

Cherimoya

For the thoroughbred racehorse, see *Cherimoya (horse)*.
The **cherimoya**, also spelled **chirimoya**, is the fruit



Ripe cherimoya fruits

of the species *Annona cherimola*, which generally is thought to be native to Ecuador, Colombia, Peru and Bolivia^[1] then transported to the Andes and Central America.^{[1][2][3]} Today, cherimoya is grown throughout South Asia, Central America, South America, California, Hawaii, southern Europe, East Africa, Kisii in particular and northern Africa.^[1]

Mark Twain called the cherimoya “the most delicious fruit known to man.”^[4] The creamy texture of the flesh gives the fruit its secondary name, **custard apple**.

1 Description



Split cherimoya fruit

Cherimoya is a deciduous or semi-evergreen shrub or small tree reaching 9 m (30 feet) tall. The leaves are al-

ternate, simple, oblong-lanceolate, 7–15 cm long and 6–10 cm broad. The **flowers** are produced in small clusters, each flower 2–3 cm across, with six petals, yellow-brown, often spotted purple at the base.^[1]

The fruit is oval, often slightly oblate, 10–20 cm long and 7–10 cm in diameter, with a smooth or slightly tuberculated skin. The fruit flesh is white and creamy, and has numerous dark brown **seeds** embedded in it.^[1] When ripe, the skin is green and gives slightly to pressure. Some characterize the fruit flavor as a blend of **banana**, **pineapple**, **papaya**, **peach**, and **strawberry**. The fruit can be chilled and eaten with a spoon, which has earned it another nickname, the **ice cream fruit**. Indeed, in Peru, it is commonly used in ice creams and yogurt.^[2]

2 Etymology

The name originates from the **Quechua** word *chirimuya*, which means “cold seeds,” because the plant grows at high altitudes and the seeds will germinate at higher altitudes.^[1] In Bolivia, Peru, Chile, Ecuador and Colombia the fruit is commonly known as *chirimoya* (spelled accordingly with the Spanish language rules).

3 Indigenous cultures



Moche ceramic cherimoya, 200 BC, Larco Museum Collection in Lima

The Moche culture of Peru had a fascination with agriculture and represented fruits and vegetables in their art. Cherimoyas were often depicted in their ceramics.^[5]



Cherimoya-shaped bottle made by the Cupisnique culture around 1000 to 700 BC in the Peru's Coast

4 Pollination



Cherimoya sprouts emerging

The flowers are hermaphroditic and have a mechanism to avoid self-pollination.^[1] The short-lived flowers open as female, then progress to a later, male stage in a matter of hours. This requires a separate pollinator that not only can collect the pollen from flowers in the male stage, but also deposit it in flowers in the female stage.

Studies of insects in the cherimoya's native region as its natural pollinator have been inconclusive; some form of beetle is suspected. Quite often, the female flower is receptive in the early part of the first day, but pollen is not produced in the male stage until the late afternoon of the second day. Honey bees are not good pollinators, for example, because their bodies are too large to fit between the fleshy petals of the female flower. Female flowers have the petals only partially separated, and the petals separate widely when they become male flowers. So, the bees pick up pollen from the male flowers, but are unable to transfer this pollen to the female flowers. The small beetles which are suspected to pollinate cherimoya in its land of origin are much smaller than bees.

For fruit production outside the cherimoya's native region, cultivators must either rely upon the wind to spread pollen in dense orchards or else use hand pollination. Pollinating by hand requires a paint brush. Briefly, to increase the fruit production, growers collect the pollen from the male plants with the brush, and then transfer it to the female flowers immediately or store it in the refrigerator overnight. Cherimoya pollen has a short life, but it can be extended with refrigeration.

5 Cultivation and harvesting



A Cherimoya fruit, growing in a protective cover on a plantation in Bin Lang Village, Taiwan

The tree thrives throughout the tropics at altitudes of 1,300 to 2,600 m (4,300 to 8,500 ft). Though sensitive to

frost, it must have periods of cool temperatures or the tree will gradually go dormant.^[1] The indigenous inhabitants of the *Andes* say the cherimoya cannot stand snow.

In the *Mediterranean region*, it is cultivated mainly in southern Spain and Portugal, where it was introduced between 1751 and 1797^[1] from where it was carried to Italy, but now can be also found in several countries of *Africa*, the *Middle East* and *Oceania*. It is cultivated throughout the *Americas*, including *Hawaii* since 1790 and *California* where it was introduced in 1871.^[1]

Large fruits which are uniformly green, without cracks or mostly browned skin, are best. Unripe cherimoyas will ripen at room temperature, when they will yield to gentle pressure.^[1]

Exposure to ethylene (100 ppm for one to two days) accelerates ripening of mature-green cherimoya and other *Annona* fruits; they can ripen in about five days if kept at 15 to 20 °C (59 to 68 °F). Ethylene removal can be helpful in retarding ripening of mature-green fruits.

5.1 Eating characteristics

Different varieties have different flavors, textures, and shapes.^[1] Shapes can range from imprint areoles, flat areoles, slight bump or point areoles, full areoles, and combinations of these shapes. The flavor of the flesh ranges from mellow sweet to tangy or acidic sweet, with variable suggestions of pineapple, banana, pear, papaya, strawberry or other berry, and apple, depending on the variety. The usual characterization of flavor is “pineapple/banana” flavor, similar to the flavor of the *Monstera deliciosa* fruit.

When the fruit is soft-ripe/fresh-ripe and still has the fresh, fully mature greenish/greenish-yellowish skin color, the texture is like that of a soft-ripe pear and papaya. If the skin is allowed to turn fully brown, yet the flesh has not fermented or gone “bad”, then the texture can be custard-like. Often, when the skin turns brown at room temperature, the fruit is no longer good for human consumption. Also, the skin turns brown if it has been under normal refrigeration for too long - a day or two maybe.

6 Nutritional value

In a 100 g serving providing 75 calories, cherimoya is an excellent source (> 19% of the Daily Value, DV) of vitamin B6 and a good source (10-19% DV) of vitamin C, dietary fiber and riboflavin (table).

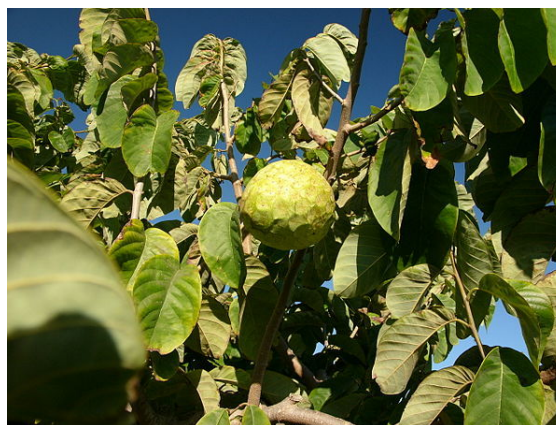
7 Postharvest handling

The optimum temperature for storage is 8–12 °C (46–54 °F), depending on cultivar, ripeness stage, and duration, with an optimum relative humidity of 90-95%.^[1]

7.1 Seeds

Seeds of cherimoya and other members of the *Annonaceae* family also contain small amounts of neurotoxic acetogenins, such as annonacin,^[1] which appear to be linked to atypical Parkinsonism in Guadeloupe.^[6] The seeds are poisonous if crushed open, and an extract of the bark can induce paralysis if injected.^[1]

8 Gallery



Cherimoya tree



Plantation in south Andalusia

9 See also

- (*Annona reticulata*)



Cherimoya seeds

- Atemoya (a cross of *A. squamosa* and *A. cherimola*)
- Pawpaw (*Asimina* spp.)
- Soursop (*Annona muricata*)
- Sugar-apple (*Annona squamosa*)
- White sapote (*Casimiroa edulis*) — sometimes mislabeled as cherimoya
- Wild soursop (*Annona senegalensis*)

10 References

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- [2] Popenoe H, King SR, León J, Kalinowski LS, Vietmeyer ND; et al. (1989). “Cherimoya”. *Lost crops of the Incas: Little-known plants of the Andes with promise for worldwide cultivation*. Washington, D.C.: National Academy Press. pp. 228–239. ISBN 978-0-309-07461-2.
- [3] van Zonneveld M, et al. (2012). “Mapping Genetic Diversity of Cherimoya (*Annona cherimola* Mill.): Application of Spatial Analysis for Conservation and Use of Plant Genetic Resources”. *PLoS ONE* **7** (1): e29845. doi:10.1371/journal.pone.0029845.
- [4] Twain M (October 25, 1866). “Kau and Waiohinu in Kilauea, June, 1866”. The Sacramento Daily Union.
- [5] Berrin, Katherine & Larco Museum. *The Spirit of Ancient Peru: Treasures from the Museo Arqueológico Rafael Larco Herrera*. New York: Thames and Hudson, 1997.
- [6] Champy P, et al. (December 2005). “Quantification of acetogenins in *Annona muricata* linked to atypical parkinsonism in guadeloupe”. *Mov. Disord.* **20** (12): 1629–3. doi:10.1002/mds.20632. PMID 16078200.

11 External links

- California Rare Fruit Growers article on cherimoya

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