



Hevea brasiliensis Muell. Arg. : Ethnobotanic and/or ethnomedical uses, and latex industrial application

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INTRODUCTION

This plant species is known as 'caucho' (rubber), 'árbol que llora' ('tree that cries'), and 'jeringuilla' (small syringe), among others.

In the Amazon basin, the indigenous name is 'Caá-uchú' that means 'tree that cries'

From prehistoric times Indians of the Amazons have used this species to manufacture raincoats and other goods; also in food and medicine.



Botanical description

It grows up to a variable height *ca.* 20 to 40 m, with a trunk diameter that can reach nearly 1.80 m. It has alternate, largely petiolated, compound, trifoliate

leaves. The flowers, gathered in panicles are small, white-yellowish, scented, unisexual; they possess a simple floral envelope, composed of 5 tepals.

Fruits are dehiscent capsules that contain spheric to elliptic seeds, of brown color with black spots; the endosperm contains 45 to 49% of a yellow, thick oil of similar aroma to linseed-oil (Baker, 1968; Rizzini, 1976; Belt, 1984).

The species is so variable that in order to know it is necessary to study thousands of individuals in several towns (Schultes, 1948).

Source

The species is native to the tropical forests of Amazonia (Baker, 1968).

It grows through the amazon jungle on a territory from northern Brazil, part of eastern Bolivia, the high Orinoco in Venezuela, Peru and Ecuador (Brücher, 1989).

It is cultured in Central America, Western Indies, Brazil, Liberia, Ceylon, Malay Archipelago, Sumatra, Java, and in the Oriental India (Fahn, 1978).

Historical records

Rubber, coming from *Hevea* tree, has been used from prehistoric times by the Amazon Indians. Spanish conquerors also used it to waterproof their clothes (Baker, 1968).

The so-called 'cycle of the drunkard' ('ciclo de la borracha') in the Amazon region began in the first half of the 19th century, related to the warring indigenous folk Apiaká (name of their earth and their primitive language).

In the spectacular economic events of the 20th century rubber is included, which is part of the



history of exploitation, smuggling and construction of empires (Baker, 1968).

The apiaká were cruelly slaughtered by 'seringalistas', being unable to keep their traditional way of life.

In 1791 began the first commercial application of rubber as waterproof material, and in 1823 it was discovered that it could be dissolved in naphtha, not being necessary to have fresh latex. In 1876 70,000 seeds were smuggled to Kew, which sowed under tropical and humid atmosphere gave 1,900 plants, 90% of which arrived to Ceylon.

Those plants gave rise to the big rubber industries of Ceylon, Malay and Indonesia (Baker, 1968).

Those cultured plants in Ceylon would cover the international market 30 years later (Rizzini, 1976).

Attempts to establish plantations in Brazil failed because of the *Micorocyclus ulei* (p. Henn.) Arx fungus attack, which under natural conditions does not cause appreciable ravages. In 1962 improved varieties were developed.

Reports of the 2004/05 period indicate that Colombia annually imports 30,000 tons of rubber, being considered that agroecological advantages of that country would allow to culture 900,000 hectares with *Hevea brasiliensis*. This culture installation generates a productive activity of four direct employments per hectare/year.

Ethnobotanic or ethnomedical uses.

Natives used seeds as food in urgency cases, once eliminated the toxic substances by coction. They also extracted the oil content to produce illumination (Brucher, 1989)

They used a mixture of fresh latex with castor oil as vermifuge.

They submerged feet in the collected juice, and then maintained them on fire smoke, thus obtaining by clotting a perfect couple of slippers.

Pharmacological activities recognized by the traditional or popular medicine

Fresh latex mixed in minimum quantities with castor oil has anthelmintic activity (Corrêa, 1984).

Industrial application of the latex.

Latex has industrial application in adhesives and glues, production of car tyres, and at this time, 5th edition.

medical gloves account for the highest use of latex from natural rubber. Urinary catheters, breathing bags for anesthesia, and dental dams are also manufactured for medical application.

Collection and composition of latex.

Rubber is obtained by 'bleeding', which consists of making a cut as an angle through the bark up to the cambium.

Latex is produced in the protoplasm by biochemical polymerization reactions catalyzed by enzymes. It contains 30 to 36% of the rubber hydrocarbon, 0.30 to 0.70% of ash, 1 to 2% of proteins, 2% of resin, and 0.5% quebrachitol.

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