Tamilnadu, South India for wounds and diarrhea.	Manjunatha <i>et al.</i> , 2020 [15]

*T-Tree; *S- Shrub

4. Discussion

Wild edible fruits play a crucial role in the diet and livelihoods of many communities worldwide, especially in rural and indigenous areas. The findings indicate a significant overlap in the species of wild edible fruits between the two regions, along with unique species specific to each area. The unique species found in Sirsi and Shikaripur have adapted to the distinct environmental conditions, soil types, climate, and other ecological factors of their respective regions. In the present study, we have identified the presence of *Carissa carandas*, *Garcinia indica*, and *Syzygium cumini* within the forest ecosystem. This finding corroborates the observations previously reported in the regions wildlife sanctuary of Maharashtra by Shirsat and Koche in 2020 ^[31]. We reported the presence of *Gardenia gummifera*, *Phoenix acaulis*, *Syzygium cumini* and *Ziziphus rugosa*. Conversely, documented the occurrence of *Gardenia ternifolia*, *Phoenix reclinata*, *Syzygium cumini*, and three distinct species of *Ziziphus* in the lowland regions of Ethiopia. In addition to our findings, we documented the presence of *Phyllanthus acidus* and *Phyllanthus emblica* in the selected regions. Notably, these species were also reported by Paul *et al.* (2020) ^[23] from Chittagong Hill Tracts, Bangladesh, further reinforcing the consistency of our observations. In the same study, the author also documented various species, including *Flacourtia jangomas*, *Flacourtia indica*, *Garcinia cowa*, *Garcinia xanthochymus*, *Phyllanthus acidus*, *Phyllanthus emblica*, and three distinct species of *Syzygium*, as well as *Ziziphus rugosa* and *Ziziphus oenopia*, distinguishing these findings from our research. In our study, we reported on *Annona reticulata*, *Carissa carandas*, *Phoenix sylvestris*, *Syzygium cumini*, *Phyllanthus emblica*, and *P. acidus*, findings that were also echoed by Nazar *et al.* (2022) ^[18]. Additionally, Nazar *et al.* (2022) ^[18] identified *Annona muricata*, *Annona squamosa*, *Phyllanthus reticulatus*, and two distinct species of *Ziziphus*, thus providing a contrast to our research outcomes. Based on the literatures studied, this was found to be the first report on the investigation and documentation of wild edible fruits from the regions of Sirsi and Shikaripur, Karnataka.

5. Conclusion

Karnataka's forests are home to a diverse array of wild edible fruits, underscoring the state's rich biodiversity. This diversity is not only ecological but also cultural, as these fruits are integral to the local diet and traditional healthcare practices. The research documented 25 distinct species of wild edible fruits in Sirsi and Shikaripur, with Myrtaceae and Phyllanthaceae families showing the highest occurrences. This indicates a significant ecological diversity and suggests a potential for these fruits in enriching diets and traditional medicine. By documenting the diversity and uses of wild edible fruits, the research underscores the importance of conserving Karnataka's natural resources. It advocates for the integration of traditional knowledge with modern conservation efforts, aiming to promote biodiversity and sustainability.

6. References

1. Anilkumar AT, Manoharan S, Balasubramanian S, Perumal E. *Garcinia gummi-gutta*: phytochemicals and pharmacological applications. *BioFactors*. 2023;49(3):584-599.
2. Biswas SC, Kumar P, Kumar R, Das S, Misra TK, Dey D. Nutritional composition and antioxidant properties of the wild edible fruits of Tripura, northeast India. *Sustainability*. 2022;14:12194.
3. Burkill HM. Entry for *Lasiurus hirsutus* (Forssk.) Boiss. [family *Poaceae*]. In: The useful plants of West tropical Africa, 2nd ed. Royal Botanic Gardens, Kew, UK; c1985.
4. Dejene T, Agamy MS, Agúndez D, Martín-Pinto P. Ethnobotanical survey of wild edible fruit tree species in lowland areas of Ethiopia. *Forests*. 2020;11:177.
5. Dontha S, Kamurthy H, Mantripragada B. Phytochemical and pharmacological profile of *Ixora*: a review. *International Journal of Pharmaceutical Sciences and Research*. 2015;7:67-584.
6. Gamble JS. Flora of the Presidency of Madras, Vol.I-III. New Delhi: Creative Media Partners, LLC; c1915. (2018 publications).
7. Ishtiaq M, Hanif W, Khan MA, Ashraf M, Butt AM. An ethnomedicinal survey and documentation of important medicinal folklore food phytonins of flora of Samahni valley, (Azad Kashmir) Pakistan. *Pakistan Journal of Biological Sciences*. 2007;10(13):2241-2256.
8. Jain P, Jain S, Sharma S, Paliwal S. Diverse application of *Phoenix sylvestris*: A potential herb. *Agriculture and Natural Resources*. 2018;52:107-114.
9. Jain SK. Medicinal Plants. Thomson Press (India) Ltd; c1968. p. 133–134.
10. Jothi GJ, Benniamin A, Manickam VS. Glimpses of tribal botanical knowledge of Tirunelveli Hills, Western Ghats, India. *Ethnobotanical Leaflets*. 2008;12:118-126.
11. Kala K, Antony VT. *Syzygium cumini* (Linn) Skeels and *Syzygium caryophyllatum* (L.) Alston, plants of *Myrtaceae* – its ethnobotanical use among four tribal groups of south Kerala. *International Journal of Creative Research Thoughts*. 2021;9(5):571-575.
12. Luan F, Peng L, Lei Z, Jia X, Zou J, Yang Y. Traditional uses, phytochemical constituents and pharmacological properties of *Averrhoa carambola* L.: A review. *Frontiers in Pharmacology*. 2021;12:699899.
13. Mahapatra AK, Panda PC. Wild edible fruit diversity and its significance in the livelihood of indigenous tribals: evidence from eastern India. *Food Security*. 2012;4:219–234.
14. Mahapatra AK, Mishra S, Basak UC, Panda PC. Nutrient analysis of some selected wild edible fruits of deciduous forests of India: an explorative study towards non-conventional bio-nutrition. *Advance Journal of Food Science and Technology*. 2012;4(1):15-21.
15. Manjunatha E, Vedigounder M, Geetha KM, Nandeesh R, Ahmed SM. Antioxidant and antiulcer activity of *Zizyphus rugosa* Lam. Bark. *Research Journal of Pharmacology and Technology*. 2020;13(10):4720-4724.
16. Maurya SR, Haji AS, Shah N. *Garcinia indica* (Thouars) Choisy: its ethnobotanical knowledge, phytochemical studies, pharmacological aspects, future prospects. *Journal of Natural and Applied Sciences Pakistan*. 2023;5(1):1192-1211.
17. Morton JF. Fruits of warm climates. Miami, FL: Creative Resource Systems; c1987.
18. Nazar S, Jeyaseelan M, Jayakumararaj R. Local health traditions, cultural reflections and ethno-taxonomical information on wild edible fruit yielding medicinal plants in Melur region of Madurai district, Tamil Nadu, India. *Journal of Drug Delivery and Therapeutics*. 2024;12(3):138-157.
19. Negi GCS, Sharma S, Vishvakarma SCR, Samant SS, *et al.* Ecology and use of *Lantana camara* in India. *The Botanical Review*; c2019 .p.1-24.

20. Oladunmoye MK, Kehinde FY. Ethnobotanical survey of medicinal plants used in treating viral infections among Yoruba tribe of South Western Nigeria. *African Journal of Microbiology Research*. 2011;5(19):2991-3004.
21. Osman CP, Zahari Z, Adenan MI, Zohdi RM. A review on traditional uses, phytochemistry, and pharmacology of the genus *Rourea*. *Journal of Applied Pharmaceutical Science*. 2019;9(9):125-131.
22. Pathak K, Zaman K. An overview on medicinally important plant - *Annona reticulata* Linn. *International Journal of Pharmacognosy and Phytochemical Research*. 2013;5(4):299-301.
23. Paul AK, Alam MJ, Alam AHMJ. Assessment of wild edible fruits consumed through the tribal people of Chittagong hill tracts (CHTs), Bangladesh. *Indian Journal of Traditional Knowledge*. 2020;19(3):598-603.
24. Ratheesh Narayanan MK, Anilkumar N, Balakrishnan V, Sivadasan M, Ahmed Alfarhan H, Alatar AA. Wild edible plants used by the Kattunaikka, Paniya and Kuruma tribes of Wayanad District, Kerala, India. *Journal of Medicinal Plants Research*. 2011;5(15):3520-3529.
25. Read BE. *Famine Foods of the Chiu-Huang Pen-ts'ao*. Taipei: Southern Materials Centre; c1977.
26. Rymbai H, Verma VK, Talang H, Assumi SR, *et al.* Biochemical and antioxidant activity of wild edible fruits of the eastern Himalaya, India. *Frontiers in Nutrition*. 2023;10:1039965.
27. Saini R, Sharma N, Oladeji OS, Sourirajan A. Traditional uses, bioactive composition, pharmacology, and toxicology of *Phyllanthus emblica* fruits: a comprehensive review. *Journal of Ethnopharmacology*. 2022;282:114570.
28. Saldanha CJ. *Flora of Karnataka, Vol.I*. New Delhi: Oxford & IBH publishing.Co. Pvt. Ltd; c1984.
29. Saroj P, Shah N. *Syzygium samarangense* (Jamb): its ethnobotanical knowledge, phytochemical studies, pharmacological aspects and future prospects. *International Journal of Advanced Research and Innovative Ideas in Education*. 2022;8(6):2242-2253.
30. Selvakumar SVK, Rajesh P, Ezhil Inban M, Manikandan J. Prospective reserves of bioactive compounds and their effect on human health: a review on *Elaeagnus conferta* Roxburgh, an edible wild fruit. *World Journal of Advanced Research and Reviews*. 2022;16(03):969–976.
31. Shirsat RP, Koche DK. A report on wild edible fruits used by the tribal communities inhabiting near Katepurna Wildlife Sanctuary, Maharashtra, India. *Indian Journal of Traditional Knowledge*. 2020;19(3):598-603.
32. Singh J, Rajasekaran A, Negi AK, Pala NA, *et al.* Potential of wild edible fruits for nutrition in indigenous communities of Northwest Himalaya, India. *Ethnobotany Research and Applications*. 2023;25:1–15.
33. Singh NP. *Flora of Eastern Karnataka, Vol. I & II*. New Delhi: Mittal publications; c1988.
34. Sonawane MS. Dietary benefits of watery rose apple (*Syzygium aqueum* (Burm.f.) Alston). *International Archive of Applied Sciences and Technology*. 2018;9(4):126-129.
35. Swami SB, Thakor NSJ, Patil MM, Haldankar PM. Jamun (*Syzygium cumini* L.): a review of its food and medicinal uses. *Food and Nutrition Sciences*. 2012;3:1100-1117.
36. Tan SP, Tan EN, Lim QY, Nafiah MA. *Phyllanthus acidus* (L.) Skeels: a review of its traditional uses, phytochemistry, and pharmacological properties. *Journal of Ethnopharmacology*. 2020;253:112610.
37. Tesfaye T, Ravichadran YD. Traditional uses, pharmacological action and phytochemical analysis of *Carissa carandas* Linn.: A review. *Natural Products of Chemistry and Research*; c2018 .p. 6.
38. Vinaykumar NM, Mahmood R, Krishna V, Ravishankara B, *et al.* Antioxidant and *in vivo* hepatoprotective effects of *Gardenia gummifera* L.f. fruit methanol extract. *Clinical Phytoscience*. 2020;6:47.