

## Borojó, a fruit with the taste of the Pacific coast

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### The tree of hanging heads

The borojó (*Alibertia patinoi* (Cuatrec.) Delprete & C.H. Perss.) is a tree species native to South America belonging to the Rubiaceae family. The name “borojó” comes from the Citará dialect (indigenous communities in northwestern Colombia and southeastern Panama) and means “tree with hanging heads” referring to the morphology of the bush, since its fruit, a globose berry that grows at the ends of the branches, bends them due to its weight, resembling hanging heads (Figure 1).



**Figure 1.** Borojó bush with its “hanging heads”.

With a maximum height of 3 to 5 meters, this wild shrub thrives best in tropical climates with 75 to 85% relative humidity, 28°C average temperature, less than 1 500 hours of sunlight annually, more than 3 000 mm of rainfall annually, and elevations of up to 800 meters above sea level. The fruit is a berry that can range in weight from 300 to 1 200 kg. It has a diameter of 7 to 12 cm and an average weight of 740 grams. When the fruit is young, it is light green in color and turns reddish brown when ripe. The pulp has a dark color and is tasty and meaty (Figure 2). The borojó fruit has several nutritionally significant qualities, but its amount of carbohydrates, amino acids, vitamins, and availability as a source of calcium, iron, and phosphorus stand out.



**Figure 2.** Ripe borojó fruit.

### Males and females

Borojó plants have the characteristic of producing male and female flowers on different trees, which is known in botany as “dioecious species”. “Male” trees produce cream-colored cluster inflorescences, while “female” trees (those that produce fruit) produce solitary, terminal, cream-colored female flowers (Figure 3). It is worth mentioning that it is not possible to differentiate male trees from female trees until they flower.



**Figure 3.** Male and female flowers of the borojó tree.

### Uses and benefits of borojó

The borojó fruit has been traditionally used by the inhabitants of the Colombian Pacific region to make

juices, wines, compotes and jellies. It has also been used medicinally, for example, it is used to treat bronchial conditions, control high blood pressure, heal wounds, improve vision, combat anemia and treat kidney disease. Additionally, the borojó fruit is credited with increasing sexual potency.

## **Production**

In Colombia, 2 461.5 hectares were planted in 2018 and 16 246 tons were produced with an average yield of 6.6 tons per hectare. Borojó begins its production after three years; under traditional management conditions, a tree produces 5 to 12 fruits per year during the first 5 years of productive life and 12 to 30 fruits per year for the rest of the useful period, which can reach fifty years. The estimated yield for a plantation of 625 trees/ha can be 15 to 20 t/ha, depending on the care and cultural practices used. It is worth mentioning that the production of the borojó crop is fluctuating because the species presents alternating years of high productivity with years of low productivity.

## **Cultivation of borojó**

Because borojó prefers shade, it must be planted with other forest plants that provide shade. This crop demands deep, silty-loam soils with an adequate amount of decomposed organic matter or humus. The most popular way for propagating borojó is by seed; however, because the "male" and "female" plants are not identifiable at the time of planting, typically when borojó crops are established, the number of male trees per hectare is approximately 60%, resulting in a decline in productivity.

Asexual propagation is not generally used for the cultivation of borojó, but it can be carried out by means of cuttings from branches and roots that are one and two years old, always taking into account the correct polarity at the time of planting. The cuttings should be thirty centimeters long or a little more and should preferably come from female plants.

Another method of asexual propagation that can be used is grafting (considered the most recommendable). Scion grafts can be made in various ways, achieving good yields. In the case of

using the "single bud" graft, it is recommended to practice it on nursery plants when they begin their active growth, since at this stage of the plant's cycle it is easier to carry out this type of graft. "Terminal bud" and "lateral bud on bud" grafts are recommended in the case of wanting to make a male tree productive by using scions from female plant.

The recommended planting distances for borojó cultivation can be 4 by 4 meters in a square, allowing for 625 trees per hectare or 722 using the "staggered" system. The distance of 5 by 5 meters can also be used, in which case there will be 400 trees using the first system or 462 using the second.

Pruning should be carried out at a height of 3 m, making a diamond-shaped cut to avoid the emission of shoots in this area, due to apical dominance. Primary branches are not removed, since they do not regenerate and are required to produce secondary and tertiary branches in order to concentrate production. The time for pruning is the one following the main harvest, depending on the production area.

## **Fertilization**

Phosphorus and potassium are the elements most required by the borojó plant, which is why it is recommended to apply fertilizers rich in these elements, such as grade 10-20-20 or 15-15-15, applied at a rate of 300 to 600 kilograms per hectare, which would correspond to 250 to 500 grams per tree, depending on the crop densities and the topography of the land. The least rainy seasons should be chosen to apply the treatment, repeating it every six months.

## **Harvest**

When the fruit ripens, it falls to the ground and is then harvested by hand. It is worth noting that this fruit is highly resistant to deterioration, and usually does not spoil under the conditions in which most fruits do.

## **A recipe with boroj6**

Aphrodisiac boroj6 juice.

### *Ingredients:*

- \* 1/2 pound of boroj6 pulp
- \* 8 glasses of water
- \* 1 liter of milk
- \* 150 grams of sugar
- \* 1 glass of your favorite liquor
- \* 1 tablespoon of granulated cola
- \* 3 beaten eggs
- \* 1/4 teaspoon of vanilla essence
- \* 1/4 teaspoon of nutmeg
- \* Crushed ice

### *Preparation:*

Extract the pulp from the boroj6 and place it in the blender glass, pour in the rest of the ingredients. When we have the previous mixture prepared, we add the Boroj6 juice and the ice and blend.

## **Bibliography and Related Links**

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