Peanut Butter Fruit: A Promising Tropical Fruit with Unique Flavour and Diverse Uses

Dr. Bhyravi, B. M.
Assistant professor, Department of Fruit Science, College of Horticulture, Mudigere – 577132
*Corresponding Author: bhyraviyadav@gmail.com

Introduction

Peanut butter fruit is an interesting and relatively lesser-known tropical fruit valued for its attractive appearance, sweet flavour and dense, soft pulp with an aroma and taste reminiscent of peanut butter. The fruit is associated with species of the genus *Bunchosia* belonging to the family Malpighiaceae, the same family that includes acerola or Barbados cherry. *Bunchosia armeniaca* is commonly referred to as peanut butter fruit or monk's plum and is grown mainly as an ornamental and edible fruit plant in tropical regions. The crop has attracted attention among fruit enthusiasts because of its evergreen nature, attractive yellow flowers and orange-red fruits. In addition to fresh consumption, its dense pulp provides scope for preparation of jams, jellies, preserves, beverages, frozen products and other value-added foods.

Botanical Classification

- **Botanical name:** *Bunchosia armeniaca* (Cav.) DC.
- **Family:** Malpighiaceae
- **Common names:** Peanut butter fruit, peanut butter tree, monk's plum, Peruvian plume

The genus *Bunchosia* contains several tropical species, and considerable confusion exists in the literature and horticultural trade regarding the identity of plants marketed as peanut butter fruit. *B. argentea* and *B. glandulifera* are also frequently associated with this common name. Therefore, correct botanical identification is important when documenting cultivation, morphology and production characteristics.

Origin and Distribution

Peanut butter fruit is native to tropical America, particularly regions of South and Central America. Species associated with peanut butter fruit are distributed across countries such as Colombia, Venezuela, Brazil, Peru, Guyana and neighbouring tropical regions. The crop is also grown in other tropical and subtropical regions as an ornamental and fruit plant. In India, the plant remains a minor and underexploited fruit crop, but it has been observed in tropical regions including Kerala. A phenological study conducted in Kerala documented flowering, fruit setting and fruit development of peanut butter fruit under Indian conditions, indicating its potential for further evaluation as an emerging tropical fruit crop.

Morphological Characteristics

Plant

Peanut butter fruit is an evergreen shrub or small tree with a compact and attractive canopy. Depending on species and growing conditions, plants may reach several meters in height. The plant generally develops a dense crown and can be maintained at a manageable size through appropriate canopy management.



Stem and Branches

The stem is woody and develops numerous branches, giving the plant a bushy appearance. Young shoots may be slightly hairy. The plant produces new vegetative growth that supports flowering and fruit production.

Leaves

Leaves are simple, opposite and generally ovate to elliptic, with a prominent midrib and wavy margins. They are relatively large and provide a dense green canopy. In *B. argentea*, the lower leaf surface is characteristically covered with dense silvery or golden hairs, which distinguishes it from some other *Bunchosia* species.

Flowers

The flowers are small, yellow and attractive, generally produced in clusters or racemes. Flowers are bisexual, possessing both male and female reproductive structures. In *B. armeniaca*, the flowers are borne in the leaf axils and possess conspicuous yellow petals and several stamens.

Fruit

The fruit is the most distinctive feature of the plant. It is a small, rounded to oval berry-like drupe, changing from green during early development to orange and finally deep red or orange-red at maturity. The fruit contains dense, soft and sticky pulp surrounding one or more relatively large seeds.

The characteristic combination of sweet pulp, dense texture and peanut-butter-like flavor and aroma gives the fruit its popular name. Fully ripe fruits are soft and are generally best consumed soon after harvesting because of their short postharvest life.

Climate and Soil Requirements

Peanut butter fruit is essentially a warm tropical fruit plant. It performs best under warm conditions with adequate

sunlight and moisture. Young plants are particularly sensitive to cold and should be protected from low temperatures.

Well-drained soils with good organic matter are suitable for growth. Slightly acidic to neutral soil conditions are generally favourable. Waterlogging should be avoided, while adequate moisture is particularly important during establishment and active growth.

Propagation

Peanut butter fruit can be propagated through seeds and vegetative methods.

Seed Propagation

Fresh seeds extracted from fully mature fruits can be sown in a well-drained nursery medium. Seed propagation is relatively simple, although seed viability can decline with prolonged storage. Under favourable warm conditions, germination may occur within a few weeks. Seed-propagated plants generally require a longer period to reach fruiting compared with well-established vegetatively propagated plants.

Vegetative Propagation

Stem cuttings and layering can be used for vegetative multiplication. Vegetative propagation is particularly useful when it is necessary to maintain desirable characteristics of selected mother plants. Grafting has also been reported as a propagation option.

Flowering, Fruiting and Harvesting

The crop has the potential for an extended flowering and fruiting period under favourable tropical conditions. In a 2024 study conducted in Kerala, flower-bud initiation began around the end of March, with anthesis occurring approximately 28 days after initiation. Flowering and fruiting were observed mainly from April to September, with flowering peaks during the season.

The fruits develop gradually from green to orange and finally red at maturity. Harvesting should preferably be carried out when fruits attain their characteristic orange-red to deep-red colour and develop a soft texture. Fruits may also be harvested at the orange stage and allowed to ripen for a short period. Because ripe fruits are soft and highly perishable, frequent harvesting and rapid consumption or processing are desirable. Refrigerated storage can help extend their usability for a short period.

Uses of Peanut Butter Fruit

The principal attraction of peanut butter fruit is its unique sensory quality. The ripe fruit can be eaten fresh, either directly from the tree or after removal of the seed. Its dense pulp provides a distinctive mouthfeel and flavour.

The fruits can also be processed into:

- Jams and jellies
- Preserves
- Fruit spreads
- Milkshakes and smoothies
- Fruit pulp and purée
- Frozen pulp
- Dehydrated fruit products
- Bakery products
- Fruit-based confectionery

The fruit's dense pulp and characteristic flavour make it particularly suitable for blending with other fruits and ingredients in processed foods.

Nutritional and Functional Potential

Preliminary studies indicate that peanut butter fruit contains carbohydrates, protein, fat, minerals and phytochemicals. Investigations of *B. argentea* fruit have reported the presence of phenolic compounds, flavonoids, terpenoids and carotenoid-related compounds, along with antioxidant activity. The fruit therefore has potential not only as a novel fresh fruit but also as an ingredient for functional and nutritionally oriented food products. However, claims regarding specific therapeutic effects should be supported by appropriate nutritional, toxicological and clinical studies before being promoted for health applications.

Value-Added Products

One of the major opportunities with peanut butter fruit lies in value addition, particularly because the fresh fruit has a short shelf life. Conversion into stable products can reduce postharvest losses and improve the economic value of the crop.

Peanut Butter Fruit Jam

The ripe pulp can be separated from the seeds, blended and processed with sugar and suitable acidulants to prepare a flavorful fruit jam. Its naturally dense pulp can contribute to a desirable consistency.

Jelly and Preserve

The attractive colour and characteristic flavour of the fruit make it suitable for jelly and preserve preparation. These products can provide a longer shelf life than the fresh fruit.

Beverage Products

Fresh pulp can be incorporated into milkshakes, smoothies and fruit beverages, where its dense consistency contributes to body and flavour.

Dehydrated Products

The pulp can be dehydrated to produce a shelf-stable fruit ingredient. Dried pulp or fruit powder may subsequently be incorporated into bakery and confectionery products.

Functional Food Products

Research has already explored the incorporation of peanut butter fruit powder into dark chocolate, demonstrating the possibility of using the fruit in innovative functional-food formulations.

Commercial Potential

Peanut butter fruit remains a minor fruit crop with considerable novelty value. Its evergreen growth habit,

attractive flowers, unusual fruit colour and distinctive flavour make it suitable for home gardens, specialty fruit collections and small-scale commercial production in suitable tropical environments. Its greatest commercial opportunity may lie not in competing with established major fruits but in developing a specialty-fruit niche market based on fresh consumption and value-added products. Processing can further enhance its potential by overcoming the limitation of rapid deterioration after harvest.

Future Prospects

Peanut butter fruit represents an interesting addition to the group of underutilized and emerging tropical fruit crops. Further research is required on cultivar identification, genetic diversity, propagation techniques, flowering and fruiting behaviour, yield potential, nutritional composition, postharvest handling and processing technologies.

Standardization of propagation and production practices under Indian conditions, particularly in suitable tropical regions, could facilitate its wider adoption. Development of value-added products such as jams, beverages, dehydrated products and functional foods may provide additional opportunities for farmers, entrepreneurs and the food-processing sector.

Conclusion

Peanut butter fruit is a distinctive tropical fruit characterized by its evergreen growth, attractive yellow flowers and orange-red fruits with dense, sweet pulp and a characteristic peanut-butter-like flavour. Although still relatively unfamiliar in mainstream fruit production, its unique sensory properties, ornamental value, adaptability to tropical environments and potential for value addition make it an interesting emerging fruit crop.

With systematic research on propagation, production, phenology, postharvest management and processing, peanut butter fruit could find a niche in India's growing market for novel, underutilized and specialty tropical fruits.

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