

Exploitation of Underutilized Fruits of Western Ghats

Nisarga G.¹ Nagesh Naik² and Kantharaju V.³

¹Ph.D Scholar, Department of Fruit Science, KRC College of Horticulture, Arabhavi, Karnataka

²Professor and Head, Department of Fruit Science, COH, Sirsi, Karnataka

³Professor and Head, ICAR-AICRP on fruits, KRC College of Horticulture, Arabhavi, Karnataka

SUMMARY

The term 'underutilized' is commonly applied to refer the species whose potential has not been fully realized. Underutilized fruits are those fruits, apart from their rich nutritive potential can be best grown in marginal lands and helps in diversification of agriculture. These are variably called as neglected, minor, under exploited, under developed, local, traditional niche fruit crops. There is wide range of underutilized fruit species, but most of them remained underexploited due to lack of awareness of their potential, market demand, low and erratic bearing.

INTRODUCTION

The Western Ghats, the pristine biogeographical region covers an area of 160,000 km² between the latitude 8° 20' N and longitudes 73° and 77°, stretches parallel to the West coast of the peninsular India for about 1600km in length which begins from South of the Tapti river close to the border of Gujarat and Maharashtra and ends at Kanyakumari District in Tamil Nadu. It is known for their rich and unique assemblance of flora and fauna. Western Ghats are a treasure of forest resources consisting of many wild fruit species which are less known to mankind and there is a need to bring them under cultivation for exploitation. (Padulosi, 2001). A number of underutilized fruits are adequately rich in antioxidants and phytochemicals besides some necessary nutritional components like vitamins, minerals and dietary fibers. With the increasing demand, there is a tremendous potential for commercial exploitation of these crops which aims at improving living standards and ensuring nutritional security to the poor and marginal farmers.



a. Jackfruit



b. Monkey jack



c. Jamun



d. Bael



e. Mangosteen



f. Chironji/Cheroli

Fig. Underutilized Fruit Crops of Western Ghats

Characteristics of Underutilized Fruit Crops

Although organized orcharding is dispensed with the underexploited fruit crops, many of them are merited with a number of attributes.

- Hardiness is by far, the most important quality of many of these fruit crops is they are able to withstand adverse soil and climatic conditions to a considerable extent.

- Yielding produce without receiving artificial agro-input is no doubt, a highly deserving character. Interestingly, some of these fruit crops are known to produce heavily every year and thus the mechanism of utilizing the natural resource to the fullest extent is known to them.
- Most of these crops are hard and having sturdy root system, which penetrates the soil to a considerable depth and width. These crops are grown naturally in wastelands and unsuitable lands also.
- Organoleptic behaviour of many fruits is highly agreeable. A number of excellent products are also made from many of these fruits such as jam from bael, pickles from karonda, *etc.*
- Many of these fruits have high nutritive value.

Scope of Underutilized Fruit Crops

Organized establishment of orchards with these crops can offer better return and yield, which also helps in assured supplemented income to farmers, particularly the marginal farmers. They also provide four 'F' namely food, fodder, fibre or fruits which can provide alternative and a basis for sound farm economy. Under exploited fruit crops provide raw materials for processing and pharmaceutical industries. The processed products, such as jam, jelly, wines, *etc.*, prepared from these fruits have received an international market and make a satisfactory contribution in the national economy.

Underutilized Fruit Crops of Western Ghats

a) Jackfruit

Scientific name : *Artocarpus heterophyllus*

Family: Moraceae

Origin: Western Ghats

Jackfruit is rich in vitamin C acts as antioxidant protects the body against free radicals, strengthens immune system and keeps our gum healthy. Antioxidants neutralize free radicals like glutathione peroxidase and glutathione reductase. Antioxidants are compounds are able to delay, retard or prevent the oxidation process. These reduce the risk of chronic diseases and promote human health. Phytochemicals like lignans, isoflavones and saponines which are present in jackfruit has anticancer, antihypertensive, antiulcer and anti aging properties. High fibre content in the jack prevents constipation and produces smooth bowel movements by removing carcinogenic chemicals from large intestine.

b) Monkey jack

Scientific name : *Artocarpus lakoocha*

Family: Moraceae

Origin: Western Ghats

The lakoocha (*Artocarpus lakoocha* Roxb.), most popularly known as “monkey jack” or ‘barhal’. It is commonly foundn west coast from konkan southwards to Kerala and Tamil nadu. Fruits are used for consumption purpose. As leaves are having 16 per cent crude fibre thus used as feed more mulching animals. It is valued for its timber. Bio-Active compound Beta sitosterol and lupeol which is present in leaf has anti-inflammatory, antiviral, anticancer and anti-HIV property and there is lot of scope for it in pharmaceutical industry.

c) Jamun

Scientific name : *Sygzium cumini*

Family: Myrtaceae

Origin: India

Table 1: Health benefits from various parts of the *S. cuminii* plant

Plant part	Health benefits
Leaf, bark, seed and pulp	Diabetes, gastric ulcer
Leaf	Anti allergic, anti viral, DNA damage
Leaf, Fruit and Seed	Antioxidant, anti cancer, Anti inflammation

Leaf and Seed	Anti bacterial
Fruit	Anti hyperlipidemic

d) Bael

Scientific name: *Aegle marmelos*

Family: Rutaceae

Origin: India

The Bael tree is considered as a sacred tree by the Hindus. They offer its leaves to Lord Shiva during worship. The essence of its fruits and leaves possess an evaporating oil which is very good for human system. The leaves absorb foul gases from the atmosphere and keep it clean and salubrious while the raw bael fruit produces heat and has purgative effect. The ripe fruit has cooling effect and is constipative. Raw bael fruit is consumed for treatment of ailments such as arthritis and gout. Ripe fruit is taken during summer to keep the body and mind cool. Bael also helps to sharpen intellect and concentration of mind. It is Rich in Riboflavin (1.19 mg/100 g edible portion). Active ingredients like Marmelosin, limonine are useful in pharmaceutical industry (Saraswati, 2004).

e) Mangosteen

Scientific name : *Garcinia mangostana*

Family : Guttiferae

Origin: Malaysia

Mangosteen play a significant role in the treatment of inflammatory conditions and in controlling all types of cancer, heart disease, allergy/asthma, tuberculosis, and human immunodeficiency virus (HIV). Gamma mangosteen purified from fruit hull helps in inhibiting lipopolysaccharide and thus helps in production of anti-inflammatory drug. Xanthone and Garcinone helps in controlling cancer by inhibiting the growth of cancer cells. Mangosteen inhibits the consumption of alpha tocopherol. Mangosteen acts as powerful free radical scavenger to protect against low density lipoprotein from oxidative dam

f) Chironji/Cheroli

Scientific name : *Buchanania lanzan*

Family: Anacardiaceae

Origin: India

Cheronji, a minor crop valued for its nutritious kernels. The leaves of *Buchanania Lanzan* are reported to have great medicinal value. It is mainly used in Ayurveda and the Unani system of medicine. It is known to have tonic, cardiogenic and astringent properties and used in the treatment of skin diseases. Ointments from kernel used to remove itch and prickly heat and leaves are used for wound healing. (Mehta *et al.*, 2010).

Other Underutilized Fruits

Khaple *et al.* (2012) has reported some minor edible fruits which are not recognized by common people even for consumption purpose.



Aporosa lindleyana



Flacourtia montana



Mimusops elengi

*Artocarpus hirsutus**Olea dioica**Syzygium caryophyllatum*

Bottleneck/Hurdles for promotion of underutilized fruits

- Loss of germplasm
- Lack of knowledge
- Market commercialization and demand limitation
- Lack of research and development activities
- Lack of links between production to consumption

CONCLUSION

All the underexploited fruits are rich in nutrients, vitamins and minerals. They can be used in ayurvedic and traditional medicine to treat various diseases. Underexploited fruit crops can even adapt to low input agriculture. More research and development efforts in these crops will certainly add substantially to food security and nutrition. There is a need to develop high yielding varieties, production and protection technologies, and post-harvest management practices for these crops. Better coordination among all the agencies involved in research, development, and promotion will help popularize these fruit crops.

REFERENCES

- Khaple, A. K., Maruti, G. and Santosh, H., 2012, Population studies of wild edible Fruit tree species in Kodagu. *International Journal of Life Sciences*, **1**(3): 48-55.
- Mehta, S. K, Mukherjee, S., Jaiprakash, B., 2010, Preliminary phyto chemical investigation on leaves of *Buchanania lanzan* (chironji). *International Journal of Pharmaceutical Sciences Review and Research*, **3**(2): 56-59.
- Padulosi, S. T., 2001, Underutilized crops: Trends, challenges and opportunities in the 21st century, IPGRI, pp. 222.
- Saraswati, P., 2004, Bael (*Aegle marmelos*) nature's most natural medicinal fruit. *Orissa Review*, pp.16-17.