



Astronium graveolens Jacq.

Taxonomy and nomenclature

Family: Anacardiaceae

Synonyms: *Astronium fraxinifolium* Schoth.

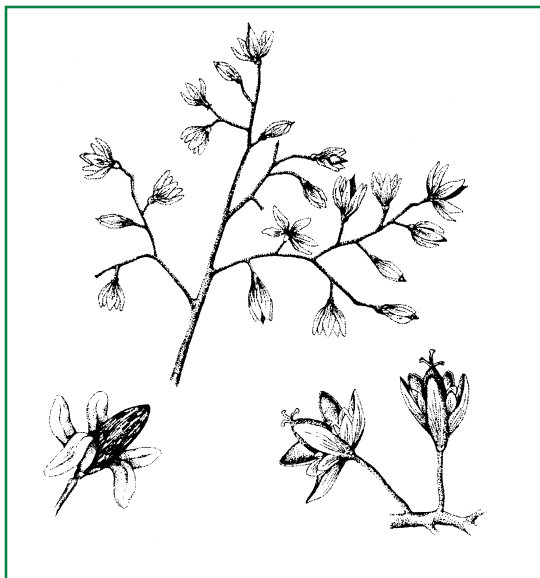
Vernacular/common names: Ron ron, jocote, jobillo (Costa Rica and Honduras); jocote de fraile, zorro, palo hobero (Nicaragua); ciruelo, melón, jarillo, ciruelillo (South America).

Distribution and habitat

The area of natural distribution is from Mexico through Central America to Brazil, Bolivia and Paraguay.

It is found at altitudes ranging from 150 to 1000 m but is most common at 500-600 m. It grows in areas with annual rainfall of 1200-3000 mm and temperatures of 24-27.5°C in both dry and humid tropical forests. It does not tolerate waterlogging or heavy clay soils. Best growth is obtained on lighter soils with less than 40% clay, neutral pH and good drainage.

Uses The wood is very durable, fairly easy to work and has a specific gravity of 0.85-1.28 g/cm³. It is used for furniture, floors, tool handles, cabinets and in paper production.



Flowering branch, flowers and fruit. Illustration from CATIE.

Botanical description

Deciduous tree, up to 20-30 m tall and 1 m in diameter. The trunk is normally straight, often with low branches. Crown rounded, open, with ascending and irregular branches; bark grey, with lenticels, shiny and finely spotted with brighter flecks where the bark has peeled off; exudes a transparent resin with a bitter-sweet, pleasant smell.

Leaves alternate, composite, 20-35 cm long; leaflets 5-7, 4-14 cm long, 2-7 cm wide, finely serrated, glabrous or slightly pubescent, oblong or obovate and pointed at the tip; dark green to yellowish on the upper side, pale green on the lower, turning orange-red before shedding. The flowers are hermaphrodite, small, with 5 green-yellow petals; grouped in 10-25 cm long terminal or axillary panicles.

Fruit and seed description

Fruit: 1-1.5 cm long drupe-like nut, blue to black at maturity. The single seed is enclosed in a bitter-sweet pulp. **Seed:** 9-10 mm long, dark brown. The seeds lack endosperm and have a high oil content. There are about 18,000 clean seeds/kg.

Flowering and fruiting habit

Flowering occurs during the dry season and seed setting normally happens every year.

	Flowering	Fruiting
Costa Rica	Dec-March	Feb-March
Honduras	Feb-April	March-May
Mexico	March-May	

Harvest

When the fruits have changed colour to bluish-black, the seeds are mature. The fruits are collected from the tree by cutting off branches with pruning shears.

Processing and handling

After collection the fruits are transported in sacks to the processing unit where they are spread out on nets or trays and dried in the sun.

It is important that the seeds are protected from low temperatures during transport and temporary storage. Temperatures below 20°C may affect viability.

Storage and viability

A recent study (IPGRI/DFSC 2000) indicates that the seeds do not follow the common categories of storage physiology. They are desiccation tolerant but only tolerant to low temperatures when the moisture content is below a certain value.

For the seedlot examined in the trial, moisture content (mc) of approximately 8% was a critical value. Seeds with mc of more than 8% were temperature sensitive; after two months' storage at 5°C nearly all seeds were dead and even at 15°C there was a large decrease in germination.

Seeds that were dried down below 8% mc showed no or very little decrease in germination after 12 months' storage at 15, 5 and -18°. The seeds tolerated desiccation down to 1.4% mc without loss in viability.

The conclusions that can be drawn from this trial are that after collection the seeds should not be exposed to low temperatures (above 20°C would seem safe) and, most importantly, be dried as soon as possible. Moisture content for storage should be below 8%.

Some of the results from the trial are shown in the diagram below.

Sowing and germination

The seeds are sown in boxes filled with sand. During the first days the seedlings need shade and constant humidity. When the seedlings have developed the first pair of leaves, they are transplanted to plastic containers and kept in a shady place for two weeks. Five weeks after sowing, when the plants are 35-40 cm tall, they are ready for transplanting into the field.

Selected readings

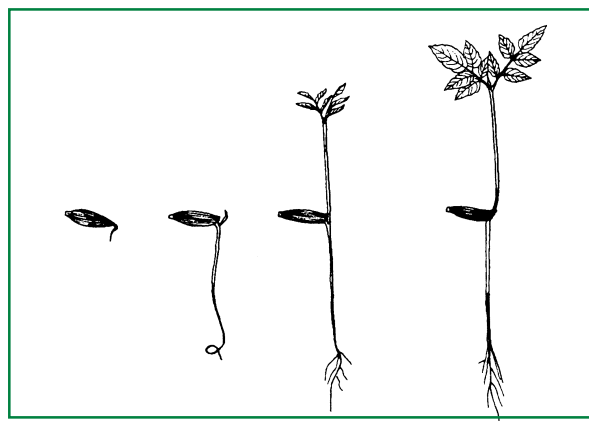
Benitez, R. and Montesinos, L. 1988. *Catálogo de cien especies forestales de Honduras: Distribución, propiedades y usos.* Siguatepeque, Honduras. 216p.

Detrinidad, P., 1993. *Criterios para la selección de árboles plus y control fenológico de cinco especies nativas en condiciones de bosque seco tropical en Chacocente, Nicaragua.* Tesis Mag. Sc. Turrialba, C.R. CATIE

IPGRI/DFSC. *Proceedings from Project on Handling and Storage of Recalcitrant and Intermediate Tropical Forest Tree Seeds, phase 1.* (in preparation).

Jiménez, Q., 1994. *Ron ron, Astronium graveolens Jacq.* Afiche Revista Forestal Centroamericana 3(8).

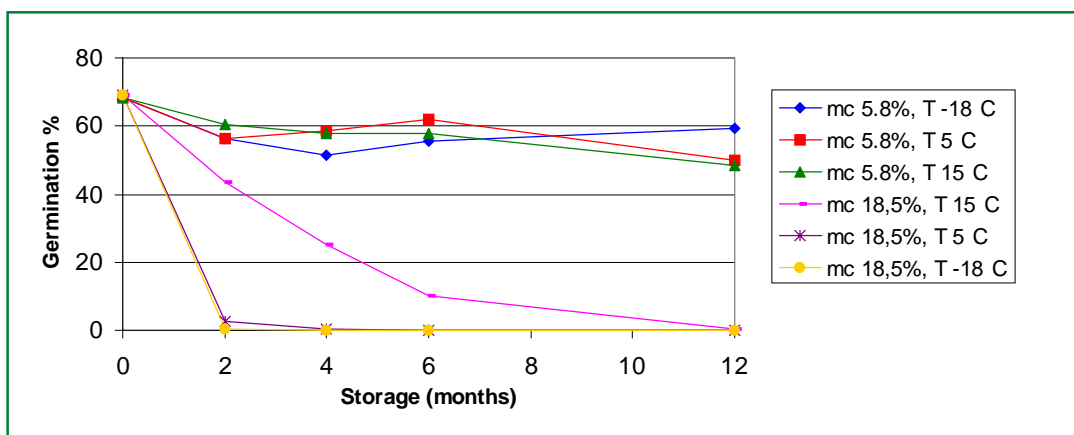
Salazar, R., 1998. *Astronium graveolens Jacq.* Técnica sobre Manejo de Semillas Forestales no. 16. CATIE/PROSEFOR.



Stages in the germination of *Astronium graveolens*. Illustration from CATIE.

THIS NOTE WAS PREPARED IN COLLABORATION WITH CENTRO AGRONÓMICO TROPICAL DE INVESTIGACIÓN Y ENSEÑANZA

Authors: Rodolfo Salazar, CATIE
Dorthe Jøker, DFSC



Storage of *A. graveolens* seed at mc f.w.b. 5,8 and 18,5% at three different temperatures (15, 5 and -18°C). IPGRI/DFSC.

Danida Forest Seed Centre
Krogerupvej 21
DK-3050 Humlebaek
Denmark

Phone: +45-49190500
Fax: +45-49160258
Email: dfsc@sns.dk
Website: www.dfsc.dk