

Malay rose apple (Malay jamun)

Origin and growth habit

Malay rose apple is a less known tropical fruit, popular in many countries in Asia. It is also known as mountain apple, Rose apple, Malay jamun in Hindi; Jambe in Kannada, Malay jamb in Marathi, Malaka jamrul in Bengali and Pani-jamuk in Assamese.

Malay rose apple (*S. malaccense*) belongs to Myrtaceae family, native to Malaysia, has been introduced in many tropical countries. It was introduced to India by the Portuguese voyagers, who carried it from Malacca to Goa, and then it moved to other parts of India. Rose apple generally grows in the foothills of humid tropical forests and is widely cultivated in home gardens in the coastal regions on altitudes up to 1200 m. Its cultivation is restricted to tropical regions having an annual rainfall of 1500 mm or more. It performs better in areas having year-round rainfall and along the water bodies. This species grows well on well drained, deep fertile soils, within the pH range of 5.5 to 7.0. The tree has low tolerance for soil salinity and cold climate.

Morphology and cultivation

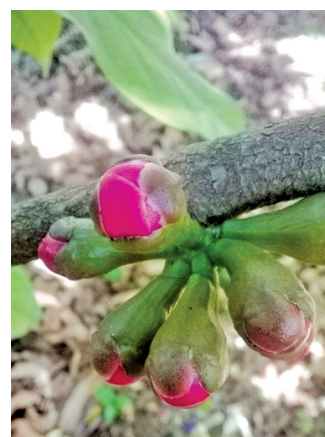
Malay apple is an evergreen small to medium sized evergreen tree with a moderate, ovoid crown that grows about 5–20 metres tall. The tree is straight, with a cylindrical bole and pale-brown bark, with thin and brittle side branches. Leaves are opposite, oblong to elliptic with entire leaf margin, 15–38 cm long and 7–20 cm wide, dark green in colour, with slightly shiny upper surface and dull light green lower surface. Leaves are mildly sour in taste.

The flower has a funnel-shaped, light purplish-green base (hypanthium), enclosing the ovary with 4 broad,

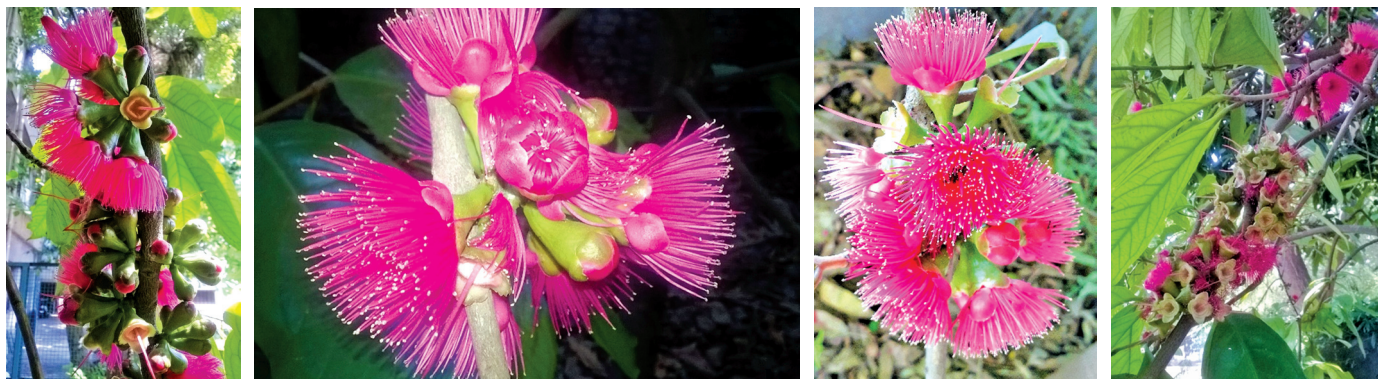
thickened, persistent sepals, to hold purplish-red petals and a large number of purplish red stamens, with yellow dotted anther at the tip and a pistil composed of an inferior 2-celled ovary with a purplish-red style. Flowers are 5–7 cm wide, which are arranged in clusters of 1–12 on 1–2 year old branches that have shed their leaves. Fruits belong to the category of berries, which are pears or cashew apple shaped and fleshy. The fruits are 5–8 cm wide and 6–8 cm long, dark red with white or pink streaks, but the colour can also be whitish or pinkish. Each fruit contains 1 round, brown seed (2.5–3.5 cm wide), which mature in two months after flowering.

Propagation is generally by seeds, which are polyembryonic, containing 3–4 embryos. Seeds germinate in 12–15 days, and 3–4 epicotyls emerge from each seed. The first two leaves are initially light brown in colour and turn into parrot green colour after a week. One of these seedlings is from fertilization and the other seedlings are identical clones of the mother tree. The seedling which germinates from the fertilised embryo, is generally less vigorous while the other seedlings are vigorous. Hence, it is desirable to keep it on the vigorous plant and prune the remaining plants to ensure true qualities of the mother tree. It is also possible to separate all the seedlings to produce more seedlings, preferably within a week after germination. Grafting, budding, stem cutting and air-layering are also successful. It is desirable to maintain the seedlings for 5–6 months in the nursery before planting in the field. A spacing of 6–8 m can be provided in commercial orchards.

The plants grow fairly fast with thin side branches, and start flowering in 3–4 years. New vegetative flushes emerge 3–4 times a year and the flowering flushes



Malay rose apple trees and leaves



Malay rose apple flowers

emerge simultaneously from the dormant axillary buds on matured stems. Flowering will be profuse and as the stamens fall on the ground, the canopy area under the tree looks like a purplish-red carpet. Only a small number of flowers (less than 1%) set into fruits, which are glossy, crowned by the incurved non-fleshy calyx segments. The fruit turns slightly soft on ripening, which is an indication for harvesting. The colour of the fruits vary from white to dark pink, purple-red or white with red streaks. The flesh is 0.5-2.5 cm thick, spongy, juicy, white and fragrant, with a brown seed. Seeds have a very short life of 2 weeks for sowing.

Nutritive value and uses

Rose apple fruit is delicious, mildly sour in taste and with a distinct sweet flavour. It can be consumed as fresh fruits or processed into juice, squash, jam, sauce, preserves and wine. The slightly unripe fruits are used for making jelly and pickles. The fruit is very nutritious, as presented in the table below.

Nutritive value of Malay rose apple

Components	Value per 100 g fruit
Moisture (g)	90.3 - 91.6
Protein (g)	0.5 - 0.7
Fat (g)	0.1 - 0.2
Fibre (g)	0.6 - 0.8
Ash (g)	0.26 - 0.39
Calcium (mg)	5.6 - 5.9

Phosphorus (mg)	11.6 - 17.9
Iron (mg)	0.2 - 0.82
Carotene (mg)	0.003 - 0.008
Vitamin A (I.U.)	3 - 10
Thiamine (mcg)	15 - 39
Riboflavin (mcg)	20 - 39
Niacin (mg)	0.21 - 0.40
Ascorbic Acid (mg)	6.5 - 17.0

Source: Wikipedia, 2021

Malay apple fruit is rich in phytochemicals having anti-inflammatory and antioxidant properties. Leaves and barks also have components having medicinal values (Batista *et al.* 2017).

Health benefits

Following are the health benefits of Malay rose apple

- Being rich in vitamin A, the fruit helps to improve eye health and eyesight.
- Drinking warm water with pieces of Rose apple fruit can relieve fever.
- The fruit can nourish the skin and reduce wrinkles.
- Rose apple being low in sugar, this fruit in the diet can reduce sugar intake and control diabetes.
- Rose apple being rich in vitamin C, it serves as an antioxidant and helps to prevent damage from oxidative stress and get rid of various diseases.
- Rose apple fruit has a property to overcome dysentery and prevent constipation.



Malay rose apple fruits



Poly-embryonic seed with three epicotyls and the seedlings separated for propagation

- The iron content in the fruit helps to strengthen bones.
- Leaves of Rose apple possess anti-acne properties to treat acne vulgaris.
- Leaf extract of Rose apple is helpful to treat liver ailments.
- The root is effective against dysentery and as a diuretic.
- In Brazil, various parts of the plant are used as remedies for constipation, diabetes, cough and pulmonary catarrh.
- In Molucca, decoction of the bark is used to treat thrush (fungal infection in the mouth).
- In Malaysia, powder of the dried leaves is applied to treat cracked tongue.
- A root preparation of Rose apple is a remedy for itching.
- The root bark is useful against dysentery, and serves as an emmenagogue.
- Decoction of the fruit, leaves or seeds is used as a febrifuge in Cambodia.

Conclusion

Malay rose apple is a less known fruit which can be introduced in high rainfall regions across the country. Fruits being delicious and having many medicinal uses, the fruits will have good demand in urban markets.

For further interaction, please write to;

Narayan G Hegde, 1105/9-2, Model Colony, Pune, Maharashtra.

*Corresponding author email: narayanhedge47@gmail.com

Attention readers: • All disputes are subject to the exclusive jurisdiction of competent courts and forums in Delhi/New Delhi only. • The Council does not assume any responsibility for opinions offered by the authors in the articles and no material in any form can be reproduced without permission of the Council. • The Council is not responsible for any delay, whatsoever, in publication/delivery of the periodicals to the subscribers due to unforeseen circumstances or postal delay. • Readers are recommended to make appropriate enquiries before sending money, incurring expenses or entering into commitments in relation to any advertisement appearing in this publication. The Council does not vouch for any claims made by the advertisers of products and services. The publisher and the editor of the publication shall not be held liable for any consequences in the event of such claims not being honoured by the advertisers.