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Original Article

DIVERSITY OF UNDERUTILIZED WILD EDIBLE FRUITS OF KANNUR DISTRICT, KERALA, INDIA

NEHA C. P.*, ABDUSSALAM A. K.

Department of Post Graduate Studies and Research in Botany, Sir Syed College, Taliparamba, Kannur, 670142
Email: nehasreenivas@gmail.com

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ABSTRACT

Objective: To explore, collect, identify and preserve wild edible fruits of Kannur district, Kerala.

Methods: Field survey was conducted for collecting information regarding utilization aspects of some underutilized fruits. The important wild fruits were selected on the basis of their easy availability and on their food and medicinal values in Kannur district.

Results: Total thirty three wild edible fruits were collected, identified, and documented. All these fruits were good source of fat, protein, sugars and antioxidants. Most species were found to have many therapeutic uses.

Conclusion: The documentation of wild fruits will benefit the community through the use of locally and freely available healthy food which will also preserve their cultural pride. And these wild fruit plants have important role in maintaining ecological balance.

Keywords: Antioxidant, Culture, Ecology, Fruits, Medicinal, Underutilized, Wild

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INTRODUCTION

Wild edible plants represent species that are collected from the surrounding ecosystems for human consumption but are not cultivated. Poor communities throughout the world are dependent on these wild plants for their food, nutrition, subsistence needs and improving rural livelihoods as well [1]. Unfortunately data available on their identification, nutritional properties, use and management or user's preferences is scanty or less documented [2]. Till date 2, 50,000-3, 00,000 higher plant species are documented, of which only a few hundred species are cultivated and a few thousands are gathered from the wild. More than 7000 species of WEPs are documented worldwide [3]. About 1000 species were identified in Americas, 1200 species in Africa and 800 species in Asia [4, 5]. The wild edible fruit species documented in India from Himalayas are more than 675 species [6]. 118 species from Arunachal Pradesh [7], 12 species from Uttara Kannada district of Karnataka [8]. 150 species from Orissa [9], 132 species from Assam [10] and 80 species from Chhattisgarh [11].

Undervaluation, underutilization, high population growth and modern development leading to deforestation have lead to loss of diversity of the wild edible fruit species [12]. In addition to this they are being exploited from wild without any effort to propagate them or any ex situ conservation strategies [13]. Promoting and domesticating these wild fruit species not only will improve nutritional status and improve livelihood of the local communities but also protect them from loosing from the wild and well being of environment [14].

The use of these wild plants for food and other uses by the rural and indigenous communities can be continued by developing harmonious correlation among farming and wild biodiversity [15]. Wild edible Plants which are described in this paper are not very much known to scientific world for their nutritional property. In literature, very low attention was given to verify the nutritional status of these plants. The main objective of this work was to document wild edible fruit plants in different places of Kannur district and bring them in the public attention and interest. So that some of them, during the course of time, may emerge as commercial plant.

MATERIALS AND METHODS

The present study was carried out in Kannur district, Kerala state, India during the year 2017 to 2018. Repeated collection trips were carried out in different seasons to various localities such as Madayippara, Pazhayangadi, Edakkad, Andaloor kavu, Meloor, Aralam, Mattanur, Kannavam, Kottayampoyil, Taliparamba, Payyanur, Kuppam, Kuttikkol, Valapattanam, Iritty, Kottiyoor, Thalassery of the district. The collected specimens were preserved as herbarium. The specimens were identified with the help of Flora of Gamble, local floras, relevant literature and authentic herbarium collections available in Calicut University.

RESULTS

During the study it was observed that local people are not much aware of the importance of locally available wild edible plants. And most of the plant species are under high risk, as most of these plants have been destroyed by antropogenic activity. A total of thirty three plant species were identified and documented. These included nineteen trees, ten shrubs and four climbers. The life forms of wild edible plants are represented in the fig. 1. These 33 wild plants belonged to 15 families. Most of the plants belongs to the family moraceae and euphorbiaceae. The family wise distribution of wild edible fruit plants are represented in fig. 2.

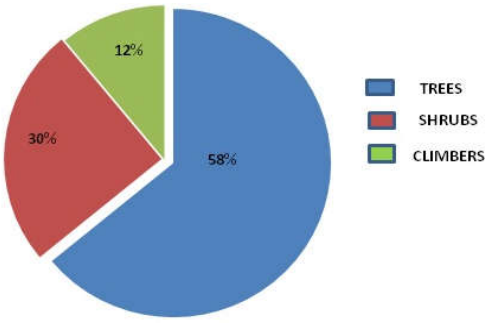

Fig. 1: Life forms of wild edible fruit plants in Kannur district

Table 1: List of wild edible fruits species of various localities of Kannur district

S. No.	Name of the fruit plant	Family	Habit	Flowering and fruiting time	Local name	Traditional knowledge
1.	*Aegle marmelos* correa.	Rutaceae	T	March-May	Koovalam	Fruits used as raw or cooked
2.	*Ampellocissus indica* (L.)Planch.	Vitaceae	C	March-Sep	Chemparavally	Eaten directly and used to prepare pickle
3.	*Annona glabra* L.	Annonaceae	T	Jan-April	Kattatha	Eaten directly
4.	*Annona reticulata* L.	Annonaceae	T	May-Aug	Aatha	Eaten directly
5.	*Annona squamosa* L.	Annonaceae	T	June-Oct	Seethapazham	Eaten directly
6.	*Antidesma acidum* Retz.	Euphorbaceae	S	July-Dec	Asaripuli	Eaten directly and prepare pickle
7.	*Artocarpus gomezianus* Wall. Ex Trecul *ssp. Zeylanicus* Jarret.	Moraceae	T	Jan-April	Kaatukadaplavu	Eaten directly
8.	*Artocarpus hirsutus* Lam.	Moraceae	T	Dec-March	Aanjili	Eaten directly
9.	*Averhhoa carambola* L.	Euphorbiaceae	T	May-Aug	Chathurapuli	Fruits used raw, cooked and pickled
10.	*Averrhoa bilimbi* L.	Euphorbiaceae	T	March-May	Bilibi	Eaten directly and pickled
11.	*Baccaurea courtallensis (*Wight)Muell. Arg.	Euphorbiaceae	T	Jan-June	Mootilpazham	Fresh fruits eaten directly
12.	*Bridelia retusa* (L.)A. Juss.	Euphorbiaceae	T	Aug-Dec	Mulluvenga	Fresh fruits are chewed and taken against mouth ulcers
13.	*Broussonetia papyrifera*(L.) Vent.	Moraceae	T	Nov-Jan	Paper mulberry	Eaten directly
14.	*Canthium coromandelicum* (Burm. f.)Alston	Rubiaceae	T	April-June	Karamullu	Fresh and dried fruits used against mouth ulcers
15.	*Carissa carandas* L.	Apocynaceae	S	Jan-June	Karaka	Eaten directly
16.	*Cassia fistula* L.	Fabaceae	T	Feb-Sep	Konna	Dried fruits used for treatement of stomach problems
17.	*Chrysophyllum cainito L.*	Sapotaceae	T	July-sep	Star Apple	Cooked fruits used for fever
18.	*Cissus quadrangularis* L.	Vitaceae	C	June-Jan	Changalamparanda	Eaten directly
19.	*Cyphomandra betacea* (Cav.)Scendt.	Solanaceae	S	Throughout the year	Marathakkali	Eaten directly
20.	*Diospyros peregrina* Gaertn.	Ebenaceae	T	March-May	Panachi	Dried fruits used to treat cold
21.	*Ficus auriculata* Lour.	Moraceae	T	Nov-Feb	Atthi	Eaten directly and cooked
22.	*Ficus racemosa* L.	Moraceae	T	Feb-May	Atthi	Eaten directly
23.	*Flacourtia Montana* Graham.	Flacourtiaceae	T	April-June	Charalpazham	Fresh fruits used to treat digestive problems
24.	*Flueggea leucopyrus* Willd.	Euphorbiaceae	S	June-Sep	Vellapoolam	Eaten directly
25.	*Glycosmis pentaphylla* (Retz.)DC.	Rutaceae	S	Sep-April	Kuttipanal	Eaten directly and treatment of stomach worms
26.	*Grewia nervosa* (Lour.)Panighrahi	Tiliaceae	S	Aug-April	Cheripazham	Fresh fruit juice used to treat stomach problems
27.	*Ixora coccinea* L.	Rubiaceae	S	Throughout the year	Kattuchethi	Ripe fruits used as dietary source
28.	*Melastoma malabathricum* L.	Melastomaceae	S	Throughout the year	Athirani	Dried fruits used to low diabetes
29.	*Mimusops elengi* L.	Sapotaceae	T	Dec-Aug	Elangi	Fruit juice is anthelmintic
30.	*Morus alba* L.	Moraceae	S	Throughout the year	Mulbari	Eaten diresstly
31.	*Naringi crenulata* (Roxb.) Nicolson	Rutaceae	T	Dec-June	Kattunarakam	Fruit juice used for heart troubles
32.	*Passiflora edulis* Sims.	Passifloraceae	C	Throughout the year	Passion fruit	Eaten directly, treatment of jaundice
33.	*Passiflora foetida* L.	Passifloraceae	C	July-Dec	Poochapazham	Eaten directly

T: Tree C: Climber S: Shrub

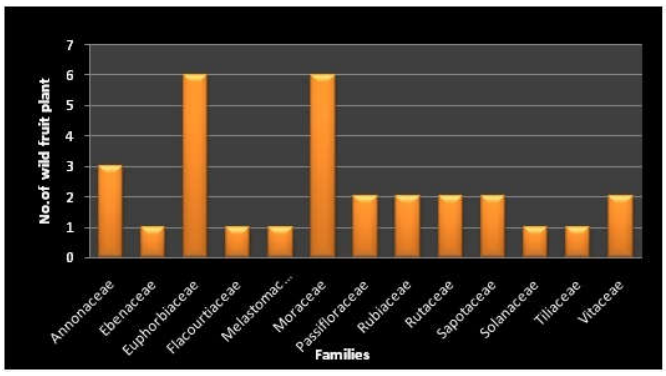

Fig. 2: Family wise distribution of wild edible fruit plants

DISCUSSION

Majority of these fruit are eaten in the ripen stage. Due to the lack of popularity and overexploitation of wild areas these plants are decreasing gradually and some are rarely found. To protect and popularize these wild edible fruits awareness should be needed among people. Studies on nutritional status and medicinal properties are needed for future.

Yeshodharan and Sujana studied wild edible plants traditionally used by tribes of parambikulam wild life sanctuary**.** Eighty three species were used by tribes as vegetables, wild fruits or in other preparations. Analysis of the information revealed that out of 83 species, 82 belongs to Angiosperms and one species belongs to gymnosperm [16]. Aralam wildlife sanctuary is the northernmost protected area in Kerala. The floristic study resulted in recording 1,005 species. The flora of the sanctuary includes 43 wild edible plants of theses 32 are edible fruits, 5leafy vegetables, 3 tubers and 3 seeds [17].

CONCLUSION

The study focuses on the significance of wild fruit species as a source of nutrients for local people. Wild fruit plants can be included in agro-forestry and reforestation programme. These naturally occurring fruit plants are not only nutritionally and medicinally rich but also thrive well under adverse climatic conditions. In spite of their potential, these fruit plants are unattended both at scientific and farmers level. There is a need to collect and conserve these species before the threat of extinction.

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AUTHORS CONTRIBUTIONS

All the authors have contributed equally.

CONFLICT OF INTERESTS

Declared none

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