



Banana: A Rich Resource to the Mankind

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Introduction

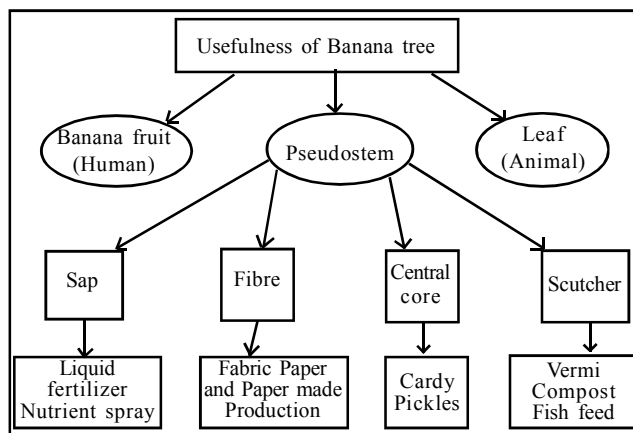
Bananas are the world's no.4 dietary staple after rice, wheat and corn. Bananas are a key domesticate of subsistence farmers across the wet tropics and subtropics. It is grown almost exclusively in the developing countries. Banana is called *kela* in Hindi, *arati pandu* in Telugu, *vazhai pazham* in Tamil, *bale hannu* in Kannada and *ethapazham* in Malayalam. Apple bananas, which are exceptionally sweet and also called as *candy apple bananas* have firm flesh that has a slight pinkish tone. 85% of the production is made up of a wide range of banana and plantain varieties grown by peasant farmers or small holders and their families. These are either for consumption by them and their dependants or traded locally. Globally it is cultivated in Philippines, Colombia, Indonesia, Ecuador, China and Brazil. Banana and plantain are widely grown in both tropical and subtropical regions comprising Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, Orissa, Bihar, West Bengal and North eastern states. The centre of greatest diversity of wild *Musa* species and the presumed centre of origin of the group, is in Indo-china and South East Asia. *Musa* species are native to tropical Indo-Malaya and Australia and are likely to have been first domesticated in Papua New Guinea.

To a western consumer a 'banana' may only mean a supermarket-bought 'Cavendish' dessert banana. However, for millions of people in the world's poorer regions bananas and plantains are a starchy staple of major importance.

Genetics and plant geography are involved when considering early evolution. This includes ancient history and anthropology in the use of bananas in 'proto-agriculture' and the development of their domestication. Within the last two millennia the world-wide spread of bananas and plantains has had major social and demographic consequences for many parts of the world. The recent rise of the export trade has had a major influence over the economies of many nations and thus the wellbeing, of millions of people.

Use of Banana in Ancient India

India being considered as one of the centres of origin of banana, the ancient Indians were acquainted with this fruit from antiquity. There are references of this fruit in "Rigveda" and the great epics "Ramayana" and "Mahabharatha". Dutch and Portuguese who reached the Western coasts of India near Cannannoor in the 18th century reported the popular use of banana by the local inhabitants as a staple food and called it as "Fig of Cannannoor".





Banana in Indian Customs, Ceremonies and Rituals

Being known to Indians from time immemorial, banana, occupies a unique position in many religious rituals, customs and ceremonies. The banana tree laden with fruiting bunch are placed at the entrance houses and temples on special religious functions and ceremonies like marriages, to signify plenty and fertility. In South India banana fruits and other parts of the banana tree find diverse uses in different religious rituals and worship. The priests of temples of Kerala and parts of Tamil Nadu and Karnataka are particular in using the thread made from banana leaf sheath fibres for making flower garlands meant for deities. The villagers of Kerala and parts of North Karnataka region use banana tree as live refrigerators.

Banana Dishes from Different Plant Parts Fruit

Bananas are eaten deep fried, baked in their skin in a split bamboo, or steamed in glutinous rice wrapped in a banana leaf. Banana pancakes are popular among travellers in South Asia and South East Asia. Banana chips are a snack produced from sliced dehydrated or fried banana or plantain, which have a dark brown colour and an intense banana taste. Dried bananas are also ground to make banana flour. Bananas are also commonly used in cuisine in Kerala, where they are steamed (puzhungiyathu), made into curries, fried into chips, (upperi) or fried in batter (Pazhampori). Pisang goreng, bananas fried with batter similar to the Filipino maruya or Kerala pazhampori, is a popular dessert in Malaysia, Singapore and Indonesia. A similar dish is known in the United Kingdom and United States as banana fritters. Plantains are used in various stews and curries or cooked, baked or mashed in much the same way as potatoes, such as the pazham pachadi dish prepared in Kerala.

Flower

Banana hearts are used as a vegetable in South Asian and South-East Asian cuisine, either raw or steamed with dips or cooked in soups, curries and fried foods. The flavour resembles that of artichoke. As with artichokes, both the fleshy part of the bracts and the heart are edible.

Jam and Jelly from Banana Pectin

Ripe banana contains significant amounts of pectin in peels (21.3%) and to a lesser extent in pulp as compared to plantains (Emaga *et al.*, 2008). Bhaskaracharya *et al.*, (2009) have used ultrasonication method for extraction of pectin from apple pomace and a similar procedure may be applicable for the extraction of pectin from banana peels and pulp. Pectin has uses in mixed fruit or banana jam and jelly preparations.

Use of Fibre Extracted from Banana Pseudostem

Textiles

Banana fibre harvested from the pseudostems and leaves of the plant has been used for textiles in Asia since the 13th century. The banana shoots produce fibers of varying degrees of softness, yielding yarns and textiles with differing qualities for specific uses. For example, the outermost fibers of the shoots are the coarsest and are suitable for tablecloths, while the softest innermost fibers are desirable for kimono and kamishimo. In India, a banana fibre separator machine has been developed, which takes the agricultural waste of local banana harvests and extracts strands of the fibre.

Paper

Banana fibre is used in the production of banana paper. Banana paper is made from two different parts i.e., the bark of the banana plant, mainly used for artistic purposes, or from the fibers of the stem and non-usable fruits. The paper is either hand-made or by industrial process.



Use of Banana Waste Peels

Umesh and Preethi, (2014) carried out the fermentative production of LA from various fruit peel waste (mango, orange, banana and pineapple) as substrates by employing *Lactobacillus plantarum* as the starter culture. The highest lactic acid production was obtained from mango peels (10.08 g/L), whereas the other substrates viz., orange peels, banana peels and pineapple peels produced 5.74 g/L, 4.68 g/L and 4.68 g/L of lactic acid respectively.

Other Uses

- The large leaves may be used as umbrellas.
- Banana peel may have capability to extract heavy metal contamination from river water, similar to other purification materials. In 2007, banana peel powder was tested as a means of filtration for heavy metals and radionuclides occurring in water produced by the nuclear and fertilizer industries (cadmium contaminant is present in phosphates). When added and thoroughly mixed for 40 minutes, the powder can remove roughly 65% of heavy metals and this can be repeated.
- Waste bananas can be used to feed livestock.
- When aphids attack rosebushes or other plants, dried or cut-up banana peels can be buried around the base of the aphid-prone plants to control aphids.

Conclusion

Fruits are an important part of a healthy diet for human being. One of the important and most common fruit is banana. Banana is a good supplementary staple food. Bananas are a rich source of carbohydrates, vitamins, minerals and fibre, which are the most essential parts of the human diet. Bananas also serve as very powerful antioxidant, being rich in Vitamin C, some of the Vitamin B complex and potassium. Bananas are usually consumed in its fresh

form. But banana in its fresh form has a very little shelf life ranging from days to weeks. The fresh bananas also cause troubles while storage and transport. A lot of loss in term of income may be observed as the product degenerates. To increase income and to avoid the loss from degeneration, bananas are processed into different products with wide diversifications. Banana powder, banana flour, banana chips, banana biscuits, banana sauce, banana jam, banana juice and banana pulp are most famous one counted. The storability and functional properties of these products can be altered by the application of various innovative food processing technologies. Further studies should be done which focuses on different banana products, their potential for non-conventional uses and associated prospective novel processing techniques for value addition and preservation. Nevertheless, in future the Genetic engineering technologies has to help the increase carotenoids and micronutrients in the bananas through bio fortification to levels which are higher than the current ones.

References

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