



## Wild edible fruit plant diversity in Keonjhar District of Odisha and their ethnobotanical uses

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### Abstract

Wild Edible Fruit Plants (WEPs) are an important alternative source of healthy and nutritious food, playing a crucial role in enriching the global food basket across various regions of the world. In the Keonjhar district of Odisha, several wild edible fruit species are traditionally used by rural and tribal populations as part of their daily sustenance and livelihoods. Keonjhar is home to 25 tribal communities, with major groups including the Bathudi, Bhuyan, Bhumij, Gond, Ho, Kora, Juang, Kharwar, Kisan, Kolha, Munda, Oraon, Santal, Sabara, and Sounti. Together, these groups constitute nearly 90% of the district's total population. These indigenous communities depend heavily on forests for food, nutrition, and income. This article documents 71 important wild fruit species used by the tribal communities of Keonjhar, based on extensive fieldwork conducted by the authors. For each species, the correct botanical name (with author citation), family name, local name, and traditional ethno botanical uses are provided. Despite possessing deep knowledge of these native fruit resources, tribal communities have not yet embraced fruit tree cultivation - an opportunity that could significantly alleviate food insecurity and contribute to global nutrition goals. Therefore, wild edible fruit plants warrant greater recognition and scientific investigation. This article aims to serve as a valuable reference for the sustainable utilization of lesser-known and underutilized biological resources for human welfare. It is hoped that this communication will promote the conservation, research, improvement, and domestication of region-specific wild edible fruit species in Odisha and beyond.

**Keywords:** Indigenous, wild edible fruit plants, ethnic uses, keonjhar, odisha

### Introduction

Wild edible fruit plants serve as an important supplementary food source during times of food scarcity for indigenous communities. These plants are potentially valuable in maintaining a balance between population growth and agricultural productivity. They provide sustainable livelihoods, food security, and play a crucial role in meeting nutritional needs and generating income for impoverished tribal populations (Shrestha and Dhillon 2006) [22]. Forests and their products offer numerous life-supporting commodities, with approximately 350 million people living in or near forests, fully relying on its resources and various wild edible products (Arnold and Perez 2001, Jana and Chauhan 1998) [2, 11]. In India, about 800 species are consumed as wild edible plants by tribal communities (Bandyopadhyay and Mukherjee 2000) [3].

Odisha, located in the Eastern Ghats and bordered by the Bay of Bengal, benefits from a seasonal tropical climate that promotes the growth of a wide variety of wild edible fruit plants (Mishra *et al.* 2009) [15]. While these plants provide essential nutrients for humans, the use of wild edible fruit plants has been declining, particularly in urban cooking styles (Leonti *et al.* 2006) [12]. During periods of food scarcity, rural indigenous communities rely on wild edible plants to meet their nutritional needs in addition to domesticated crops.

In recent years, traditional knowledge regarding the use of these plants is at risk of being lost, with many practices gradually disappearing. This highlights the urgent need for research and documentation of wild edible plants from an ethnobotanical perspective, as well as the exploration of innovative ways to harness their potential for human

welfare. India, recognized as a global centre of agrobiodiversity (Vavilov 1951) [26], covers just 2% of the Earth's surface yet accounts for 5% of the world's plant diversity (Myers *et al.* 2000) [18]. Numerous studies have been conducted on the documentation and usage patterns of wild edible plants in India (Acharya and Satapathy 2023, Behera *et al.* 2008, Mishra and Choudhary 2012, Mohanty *et al.* 2013, Padhy *et al.* 2020, Singh and Arora 1972, Punthir and Singh 2002, Dhole 2021) [1, 5, 7, 14, 16, 19, 20, 23]. Research has also been done on the Western Ghats (Vartak 1980, Vartak 1982, Hebber *et al.* 2010, Hebber *et al.* 2003) [4, 9, 10, 24, 25] and Eastern Ghats (Basha *et al.* 2009, Mahapatra and Panda 2012) [4, 13]. However, documentation of wild edible plants in relation to the livelihoods of rural tribal populations, particularly for household survival, remains scarce.

This paper aims to analyse the traditional value of commonly used wild edible fruits in Keonjhar district of Odisha. Since no previous studies have been conducted on the documentation of wild edible fruit plants and their consumption patterns in Keonjhar, this study seeks to record the wild edible plants used by tribal and rural communities and explore potential ways to utilize these resources for future benefit.

### Materials and Methods

#### Study Area

Keonjhar district, located between latitudes 21° 1' N and 22° 10' N and longitudes 85° 11' E and 86° 22' E, is a landlocked region in the northern part of Odisha. It is bordered to the north by Singhbhum district in Jharkhand, to the south by Angul, Dhenkanal, and Jajpur districts, to the

west by Angul and Sundergarh districts, and to the east by Mayurbhanj, Balasore, and Bhadrak districts (Fig. 1). The district covers an area of 8,240 square kilometers and is divided into two distinct natural regions by the state highways passing through Keonjhar town, the district headquarters. To the east of the highway lies an open plain, while to the west, there is a hilly tract with undulating terrain. The river Baitarani, along with its numerous tributaries, flows through the plains, which are fertile and densely populated. Approximately half of the district, covering 4,043 square kilometers, is covered by northern tropical moist deciduous forests. The hilly region stretching from Singhbhum in Jharkhand to the Banai and Pallahara hills in Dhenkanal contains some of the highest peaks in Odisha, including Gandhamardana (1,060 meters), Sitabinji (670 meters) near Keonjhar, Mankadnacha (1,117 meters) on the Banai border, Thakurani (915 meters), Gonasika (981 meters), Tomaka (785 meters), Bolat (554 meters), Khajaru (918 meters), Ranga (897 meters), Mahaparbat (716 meters), and Khandadhar (915 meters) near the Pallahara border. The soil throughout the district is predominantly red, with a small patch of black cotton soil in the southern region. The district is rich in minerals, with significant deposits of iron ore, manganese, and chromite. The climate is characterized by hot summers with high humidity, with May being the hottest month. The lowest temperature in December can drop as low as 11.7°C. The average annual rainfall is 1,534.5 mm. The diverse soil types, topography, and climate create favourable conditions for a rich plant diversity. As of the 2011 census, Keonjhar district has a scheduled tribe population of 818,878, belonging to 25 different tribes. The principal tribes include Bathudi, Bhuyan, Bhumij, Gond, Ho, Juang, Kharwar, Kisan, Kolha, Kora, Munda, Oraon, Santal, Saora, Sabara, and Sounti. The highest concentration of scheduled tribes is found in the Keonjhar sub-division, while the lowest concentration is in the Anandpur sub-division.

### Data Collection

Field trips were conducted between 2022 and 2024 across various tribal-dominated areas of Keonjhar district, including Pipilia, Kanjipani, Telkoi, Harichandanpur, Pandapada, Gonasika, Khandadhar, Judia, and Banspal, to gather information on wild edible fruits throughout different seasons. Data on flowering and fruiting times, as well as vernacular names, were collected from elderly, knowledgeable tribal people and tribal vendors in rural markets. Plant specimens were collected, and digital photographs were taken to assist in identification. The specimens were then processed in the laboratory for herbarium preparation and were deposited and preserved in the herbarium of the Department of Botany, D.D. University, Keonjhar, Odisha (India). The collected specimens were identified using regional floras (Saxena and Brahmam 1994-1996, Mooney 1950, Haines 1921-1925)<sup>[8, 17, 21]</sup> and other related literature (Chopra *et al.* 1986)<sup>[6]</sup>. The plants are listed alphabetically, with their botanical name, family, local name, life form, parts used, and mode of consumption.

### Results and Discussion

As a result of an extensive survey of bioresources in the study area, a total of 71 species of wild fruit plants, belonging to 54 different genera and 31 families, were

collected, taxonomically studied, and documented for their uses (Table 1). Among the families, Moraceae was the most dominant, represented by 8 species, followed by Rhamnaceae, Rubiaceae, and Rutaceae, each with 5 species (Fig. 2). *Ziziphus* and *Ficus* were the most dominant genera, each represented by 4 species, followed by *Phyllanthus* and *Syzygium*, each with 3 species. Habit-wise, trees made up the largest proportion (66.67%) of the edible wild species, followed by shrubs (20.83%), climbers (8.33%), and herbs (4.16%) (Fig. 3).

The tribal communities of Keonjhar possess extensive knowledge about the various uses of wild edible fruit species. The primary uses of these species include food, vegetables, beverages, cooking oils, spices, condiments, and medicines. About 59 species of wild edible plants are used as raw ripe fruits by the tribal population. Some of the important multipurpose wild edible fruit plant species in the study area include *Aegle marmelos*, *Citrus spp.*, *Artocarpus lacucha*, *Limonia acidissima*, *Phyllanthus emblica*, *Spondia spinata*, and *Semecarpus anacardium* (Table 1).

Information on the therapeutic potential of 14 wild edible fruit plant species, used by dominant tribes, forest dwellers, and local inhabitants, was recorded. These plants are utilized for treating specific human diseases, with details on the parts used and their mode of application as ethno medicine. Fruits from six species are used as vegetables, and the seeds of five species are used to make edible oils (Table 2). Some of the widely used medicinal wild edible fruit plants include *Allophylus serratus* (Roxb.) Kurz., *Atalantia monophylla* (L.) Corr., *Careya arborea* Roxb., *Diospyros melanoxylon* Roxb., *Litsea aglutinosa* (Lour.) Robins., *Phyllanthus emblica* L., *Semecarpus anacardium* L., *Syzygium cumini* (L.) Skeels, *Terminalia bellirica* (Gaertn.) Roxb., and *Terminalia chebula* Retzius. These species are considered high-value plants for various medicinal purposes.

Some species are used primarily as food. For instance, *Diospyros melanoxylon* is sweet, palatable, and rich in minor minerals and nutrients, while *Limonia acidissima* fruits are commonly used to make chutneys and pickles. This multifunctional value of natural products in the region underscores the tribal communities' rich indigenous knowledge of natural resources.

The wild edible fruits are harvested throughout different seasons. Fruits such as wild mango (*Mangifera indica*), jackfruit (*Artocarpus heterophyllus*), bel (*Aegle marmelos*), kendu (*Diospyros melanoxylon*), and wild date palms (*Phoenix spp.*) ripen during the summer, between March and June, and are widely used by tribal people to endure the harsh summer. Fruits like *Syzygium cumini*, *Gardenia gummifera*, and *Artocarpus lacucha* are consumed during the rainy season. *Limonia acidissima*, *Madhuca indica*, and *Phyllanthus emblica* fruits are available in the winter. There is considerable overlap in ripening times among species, both within and across localities, ensuring the availability of wild fruits throughout the year.

Wild edible fruit plants play a crucial role in ensuring food security, providing balanced nutrition, and generating household income for tribal and rural communities. Many indigenous wild fruits used by the tribes are still unknown to the general population in the area. By exploring and documenting these indigenous wild edible fruit plants, new opportunities can be created for promoting their wider consumption, thereby improving public health. Further

large-scale research is needed to uncover their potential as future food sources and medicinal resources.

**Table 1:** Diversity of Wild Edible Fruits in Keonjhar District of Odisha, India

Scientific name	Local name	Family	Life form	Edible part	Mode of consumption
1. <i>Aegle marmelos</i> L.	Bela	Rutaceae	Tree	Unripe fruit and ripe fruit pulp	The ripe fruits possess aromatic pulp and is eaten fresh as such or with water and sugar in the form of sherbat; also used to prepare jam and pickle.
2. <i>Allophylus serratus</i> (Roxb.) Kurz.	Khandakoli	Sapindaceae	Shrub	Ripe fruit	The ripe fruits are eaten by children in rural and tribal areas; also reported to be effective against worm infestation.
3. <i>Ampelocissus latifolia</i> (Roxb.) Planch	Bana-angur, Kanjia-lai	Vitaceae	Climber	Ripe fruit	The blackish purple berries are sweet-sour in taste; eaten by tribals and frequently by birds.
4. <i>Annona reticulata</i> L.	Ata	Annonaceae	Tree	Ripe fruit	Fruits are edible; the white or cream coloured pulp is soft, sweet, aromatic, slightly granular and used to make dessert.
5. <i>Annona squamosa</i> L.	Neua, Badhiala	Annonaceae	Tree	Ripe fruit	The ripe fruit is eaten as dessert; the pulp can be mixed with milk to make a drink or ice cream.
6. <i>Artocarpus lacucha</i> Roxb.	Jeutha	Moraceae	Tree	Ripe fruit	The fruit pulp is sweet-sour in taste and are used for culinary purposes in Keonjhar district. The fresh ripe fruit are made to chutneys. It is dried, sliced and preserved to make pickle.
7. <i>Atalantia monophylla</i> (L.) Corr.	Narguni	Rutaceae	Tree	Ripe fruit	The berries are pickled. The fruit juice is credited with anti-bilious properties.
8. <i>Averrhoa carambola</i> L.	Karamanga	Averrhoaceae	Tree	Ripe fruit	The ripe fruit is eaten directly. It is also preserved to make pickle. Its pulp is used to make beverages.
9. <i>Buchanania lanzan</i> Spreng.	Charakoli	Anacardiaceae	Tree	Ripen fruit	The ripe berry can be eaten fresh. It is also used as pickles. The dark coloured ripe kernels are eaten raw or taken roasted.
10. <i>Bauhinia vahlii</i> Wight & Arn.	Siali	Caesalpiniaceae	Climber	Seed	Roasted seeds are taken raw or taken after boiling.
11. <i>Borassus flabellifer</i> L.	Tala	Arecaceae	Tree	Seed of unripe fruit	The mesocarp of the ripe fruits, though fibrous, contain a soft, mellow, sweet, farinaceous matter called Palmyra pulp which is eaten raw or mixed with flour, milk and coconut, made into cakes and sweets; also used to make jaggery.
12. <i>Bridelia retusa</i> (L.) Spreng.	Panikasi	Euphorbiaceae	Tree	Ripe fruit	Fruits are edible and only taken by forest dwellers as food supplement during distress.
13. <i>Calamus guruba</i> Buch-Ham.	Kanta beta	Arecaceae	Climber	Ripe fruit	The fleshy mucilaginous sweet-bitter pulp of the fruit is edible. The tribals eat the fruit pulp to quench their thirst while moving in the forests.
14. <i>Capparis zeylanica</i> L.	Asadhua	Capparaceae	Climbing shrub	Fruit	Fruit is used as a vegetable or made into pickles. The ripe fruits with white pulp are occasionally eaten by tribals.
15. <i>Careya arborea</i> Roxb.	Kumbhi	Lecythidaceae	Tree	Ripe fruit	Ripe fruits are aromatic and edible, often cooked before eaten. Decoction of fruits is given to promote digestion.
16. <i>Carissa carandas</i> L.	Karandakoli, Ankukoli	Apocynaceae	Shrub	Ripe fruit	Ripe fruits are sweet, edible, suitable for salads, puddings and jellies.
17. <i>Carissa spinarum</i> L.	Khirkoli, Dudhakoli	Apocynaceae	Shrub	Ripe fruit	Ripe berries taste sweet and eaten raw and also used to make syrups and jellies.
18. <i>Catunaregam spinosa</i> (Thunb.) Tirveng.	Mahana, Saralakoli	Rubiaceae	Tree	Fruit	The ripe fruits are edible. These are eaten after being cooked or roasted.
19. <i>Coccinia grandis</i> (L.) Voigt.	Banakunduri	Cucurbitaceae	Climber	Ripe fruit	Ripe fruits are delicious and eaten raw. Fruits are also fried and eaten with cooked rice.
20. <i>Cordia dichotoma</i> Forst.f.	Gualakoli	Ehretiaceae	Tree	Fruit	The fruit is highly mucilaginous, sweet in taste and edible. Raw fruit is taken as vegetable and also made into good pickle.
21. <i>Dillenia pentagyna</i> Roxb.	Rai	Dilleniaceae	Tree	Bud & fruit	Buds and fruits are eaten raw or cooked.
22. <i>Diospyros ferrea</i> (Willd.) Bakh	Guakoli, Gaurakasa	Ebenaceae	Tree	Ripe fruit pulp.	Fruits have sweet pulps when ripe and are eaten raw by children in rural areas.
23. <i>Diospyros melanoxylon</i> Roxb.	Kendu	Ebenaceae	Tree	Ripe fruit pulp.	The ripe fruit pulp is eaten. Wine is made from the fruit by the local people. The Ayurveda medicine is prepared from the fruit to treat diarrhoea.
24. <i>Erycibe paniculata</i> Roxb.	Durkoli	Convolvulaceae	Climbing shrub	Ripe fruit	Ripe berries are pulpy, very sweet in taste and edible.

25. <i>Ficus benghalensis</i> L.	Bara	Moraceae	Tree	Ripe fruit	The ripe fruits are edible but only eaten at the time of scarcity.
26. <i>Ficus hispida</i> L.	Dimiri	Moraceae	Tree	Ripe and Unripe fruits.	The ripe fruits can be eaten raw. The whole fleshy part is edible. The dried fruit is also edible The unripe fruit is used as vegetable in the curries.
27. <i>Ficus racemosa</i> L.	Panidimiri, Baidimiri	Moraceae	Tree	Ripe and Unripe fruits.	Unripe fruits are used as vegetable and ripe fruits are taken directly.
28. <i>Ficus religiosa</i> L.	Ashwatha	Moraceae	Tree	Ripe fruit	The fruits are edible and having high medicinal value; they are taken with jaggery to cure stomach pain.
29. <i>Flacourtia indica</i> (Burm.f.) Merr.	Bainchakoli	Salicaceae	Shrub	Ripe fruit	The ripe fruit is edible, with sweet taste.
30. <i>Gardenia gummifera</i> L.f.	Bhurudukoli	Rubiaceae	Tree	Pulp of ripe fruits.	The fleshy pulp of the fruit is edible. The fruits are of having medicinal values.
31. <i>Glycosmis pentaphylla</i> (Retz.) DC.	Chauladhua	Rutaceae	Shrub	Ripe fruit	The ripe berries are pulpy and eaten raw by tribals and villagers.
32. <i>Grewia subinaequalis</i> DC.	Pharsakoli	Tiliaceae	Shrub	Fruit	Fruits are largely used for preparation of beverages, which is a refreshing summer drink. Pickles are also made of ripe fruits.
33. <i>Ixora pavetta</i> Anders.	Telkoruan	Rubiaceae	Tree	Ripe fruit	The ripe fruits are sweet and edible; used by Santal tribe as an antidote for urine infection.
34. <i>Lannea coromandelica</i> (Houtt.) Merr.	Mahi, Jivala	Anacardiaceae	Tree	Ripe fruit	The ripe fruits are eaten by tribals as a distress food.
35. <i>Limonia acidissima</i> L.	Kaitha	Rutaceae	Tree	Pulp of ripe fruit	The pulp is used raw or it is used to make chutney, pickles etc.
36. <i>Litsea aglutinosa</i> (Lour.) Robins.	Bhagaairee, Jayasandha	Lauraceae	Tree	Ripe fruit	The ripe fruits are edible. The berries yield oil and is used by tribal practitioners in treatment of rheumatism.
37. <i>Madhuca indica</i> J.F. Gmel	Mahula	Sapotaceae	Tree	Flower	The flowers are eaten fresh or dried'. The dried flower powder is cooked with flour used as sweetener. The flower is preserved to make alcohol.
38. <i>Manilkara hexandra</i> (Roxb.) Dubard	Khirakoli	Sapotaceae	Tree	Ripe fruit	The ripe fruits taste similar to sapota and are eaten either fresh or dried.
39. <i>Melastoma malabathricum</i> L.	Gangei	Melastomaceae	Shrub	Ripe fruit	The pulp of the fruit is sweet and edible, resembling that of blackberry in taste and flavour.
40. <i>Mimusops elengi</i> L.	Baulakoli	Sapotaceae	Tree	Ripe fruits	They can be eaten as ripen fruits.
41. <i>Morinda pubescens</i> Sm.	Achhu	Rubiaceae	Tree	Ripe fruit	The ripe fruits are edible. The green fruits are pickled and eaten with curries.
42. <i>Morus nigra</i> L.	Tutkoli	Moraceae	Tree	Ripe fruit	They are eaten fresh or dried.
43. <i>Neolamarckia cadamba</i> (Roxb.) Bosser	Kadamba	Rubiaceae	Tree	Ripe fruit	The orange fleshy part of ripen fruit is eaten. Kadamba fruit carry antibacterial properties.
44. <i>Olex psittacorum</i> (Willd.) Vahl	Bhadabhadalia	Olacaceae	Rigid climber	Ripe fruit	The fleshy fruits are edible when ripe and also reported to be used for making sherbet.
45. <i>Phoenix acaulis</i> Buch. -Ham. exRoxb.	Bhuin-khajuri	Arecaceae	Small tree	Ripe fruit	The fruits with scanty but very sweet pulp, are consumed in large-scale by the tribes and children in hilly areas of the district.
46. <i>Phoenix sylvestris</i> (L.) Roxb	Khajuri	Arecaceae	Tree	Ripe fruit	The ripen dried fruits are eaten. The dried dates are used to make jam, pickles etc.
47. <i>Phyllanthus acidus</i> (L.) Skeels	Nara koli	Euphorbiaceae	Tree	Mature fruit	Fruit are generally too tart for fresh eating but are valued for preparing jellies and pastries. It can also be salted for consumption as raw fruit.
48. <i>Phyllanthus emblica</i> L.	Amla	Euphorbiaceae	Tree	Mature fruit	It can be eaten raw or taken in the form of juice or powder. It is one of the important fruits used in Ayurvedic medicine to correct digestive disorder and to boost immunity.
49. <i>Physalis minima</i> L.	Tomatilo	Solanaceae	Herb	Fruit	Fruit juicy, sweet with a pleasant blend of acidic taste; the raw fruit is taken as a vegetable in rural areas.
50. <i>Pithecellobium dulce</i> (Roxb.) Benth.	Simakaian, Akasakaian	Mimosaceae	Tree	Ripe fruit	The pulpy aril of ripe fruit is sweet and edible. The seeds are eaten raw or in curries.
51. <i>Polyalthia suberosa</i> (Roxb.) Thw.	Guakoli	Annonaceae	Shrub	Ripe fruit	The ripe fruits are sweet, edible and with an agreeable taste; mainly consumed by children.
52. <i>Schleichera oleosa</i> (Lour.) Oken	Kusuma	Sapindaceae	Tree	Ripe fruit	Ripe fruits are edible and seeds are eaten raw or roasted. Seed oil is used in cooking purposes.
53. <i>Semecarpus anacardium</i> L.	Bhalia	Anacardiaceae	Tree	Ripe fruit	The fleshy orange cup (hypocarp) of the fruit is eaten when ripe. The kernel oil is used as lubricants and a wood preservative against white ant.

54. <i>Solanum nigrum</i> L.	Nunnunia	Solanaceae	Herb	Ripe fruit	The ripe fruits have a sweet taste and consumed as food either fresh or cooked into curries.
55. <i>Solanum virginianum</i> L.	Ankaranti	Solanaceae	Herb	Fruit	The unripe fruits are made into curries and ripe fruits eaten raw in times of food scarcity. Seeds are also eaten.
56. <i>Spondias pinnata</i> (L.f.) Kurz.	Ambada	Anacardiaceae	Tree	Ripe and unripe fruit	Fruits are eaten as vegetable when green and as fruit when ripe. It is also used as a condiment and made into chutneys, stews, pickles and jams.
57. <i>Streblus asper</i> Lour.	Sahada	Moraceae	Tree	Ripe fruit	The ripe fruits are sweet, tasty and eaten by villagers.
58. <i>Streblus taxoides</i> (Heyne ex Roth) Kurz	Jhumpuri	Moraceae	Shrub	Fruit	The fruit along with the foliaceous perianth wrapped around it is sold in market as a leafy vegetable. It is cooked with pulses or vegetables and considered as a highly valued culinary delicacy in the area.
59. <i>Syzigium calophyllifolium</i> (Wight) Walp.	Chhotajamu	Myrtaceae	Tree	Ripe fruit	The ripe fruit is eaten fresh.
60. <i>Syzigium cerasoides</i> (Roxb.) Chatt. & Kanjilal.f.	Kadujamu	Myrtaceae	Tree	Ripe fruit	The ripe fruits are mildly acidic and with scanty pulp but are eaten fresh.
61. <i>Syzigium cumini</i> (L.) Skeels	Jamu	Myrtaceae	Tree	Ripe fruit pulp	The fruits are widely eaten in the district at ripen stage or can be taken in the form of juices. It is used for making beverages and jams. The seeds can be taken in the form of powder to treat diabetes.
62. <i>Tamarindus indica</i> L.	Tentuli	Fabaceae	Tree	Ripen fruit pulp	The unripe and ripe fruits are sour and eaten raw. The fruit pulp is the chief ingredient for flavouring curries, sauces, chutneys, pickles and certain beverages.
63. <i>Terminalia bellirica</i> (Gaertn.) Roxb.	Bahada	Combretaceae	Tree	Dried fruit	The dried fruit-powder is taken as medicine for loss of appetite, thirst, and flatulence (help in digestion).
64. <i>Terminalia chebula</i> Retzius	Harida	Combretaceae	Tree	Dried fruit	The dried fruit powder has a great role in preparing Ayurvedic medicine (best medicine for constipation).
65. <i>Toddalia asiatica</i> (L.) Lam.	Tundapoda	Rutaceae	Prickly shrub	Fruit	Fruits are edible. The ripe berries are as pungent as black pepper and therefore, pickled before use; also used to flavour cooked food.
66. <i>Zantolis tomentosa</i> (Roxb.) Rafin	KantaBaula	Sapotaceae	Tree	Fruit	Berries are bitter and used in pickles and curries.
67. <i>Ziziphus funiculosa</i> Buch. -Ham. ex M.A. Lawson	Chunkoli	Rhamnaceae	Climber	Mature fruit	Mature fruits are eaten.
68. <i>Ziziphus mauritiana</i> Lam.	Barakoli, Kantakoli	Rhamnaceae	Tree	Ripe fruit	The fruits are either eaten fresh, pickled, candied or in preserves. It can be eaten fresh or preserved to make pickle.
69. <i>Ziziphus mauritiana</i> Lam. var. <i>fruticosa</i> (Haines) Sebast. & Henry	BhuinBarakoli	Rhamnaceae	Shrub	Ripe fruit	The ripe fruits with scanty pulp and hard stone are eaten raw or as pickles.
70. <i>Ziziphus oenoplia</i> (L.) Mill.	Kanteikoli	Rhamnaceae	Shrub	Ripe fruit	The ripe fruits are sweet-acidic in taste and eaten raw. This is one of the most common wild fruits collected and consumed by children in villages.
71. <i>Ziziphus rugosa</i> Lam.	Chunkoli	Rhamnaceae	Shrub	Ripe fruit	The ripe fruits being sweet in taste, are eaten raw.

**Table 2:** Use Pattern of wild edible fruits of Keonjhar district, Odisha, India

Sl. No	Category of Use	Number of Genus	Number of Species
1	Raw Ripe Fruit	46	59
2	Vegetable	5	6
3	Processed Pickle	14	15
4	Chutney	3	3
5	Jam, Jelly	4	5
6	Dry Preserve	7	8
7	Drinks	5	5
8	Medicine	13	14
9	Seed	5	5

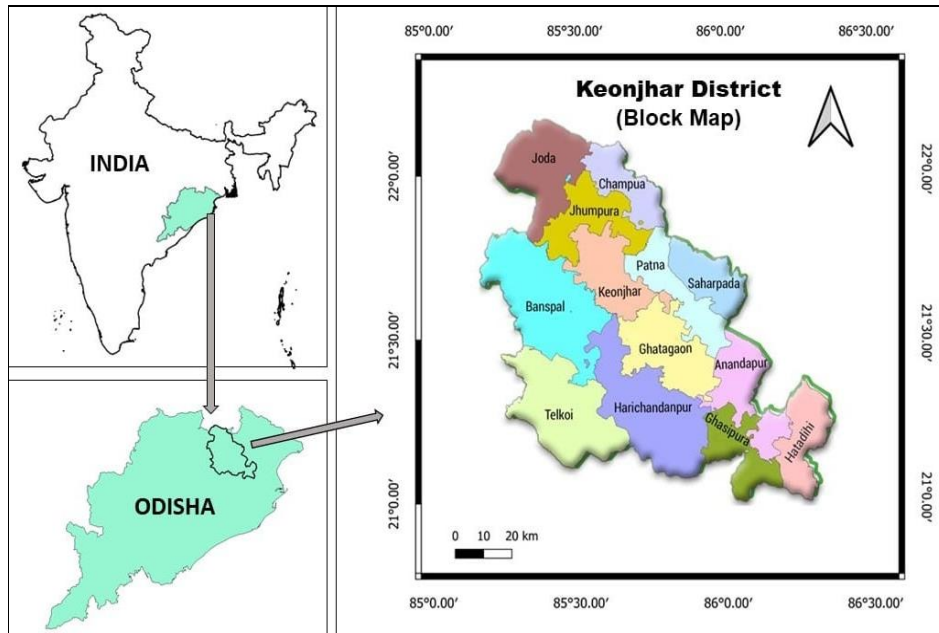


Fig 1: Map showing the location of Keonjhar district, Odisha, India

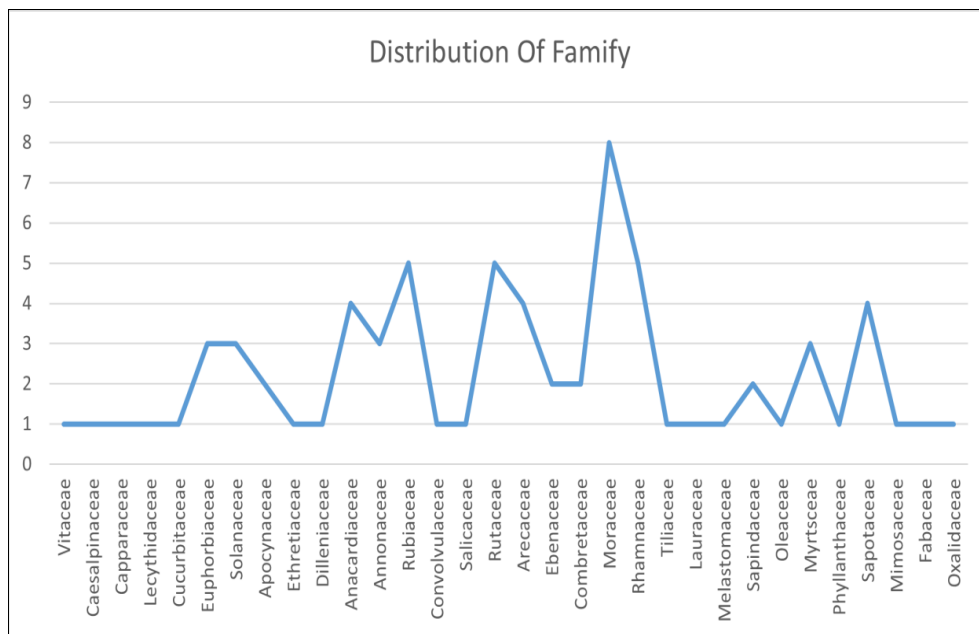


Fig 2: Family-wise distribution of wild edible fruit species used by the native of Keonjhar district, Odisha

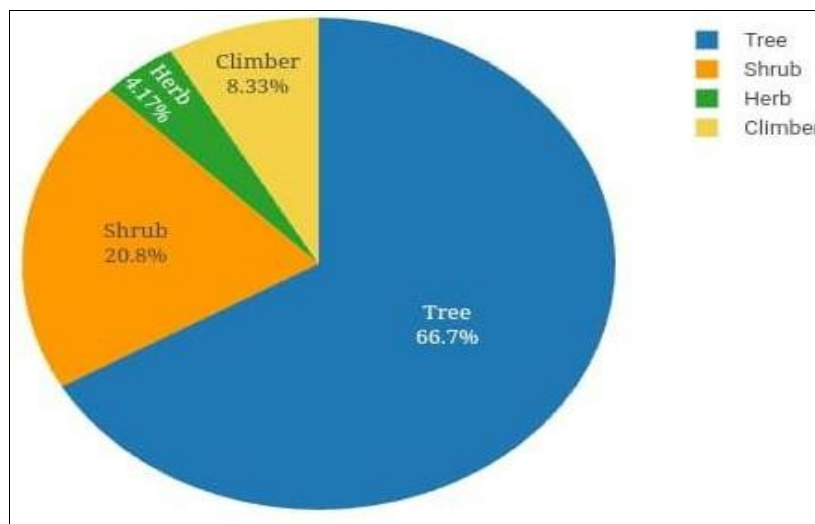


Fig 3: Habit-wise distribution of wild edible fruit plants in Keonjhar district of Odisha, India



Fig 4: Some important wild edible fruit plants of Keonjhar, Odisha

### Conclusion

The knowledge of using wild edible fruits as sources of food, medicine, spices, beverages, and condiments is rapidly declining among younger generations. Therefore, it is crucial to document and protect this knowledge before it is lost forever. To meet the growing demand for food driven by an increasing human population, wild edible fruits can play a significant role not only in fulfilling nutritional needs but also in addressing food scarcity issues. Traditional practices, such as using wild fruits to prepare jams, jellies, and juices, should be promoted, enabling them to be sold in the market. This could both engage the younger generation and provide a valuable income source.

Traditional foods benefit local communities and have the potential to reach a global scale. However, the declining population of wild edible fruit plants in the region, primarily due to habitat loss caused by human settlements and industrial activities, is raising concerns among ecologists and conservationists.

This trend, observed to be worsening day by day, underscores the urgency of addressing this issue. It is now the critical time to take necessary actions for both *insitu* and *exsitu* conservation of these valuable plants before they are depleted from the wild.

The baseline information on wild edible fruits with multiple uses in Keonjhar district will aid in the sustainable utilization and conservation of these plants for future generations. This article aims to highlight the value of

lesser-known wild edible fruit plants, raising awareness about their conservation. It seeks to inspire botanists, agriculturists, conservationists, and naturalists to explore the potential of these fruits for optimal use and the welfare of humanity.

### Acknowledgement

The authors are thankful to the Head, Department of Botany, D.D. University for providing necessary infrastructure facilities for this study.

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