

A Review of Species Status and Cultivar Variability in Guava (*Psidium guajava* L.)

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The genus *Psidium*, belonging to the family Myrtaceae, has a basic chromosome number of $x = 11$. All commercially important Indian guava cultivars belong to *Psidium guajava* L., the primary cultivated species. Several wild species within the genus are of considerable value in breeding programs due to their tolerance to abiotic stress, pest resistance, and unique fruit characteristics.

Important Wild Species

1. *P. cattleianum* var. *cattleianum*: A wild subtropical species closely related to guava, highly adaptable to diverse soil types and tolerant to cold conditions. Plants bear small, round, highly aromatic fruits known as “strawberry guava,” preferred for their mild flavour and lack of muskiness (Normand, 1994).
2. *P. cattleianum* var. *lucidum*: A hardy species producing small, acidic, yellow fruits commonly known as “lemon guava.”
3. *P. guineense*: Also referred to as Brazilian or Castilian guava, this slow-growing shrub tolerates short drought periods. It bears yellow-skinned fruits with pale yellow pulp and numerous hard seeds (Morton, 1987).
4. *P. friedrichsthalianum*: A tall species known as Chinese or Costa Rican guava, producing highly acidic fruits suitable for jelly preparation. It exhibits resistance to wilt and root-knot nematode (*Meloidogyne incognita*).
5. *P. montanum*: Native to mountainous regions of Jamaica, this species produces poor-quality fruits but remains of botanical interest.
6. *P. araucanum*: A large tree characterized by membranous leaves, distinct venation, and thin pericarp fruits that turn yellowish green on maturity.
7. *P. acutangulum*: A shrub or small tree (8–12 m) with quadrangular branchlets and round to pear-shaped fruits containing acidic but flavoured pulp. The fruits are traditionally consumed fresh or used for beverages and preserves.

Guava Varieties

Varietal nomenclature in guava is often inconsistent due to naming based on fruit shape, colour, pulp type, or geographical region. Guava is predominantly self-pollinated but exhibits occasional cross-pollination, resulting in significant variability within seedling populations. This natural variation has led to the selection of numerous region-specific cultivars across India.

Major Cultivars Grown in India

1. **Allahabad Safeda**: The most widely cultivated variety in India and a progenitor of many modern cultivars. Fruits are round, large, smooth-skinned, light yellow on ripening, with white, firm, high-quality pulp rich in vitamin C and TSS.

2. **Anakapalli:** Medium-sized fruits with red pulp and numerous soft seeds; slightly oval in shape.
3. **Apple Colour:** Moderately vigorous trees bearing medium-sized fruits with red skin and white, sweet pulp. Good colour development requires cool temperatures.
4. **Bangalore:** Fruits medium to large, with white pulp of good flavour.
5. **Chittidar:** Popular in Western Uttar Pradesh; fruits are marked with red dots, with white pulp rich in vitamin C (approx. 240 mg/100 g).
6. **Hafsi:** Spherical fruits with thin skin and red, flavourful pulp containing fewer but hard seeds.
7. **Red Fleshed:** Round fruits with red pulp, smooth skin, and medium-soft seeds; rich in vitamin C (approx. 386 mg/100 g).
8. **Sardar (Lucknow 49):** A dwarf, spreading tree producing medium to large fruits with creamy, soft pulp and pleasant aroma. A heavy-yielding cultivar with good keeping quality.
9. **Smooth Green:** Round, medium-sized fruits with glossy greenish-yellow skin and white, flavorful pulp.
10. **Nasik:** Medium-sized round fruits with white, sweet pulp and good flavour.
11. **Banarasi Surkha:** Medium-sized trees producing golden-yellow fruits with pink pulp and numerous hard seeds.

Improved and Breeding-Derived Cultivars

Arka Mridula: A selection from open-pollinated Allahabad Safeda. Semi-vigorous plants producing round fruits (~180 g), white pulp, good flavour, soft seeds, and high pectin content, making it ideal for jelly production.

Arka Kiran: A high-yielding pink-pulp cultivar (200–220 g). Fruits contain 11–12°Brix TSS and high lycopene content (7.14 mg/100 g). Suitable for commercial orchards with high economic returns.

Arka Rashmi: A dwarf, pink-fleshed hybrid suited for high-density planting systems.

Lalit: A hybrid developed by CISH, Lucknow. Known for its high yield, sweet pinkish pulp, attractive fruit appearance, and suitability for processing. Displays good shelf life and disease tolerance.

Seedless Group: Includes types such as Saharanpur Seedless, Nagpur Seedless, and Sringeri Seedless. Fruits are typically large, white-pulped, flavourful, and contain very few seeds. Suitable for table use and valued for high vitamin C levels.

Navalur: A hardy, drought-tolerant and canker-resistant cultivar from Karnataka. Includes several regional selections such as CIW-2, GR-1, GW-1, SR-1, and others.

Summary

The *Psidium* genus encompasses a diverse group of species with substantial horticultural and breeding importance. Among them, *P. guajava* remains the dominant cultivated species, supported by a wide array of improved and region-specific cultivars selected for yield, pulp colour, flavour, nutritional quality, and abiotic stress tolerance. Wild species contribute valuable traits such as pest resistance, drought tolerance, and unique fruit attributes, making them important genetic resources for future guava improvement programs.