



Role of wild edible fruits as a food resource: Traditional knowledge

B. S. Deshmukh^{1*} and Ahilya Waghmode²

1, Agasti Arts, Comm. and D. R. Science College Akole, Ahmednagar, (MS) - India

2, Department of Botany, University of Kolhapur, (MS) - India

Abstract

The present study deals with the documentation and study of food potential of some traditional wild edible fruits, consumed by tribal communities in Western Ghats region of Maharashtra. Numbers of plant species were documented as wild plants used for food purposes. Among those 11 fruit plant species were investigated for their nutritional food value and medicine from the study area. It has been observed that the traditional knowledge is sharp and valuable. The fruits are rich in minerals and carbohydrates. They provide the minerals like sodium, potassium, magnesium, iron, calcium, phosphorus etc. They can be used as remedy for various diseases. This type of study could contribute to educate the younger generation about the importance of wild fruits. These wild fruit plants can be incorporated in commercial crop plants. This will improve food scarcity, economy in tribal areas and helps in regeneration of barren lands.

Key-Words: Wild Edible Fruits, Food resource.

Introduction

From the past, edible wild fruits have played a very vital part in supplementing the diet of the people. The dependence on these fruits has gradually decline as more exotic fruits have been introduced. But many people in tribal areas still use them as a supplement of their basic need of food. Some of them are preserved for use in dry period or sold in rural market. But the popularity of these wild forms has recently decreased. Apart from their traditional use of food, potentially they have many advantages. They are edible and having nutritional food value, which provides the minerals like sodium, potassium, magnesium, iron, calcium, phosphorus etc. They are immune to many diseases and often used in different formulation of 'Ayurveda' in Indian Folk- medicine. They provide fibers which prevent constipation. It is consider that special attention should be paid in order to maintain and improve this important ource of food supply. In order to remedy, a wider and sustained acceptance of wild fruits as important dietary components must be stimulated.

Dietary use of wild fruits appear in numerous records from Andhra Pradesh (Reddy et. al. 2006, Mishra et.al. 2007), Maharashtra (Datar & Vertak 1975, Kumbhojkar and Vartak, 1988, Natrajan & Paulsen 2000), Himalaya (Rakesh et.al. 2004, Kala 2007). Some botanical exploration and publications have emphasized on the diversity and food value of wild edible fruit plants (Vartak 1959, Billore & Hemadri 1969, Maikhuri et.al. 2000, Sundriyal 2001, Bhattacharjee et.al. 2008, Khyade et.al. 2008, Deshmukh and Shinde 2010). However there is no concrete report about the nutritional potential of wild edible fruits from the study area. Hence the study was undertaken.

Material and Methods

Several field trips were arranged in tribal areas of Western Ghat regions of Maharashtra, mainly Tryambakeshwar, Kalsubai, Harishchandra gad, Bhimashankar, Malshej Ghat, Nane Ghat and Warandha Ghat. At each time different seasons were chosen to collect the information and the material. Earned information on wild food was analyzed with available standard literature. Plant specimen were collected and identified with regional floras of Cooke (1908), Pradhan and Singh (1999), Singh and Karthikeyn (2000), Singh et.al. (2001), Almeda (2003), Yadav (2002) and Bhagat et al. (2008).

* Corresponding Author:

E-mail: babadesh2004@yahoo.co.in

Based on common consumption as a food, 11 different types of fruits were selected. The collected fruits were cleaned and edible portion of the individual fruit was separated, dried in a hot air oven at 50°C for 1 h. The dried samples were then powdered for further study.

Table 1: Selected fruit plants

Botanical Name	Vernacular Name	Family
<i>Capparis zeylanica</i> L.	Govind-phal, Toratti, Wagati	Capparaceae
<i>Carissa congesta</i> Wight (syn. <i>Carissa carandus</i> Linn.)	Karwand	Apocynaceae
<i>Cordia dichotoma</i> Forst.	Bhokar	Boraginaceae
<i>Diospyros peregrina</i> (Gaertn.) Gurke	Tembhurni	Ebenaceae
<i>Elaeagnus conferta</i> Roxb.	Ambal, Ambgul, Shendri	Elaginaceae
<i>Grewia abutilifolia</i> Vent.	Kharmati, Kirmith	Tiliaceae
<i>Limonia acidissima</i> L. (syn. <i>Feronia elephantum</i> Cor.)	Kavath	Rutaceae
<i>Meyna laxiflora</i> Robyns. (syn. <i>Vanguria spinosa</i> Roxb)	Helu, Alu, Aliva	Rubiaceae
<i>Phoenix humilis</i> Royle	Date palm	Araceae
<i>Rhus sinuta</i> Thunb	Amani, Amboni	Anacardiaceae
<i>Securinega virosa</i> (Rixb.ex Willd.) Baill.	Pithwan, Petuni	Euphorbiaceae

Observations

***Capparis zeylanica* L. (Palte-I, Fig. 1.A, 1.B.)**

Scandant shrub, frequent in deciduous forest; leaves elliptic with acute apex; flowers white, solitary, purple at maturity; Fruits 4-6 x 2-3 cm, ovoid, green when unripe; seeds many.

Fruit contains carbohydrates (71%), Proteins (15-18%), Fats (5%), fibers (6%), ascorbic acid (7-8%) and minerals like copper, phosphorus, zinc, iron, manganese and b-carotin, Vitamin C.

The unripe fruits are used as vegetables and curry. A dish prepared in addition with pulses is very good for stomach relief.

***Carissa congesta* Wight. (Palte-I, Fig. 2.A, 2.B.) (*C. carandus* Linn.)**

Hard, stout, spiny shrub; common in deciduous forest; flowers white, cymes; fruit 1.2-2.5 cm, 4 seeded, dark purplish when ripe.

Fruits are rich source of iron, high amount of pectin and contain vitamin c. Food value shows proteins (0.4%), carbohydrates (0.5-0.9%), sugars (7-11%), fibers (0.5-1%) and ascorbic acids.

The fruits are very sour at maturity but sourish sweet when ripe. It can be eaten raw or for making pickles, jam, jelly, squash, syrup and chutney. It is used for toxicity, bronchitis and to cure anaemia. Ethnobotanically the fruits are used as an astringent, antiscorbutic, and as a remedy for biliousness. Fruits sold on roads for tourists and also in local market.

***Cordia dichotoma* Forst. (Palte-I, Fig. 3.A, 3.B.)**

Medium sized tree with rough bark, frequent in deciduous forest; leaves broadly ovate, with obtuse apex; flower white; berries, 1.5 - 2.5 cm, ovoid, yellow or pink, glossy, persistent calyx, pulp mucilaginous.

The fruits contain large quantities of amino acids, flavonoids and saponins. The nutritional composition includes proteins (2.0%), carbohydrates (92%), fat (2.0%), fibers (2.0%) and minerals like calcium, phosphorus and irons.

Fruits used in ayurvedic medicine. Traditionally used against diarrhea, cold, acidity and delirium. Also used as astringent, emollient and purgative. Young fruits are used as a vegetable and in preparation of chatnes. Fruits sold in local market.

***Diospyros peregrina* (Gaertn.) Gurke (Palte-I, Fig. 4.A, 4.B.)**

Small trees found in moist and semi evergreen forest; leaves oblong-lanceolate; male flowers in short peduncled, female flowers in short axillary, solitary; fruits large, 3.5-7.5 cm, globose with persistent calyx.

The fruit contains tannin, flavonoids, triterpenoids and sugars.

Ripe fruits are edible with ethnomedicinal significance as tonic and aphrodisiac. Unripe fruits are astringent, acrid, bitter and oleaginous. Unripe fruits are used for the treatment of diarrhea, dysentery, cholera, ulcer of mouth and wounds. It is also used for Asthma, Cough, Taxamia and in preparation of Ayurvedic medicine. It is anti diabetic. Tribal peoples consume the fruits as raw and also sold in local market.

***Elaeagnus conferta* Roxb. (Palte-II, Fig. 1.A, 1.B.)**

Scandant shrub, frequent along ghats; leaves elliptic, lower surface silvery-white; nuts, 2.5 cm long, ellipsoid, pinkish with small whitish spots.

Fruit contains Proteins (2.4%), Fat (2.8%), sugars (5.1%) and amino acid 1.45%.

Fruits are juicy and can be eaten as fresh. Used in juice, sarbat and in preparation of syrup. It is used for Rheumatism, Haematinic, Painkiller. It is consumed as a raw and sold in local markets.

***Grewia abutilifolia* Vent. (Palte-II, Fig. 2)**

Shrubs, straggling; leaves roundish-ovate, acute with entire margin; flowers yellow; drupes, dark green, 1 cm in diam., 4-lobed, wrinkled, brown when ripe.

It is used for weight gain, Diarrhea, gout. Fruits consumed in forest area by tribal's as a raw. It is also a very good feed for wild animals and birds.

***Limonia acidissima* L. (Palte-II, Fig. 3 (*Feronia elephantum* Cor.))**

Moderate sized trees; leaves imparipinnate; flowers red; berries, 8-12cm, globose, seeds embedded in pulp. Fruit contains proteins (8%), fat (1.4%), carbohydrate (7.4%) and also contains calcium, phosphorus, iron and tannins.

Fruits are useful for various diseases i.e. Acidity, Joundice, Calitis, Cancer, Dysphoea, Hiccough, Rat Poisoning. Young fruits used in preparation of chatny. Ripe fruits consumed as a raw, especially on Mahashivratri festival.

***Meyna laxiflora* Robyns. (Palte-II, Fig. 4) (*Vanguris spinosa* Roxb)**

Small trees with thorns; leaves elliptic, ovate-lanceolate, flowers greenish-yellow, drups 2.5 cm, chocolate colour when ripe; seeds 5-6.

Fruits contain carbohydrates, proteins, vitamins, minerals like calcium, iodine, iron etc.

Young fruits are eaten as vegetables. Dried fruits are Narcotic, used in dysentery. Ripe fruits consumed as a food.

***Phoenix humilis* Royle (Palte-II, Fig. 5)**

Small shrubs; leaves short; flowers spadix; drups oblong, orange yellow.

They are good source of proteins, iron and vitamin C. They are used as astringent in intestinal troubles. Various dry products were prepared from ripe fruits. Some times dried and stored.

***Rhus sinuta* Thumb (Palte-II, Fig. 6)**

Shrubs; leaves obovate, connate; inflorescence panicle; flowers greenish-yellow; drups 0.3 – 0.4 cm, when ripen brown.

Fruits used in ayurvedic medicine. They are sourish, bitter in test and eaten as raw or roasted. Some times fruits are sold in local market.

***Securinega virosa* (Rixb.ex Willd.) Baill. (Palte-II, Fig. 7)**

Shrubs, rigid; leaves elliptic, obovate; flowers greenish, yellow; capsule, globose, when ripen white.

Fruits are used for Delirium and used in Ayurvedic Medicine. Fruits consumed as raw in forest areas. It is also a very good feed for wild birds.

Results and Conclusion

Indigenous fruits play an important role in the nutrition of people and children in rural and tribal communities. The wild fruits are excellent sources of vitamins, carbohydrates, proteins, fibers and minerals and enormous medicinal potential. They can eat raw or processed. These fruits from forests are rich source of protein and energy and very useful in treating protein energy deficiency. The production and consumption of these fruits in arid zones provides dietary supplement as well as commercial opportunity. The growing of trees for fruit production encourages the prevention of more or less permanent stands in bare land. Such trees are often a feature of desert landscapes and form the basis of traditional agro forestry land use system.

Acknowledgement

The authors are greatly thankful to BCUD, University of Pune for providing financial assistant to the first author.

References

1. Almeida, M. R. (2003) Flora of Maharashtra Vol. IV. *Orient Press, Mumbai.*
2. Bhagat, R. B., V. B. Shimple and R. B. Deshmukh (2008). Flora of Baramati. Baramati, Pune. *Prakash Offset Press, Pune.*
3. Bhattacharjee, P. K., Dipti Das and S. Bhattacharjee (2008). Underexploited Wild Plants of Tripura: Edible Fruits. *Ad. Plant Sci.* **21(I): 355-357.**
4. Billore, K.V. and Hemadri, K. (1969). Observation on the flora of Harishchandragarh, sahyadri range, Maharashtra. *Bull. Bot. Surv. India*, **11: 335-346.**
5. Cooke, T. (1901-1908). The flora of the Presidency of Bombay, London 2 Vol. (*Repr. Ed. 1958. 3 vol. Govt of India.*)
6. Datar, Rekha and V.D.Vartak (1975), Enumeration of wild edible plants from Karnala Bird Sanctuary, Maharashtra state. *Bioviyana.*, **1:123-129.**
7. Deshmukh, B. S. and Vidya Shinde. (2010). Fruits in the Wilderness: A Potential of local food resource: International journal of Pharma and Bio Sciences. **V1(2):2010 (www.ijpbs.net)**
8. Jain, S.K. (1995). A manual of Ethnobotany, 2nd edn. *Scientific publishers, Jodhpur, India.*
9. Khyade, M.S., Wani, P.S., Awsarkar, U.D. and Petkar, A. S. (2008). Ethnomedicinal Plants

- used in the treatment of Toothache by Tribals of Akole, Ahmednagar (MS). *Enrich Environment*. **1 (3): 76-80.**
10. Kumbhojkar, M.S., and V.D. Vartak (1988): Ethno botanical studies on wild edible grapes from sacred groves in Western Maharashtra. *J.Econ. Tax.Bot.*, Vol.12(2): **257-263.**
 11. Maikhuri, R.K., Nautiyal, S., Rao, K.S. and Semwal, R.L. (2000). Indigenous knowledge of medicinal plants and wild edibles among three tribal sub communities of the central Himalayas, India. *Indigenous Knowledge and Development Monitor*, **8: 7-13.**
 12. Mishra et.al. (2007). Medicinal food Value of *Capparis* sp. *Indian Journal of Traditional Knowledge*, Vol.6 (1):**232-237.**
 13. Natarajan, B. and Paulsen, B.S. (2000). An Ethnopharmacological Study from Thane District, Maharashtra, India: Traditional Knowledge Compared With Modern Biological Science. *Pharmaceutical Biology*, **38: 139-151.**
 14. Pradhan, S.G. and Singh, N.P. (1999). Flora of Ahmednagar District (M.S). *Bishen Singh Mahendra Pal Singh, Dehradun. India.*
 15. Rakesh et.al. (2004). Bioprospecting of wild Edibles for Rural Development in the Central Himalaya Mountauns of India. *Mountain research and Development*, vol **24 (2): 110 - 113.**
 16. Reddy, et. al. (2006). Traditional Knowledge on wild food plants in Andhra Pradesh. *Indian Journal of Traditional Knowledge*, Vol.6 (1):**223-229.**
 17. Singh, N.P. and Karthikeyan, S. (2000). Flora of Maharashtra State–Dicotyledons, Vol. I, *Botanical Survey of India (BSI), Calcutta, India.*
 18. Singh, N.P., Lakshminarasimhan, P., Karthikeyan, S. and Prasanna, P.V. (2001). Flora of Maharashtra State–Dicotyledons, Vol. II, *Botanical Survey of India (BSI), Calcutta, India.*
 19. Sundriyal, M. and Sundriyal, R.C. (2001). Wild edible plants of the Sikkim Himalaya: Nutritive values of selected species. *Economic Botany*, **55:377-390.**
 20. Vartak .V.D. (1959), some wild edible plants from the hilly region of Poona District, Bombay state. *J.Bom.Nat.His.Soc.* **56(1):8-25.**
 21. Yadav, S. R. and M. M. Sardesai. (2002). Flora of Kolhapur District. *Shivaji University, Kolhapur.*

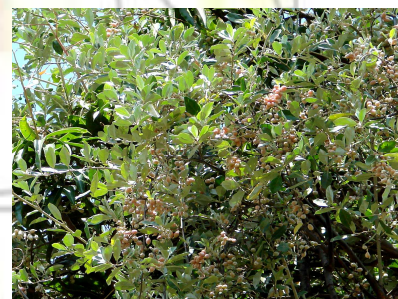
Plate I



1. A. *Capparis zeylanica* L 1. B. *Capparis zeylanica* L. (Fruits) 2.A. *Carrisa congesta* Weight



2.B. *Carrisa congesta* Weight (Fruits) 3.A. *Cordia dichotoma* Forst



4.A. *Diospyros peregrina* (Gaertn.) Gurke 4.B. *Diospyros peregrina* (Gaertn.) Gurke. 1.A. *Elaeagnus conferta* Roxb

Plate II



1. *B. Elaeagnus conferta* Roxb. 2. *Grewia abutilifolia* Vent. 3. *Limonia acidissima* L



4. *Meyna laxiflora* Robyns. 5. *Phoenix humilis* Royle 6. *Rhus sinuta* Thumb



7. *Securinega virosa* (Rixb.ex Willd.) Baill.