

# Ethnobotany Field Trip



ASOCIACION  
**FLAAR**  
MESOAMERICA

## Suchitepequez, Guatemala June 2008



Cashew fruit



Map of the route to Chocolá From Escuintla . The farm is pointed in red.

The trip started Friday 20 to Monday 21 of June 2008. We visited Suchitepequez looking for the Chocolá farm in order to know more about plants used for the ancient Maya trough today.

To start, we took the path to Pacific highway, from Guatemala to San Antonio Suchitepequez. After passing through the village we took the route leading to the farm Chocolá (at the route map).

In the village was contacted Daniel Ochoa, he is a professor who has lived for 38 years on the farm and has worked with education projects in the town's school, also he has collaborated in Archaeology projects in the community also as tourist guide, florists, chefs, etc.

Through Mr. Ochoa reached the village "IAN casitas" by their initials: Inter-American Institute of Agriculture) to interview Fidel Velazquez, who in his plot has the following plants: 3 varieties of cacao (*Theobroma cacao* var. Criollo, Amazon and Nicaraguan) Malanga (*Xanthosoma sp*), Achiotte (*Bixa orellana*), Izote (*Yucca elephantipes*), Lorocco (*Fernaldia pandulata*), Güisquil or chayote (*Sechium edule* ), Pataxte (*Theobroma bicolor* ), and other interesting plants described in the following pages.

After visiting Don fidel we went to the local market where we found pataxte pods which are very common to elaborate the white chocolate and drinks.





*Chocolá's Mayor office.*



*Chocolá's Workshop, Suchitepéquez.*

Common name: Güisquil, chayote

Indigenous name: chimá (Queqchí, Alta Verapáz) chimaa (Quiché) Perulero (Huehuetenango) chayotera, chintla, ichintal (Root) chuma (Pocomchí)

Botanical name: *Sechium edule*

Familia: Cucurbitaceae



It grows from 500 to 1800 m. High, it is said that it is native from Guatemala, it was used since the XVI century by the Maya culture; the name “chayote” derives from the Nahuatl chayotl. (MacVean 2007)

Vigorous vines arising from large, thickened roots, often climbing to considerable height; staminate flowers with inflorescence from 10 to 30 cm long, much exceeding the leaves, flowers clustered in a few fascicles or on short branches along the rachis. The calyx 5 mm wide, the sepals triangular and 3 to 6 mm long, the petals triangular, greenish to greenish-white and measure 4 to 8 x 2 to 3 mm. Fruit green or nearly white, fleshy, spiny or unarmed, one-seeded, edible, varying in size from that of a small pear to about 18 cm in length, sometimes splitting in age at the apex and permitting viviparity or germination before planting.

The fruit of *S. edule* is viviparous, the seeds germinate inside the fruit even when it is still on the plant. This characteristic does not occur in any of the wild species, in which the seeds germinate synchronically after falling to the ground. A possible explanation for the viviparism of the cultivated species is that the process of domestication may have resulted in suppression of the dormancy mechanism (R.. Lira 1994)



**Distribution:** In Guatemala is found in Escuintla, Suchitepequez, Quezaltenango, Guatemala but is cultivated in Mexico and all Central America. (MacVean, 2007)

**Uses:** The Güisquil is part of the Guatemalan food, the entire plant may be eaten, the fruit and leaves serves as a complement of delicious dishes as black “pepian” and “chilaquillas” developed in Chimaltenango as a typical dish. Also is cooked wrapped or fried, mashed boiled etc. A typical dessert commonly called “slippers” is prepared with raisins and toasted bread crumbs bathed in honey syrup.

Many people have used fresh skin güisquil as healing. In other countries it is used to treat different affections as blood pressure, kidney stones, urinary retention.

**Common name:** Izote

**Indigenous name:** Tuc (Maya)

**Botanical name:** *Yucca guatemalensis*, *yucca elephantipes*

**Family:** Agavaceae



**Biology:** Spineless yucca is native to Mexico to Guatemala, where it may grow somewhat tree-like to 30 feet tall with a trunk that thickens and roughens with age, plant perennial. This is considered to be the tallest of the yuccas. It lacks spines typical of most yuccas hence the common name.

Usually branching extensively, from woody, blue-green leaves (to 3" wide) Inflorescences erect or rarely pendent, paniculate or racemose, with white flowers appear on stalks above the foliage in spring or summer, bisexual; fleshy, whitish to cream or tinged slightly with green or purple. Container plants grow much smaller, however, and often will not produce any flowers. Fruits capsular Seeds many per locule, usually black (Regel 2000, Standley and Steyermark 1950)

**Distribution:** It is widely distributed from Mexico to Panama and the Caribbean. In Guatemala it is found in growing in gardens fences and cultivars in every department between 0 to 2700 metes of high (Standley and Steyermark, 1950).

**Uses:** The Izote is used as an ornamental plant, is used in fences and gardens, The Inflorescence is edible and the flowers are used as flavoring in some dishes such as rice, tamalitos, stews, etc. It is sold in local markets during the season.

**Common Name:** Cacao, Kakaw

**Indigenous Name:** Xau (Maya), Cacau(Yucatán, Caco (Pocomchí) Kicou, kikob (Pocomchi) Culat (Salamá) Pacxoc (Huehuetenango)<sup>2</sup>

**Botanic Name:** *Theobroma cacao*

**Family:** Sterculiaceae



**History:** The name cacao comes from the Náhuatl tongue cacahuatl. Linnaeus named it Theobroma, which in Latin means “Food of the Gods” (Aguirre de Riojas, 2007).

This plant is a spindly tree that grows in an under-story environment. Mentioning of cacao plant first appears in Maya writings from Mesoamerica. Its seed was a currency, used in religious ceremonies and was also made into a drink for the elite. The plant was so important at that time, that the quantity of literature about cacao is unrivaled by that of any plant brought back to Europe by Spanish conquistadors (Willock 2004).

**Biology:** The cacao tree is small, 6 to 8 meters tall, with sparse dark brown branches. The elliptical leaves that measure 15 to 30 cm long are thick and have short petioles. The flowers grew directly from its trunk and large branches. These cushions are technically called coultiflory. The small five petaled flowers are pollinated by midges which thrive in the same under-story environment. The cacao fruit, known as “pocha” is a stone fruit, sustained by a short wooden stalk that grows from the thicker part of the trunk. The shape and size vary according to each variety, the color vary of light yellow to dark red.

Once pollinated, each flower results in a large pod containing about thirty almonds shaped beans, surrounded by a sweet juicy pulp. The pods take about four to five months to come to their full size, and another month to ripen. The tree is continuously flowering and producing during the year, but there are two major harvests. The harvest must be done with utmost care, so as not to damage the cushions. (Willock 2004)

**Distribution:** Cacao grows mainly in Suchitepequez, Escuintla and Alta Verapáz, departments of Guatemala. It is believed to be originally from tropical America, possibly the upper Amazon area, and has been cultivated for many years in Mexico and Guatemala. (Aguirre de Riojas, 2007).

**Uses:** The cacao main use is to make chocolate. The Mayas use the seeds as money. In some parts of South America the cotyledons is used to make oil for medicinal purposes such as injured or skin irritations. (MacVean 2006)





*Fig. 12 The cacao pods are coriaceous, it has longitudinal striae that characterized it from other fruits, It wide approximately from 20 to 30 cm long, it turned yellow to brown at maturity, every pod contained from 20 seeds each side more or less depending on the specie, gathered in two columns inside the pod.*

*In chocolá we found pods with 40 seeds of 3 cm long by 1.7 cm high in amazonian variety, The criollo variety contained 41 seeds of 2.5 cm long by 1 cm high. All seeds are covered with a fleshy and sweet membranous that it is used to make drinks as vinegar, the seeds are put to dry and mashed to elaborated chocolate bars for drink.*





**Common Name:** Pataxte

**Indigenous Name:** Pataxte, balamte (Quecchí) pec (Pocomchí)

**Botanic Name:** *Theobroma bicolor*

**Family:** Sterculiaceae



**Biology:** It is a fast growing tree with a small canopy from 7 to 12 meters high, the leaves oblong about 20-36 cm long and 8-17 cm wide, it has axillary inflorescences that produce red flowers, the fruit broadly ellipsoid or oval, about 15 cm. long, pale green or grayish, handsomely ribbed and irregularly reticulate, becoming dark in age, with a thick woody shell, the pulp white.

**Distribution:** planted in many parts of the Guatemalan lowlands, especially along the base of the Pacific bocacosta, and noted from Alta Verapaz, Chiquimula, Santa Rosa, Suchitepequez, and Quezaltenango; said to be planted in Suchitepequez more than elsewhere.

**Uses:** It is one of the non commercial species of *Theobroma* that grows in Latin American Family gardens as a source of beans of a sweet pulp that it is used to elaborate drinks called pataxte in some places like Mexico or pinol in Guatemala. It is used as flavoring to alterate the chocolate flavor (Benetha., Bealer. 2001) In Chiapas is given the name white chocolate because of the color of the pulp. (Standley, Steyermark 1950)



Fig. 13. The pataxte pod looks similar to the cacao pod but it has a dark green color, with reticulated striae between each vein very uncommon. It is wide approximately from 20 cm long. Every pod contained from 21 seeds gathered in three columns inside the pod. Every column it has 7 seeds covered with a fleshy and sweet membranous with a strong sweet odor. Inside the flesh the seed is whitish and oblong. The pataxte seeds are used as flavoring to elaborate chocolate bars for drink, also the fruit it is used to decorated the enter of church during some festivities in Suchitepequez and other departments of Guatemala as offering with corn and pumpkins.





**Common Name:** Jocote Marañon, Cashew, Anacardo

**Latin Name:** *Anacardium occidentale* L.

**Family:** Anacardiaceae



**Origin and history:** Cashew is native to northeastern Brazil, in the area between the Atlantic rain forest and the Amazon rainforest. The Portuguese introduced cashew to the west coast of India and east Africa in the 16th century, shortly after its discovery in 1578. It was planted in India initially to reduce erosion, and uses for the nut and pseudofruit, the cashew apple, were developed much later. Nut domestication predated the arrival of Europeans to Brazil, although international nut trade did not occur until the 1920s. India developed more refined methods for removing the caustic shell oil, and this country is given credit for developing the modern nut industry. (Rosen-garten Jr.)

**Biology:** Tree that could measure up to 10 meters high, its leaves are oval and coriaceous 19-25 cm long. Its white flowers with reddish stains are tiny (8mm) long and are arranged in panicles. The fruit is a nut gray with a form of kidney the fruit is juicy yellow or red. (McVean, 2006)

**Phenology and Harvest:** The flower blooms during November and December and the harvest occurs from April to May (McVean 2006)

**Distribution:** Tropics of north and Central America, and its domesticated in all the world. In Guatemala its found between 0 to 1800 msnm. (Guerri & Davise)

**Uses:** The juicy part of the fruit is used to make jams, beverages; this part of the fruit is called pedúnculo or hipocarpio. The real fruit or nut gray is toasted to obtain what is known as cashew. It is used to flavor chocolate. The oils were fired to toast walnuts are caustic and irritating to the eyes and skin. The bark is removed a rubber which is used to make rubber or varnish. In Coban, In Guatemala is used as medicine for the treatment of warts. The fruit juice is indelible and it was used by the ancient Maya as indelible ink to write his memoirs. (McVean, 2006)

**Common Name:** nance

**Indigenous Name:** Chi (Quecchi); Tapal (Cachiquel, Poconchi).

**Botanic Name:** *Byrsonima crassifolia*

**Family:** Malpighiaceae



*Fig. Nance Tree (Byrsonima crassifolia). This tree has a cultural value, it is mentioned in the Popol Vuh, The Sacred Book of the Ancient Maya, where Hunahpú and Xbalanqué ate its fruit similar to the white cherry.*



**Biology:** The nance is a tree widely distributed in tropical America and valued for its small, sweet fruit. It grows in dry thickets or open forest, planted in many regions, this species is one of the common shrubs or trees of Guatemala that can be found almost anywhere below 1,500 meters, it is by no means generally distributed in a wild state. (Standley and Steyermark, 1950)

The nance is a slow-growing large shrub or tree from 5 to 10 meters high. The bark of a brown dark color the inner pinkish, the younger branches are covered of a withish fine hair, the flowers appear in racemes from yellow to orange small and delicated. The fruits in small drupes from 8 to 12mm., yellow with a strong sweet odor that atracts many bees for polinization .

**Distribution:** In Guatemala it is found in wet or dry forest from 1200 or less in Petén, Zacapa, Suchitepequez, Alta y Baja Verapáz. El Progreso; Izabal; Chiquimula; Jalapa; Jutiapa; Santa Rosa; Escuintla, Retalhuleu; Quiche”; Quezaltenango; San Marcos, Huehuetenango.

**Uses:** Mainly it is used the fruit to elaborated drinks and deserts, the bark it is used for simple constructions, the people gave it a importance value for it medicinal properties as healing, astringent, purgative, bronquitis, flu, etc. Also the seeds and bark are used to dyeing cotton.

**Common Name:** Loroco

**Indigenous Name:** Quilete

**Botanic Name:** *Fernaldia pandurata*, *Fernaldia brachypharynx*

**Family:** Apocinaceae



This is a small and large vine, herbaceous, leaves of 1-2 cm long. membranaceous ovate or elliptic of 7-10 cm long. The flower appear in inflorescences of several white tubular flowers with a greenish white sepals, shorter than the leaves. (Standley and Steyermark, 1950)

It is native from Escuintla, Guatemala, but it is widely distributed in Central América. The buds and flower are commonly eaten with tortillas and white cheese, in Zacapa and Chiquimula, it is also cooked in rice and stews. In some places it is used the root as poisonous to kill rats and other nocive animals.

**Common Name:** Maxán, moxán, hoja de sal, platanillo, hoja de cuero plant of the prayers.

**Botanic Name:** *Calathea lutea*

**Family:** Maranthaceae



Its a large plant from 2-5 meters high, the leaves about 1-2 meters long commonly used to wrap tamales cheese incense and other substances. It grow abundantly in wet forests, in swamps or near to rivers and marshes from 300 meters of altitude or less where the clime is hot and humid, but often planted at higher elevations. The name 'Calathea' is dervied from the Greek word 'kalathos' which means 'basket' - in reference to the inflorescences borne by showy species. The name "hoja de sal" it has being given because it has reflective silver undersides.

This plant has a curious behavior caused by phototropism, the leaf surface becomes vertical at night and move more horizontal during the morning, at the end of the day turned vertical again, this behavior is called Nictinasty: a movement of a plant or plant part in response to the onset of darkness) that's why it is called the "plant of the prayers".

**Distribution:** Petén, Izabal; Escuintla; Suchitepequez ; Retalhuleu; Quiche, along the pacific coast departementes.



**Common Name:** Malanga, oreja de elefante.  
**Indigenous Name:** Quequeshque, caxcamote, ox (queqchí)  
**Botanic Name:** *Xanthosoma* sp.  
**Family:** Araceae

**Biology:** Edible plant with an rhizome hypogaeal, short and thick, the leaves similar to blades sagittate-oblong-ovate, from 20-50 cm. long to 15-40 cm. wide or often larger. The upper leaf surface is rather smooth and sometimes waxy, and the lower surface is ribbed. The inflorescence in *Xanthosoma* is composed of a spadix with pistillate flowers at the base, a belt of sterile flowers offered as a reward for pollinators in the middle and staminate flowers on the upper part. Prior to opening, the inflorescence is enclosed within a leaf-like spathe. Malanga are about the size and shape of a regular white potato; they look a little like an overgrown gladiolus bulb, because the outside skin of the malanga is brown and somewhat hairy.

**Distribution:** It grows in moist or wet thickets or forest from 1900 meters of altitude or lower, frequently in Alta Verapaz, Izabal, Chiquimula, Santa Rosa, Sacatepequez, Retalhuleu, Quezaltenango, Suchitepequez, Petén, Izabal.

#### Uses:

It is said that the roots are poisonous, but it has to be peeled and boiled before eaten. It is used malanga flour to make cookies, quick breads, loaf breads, pancakes, bagels, muffins, doughnuts, dumplings, and so forth. Malanga flour is an excellent thickener for gravies, soups, stews, and sauces, for instant mashed potatoes, the pasta is very similar to regular wheat noodles when cooked.



The root of this plant is called "Malanga" it is cooked as a potato and grows almost in every department in Guatemala.

**Common Name:** Achiote, Achiotillo, Chaya, xayau, annatto, lipstick tree

**Indigenous Name:** oox, ox

**Botanic Name:** *Bixa orellana*

**Family:** Bixaceae

**Biology:** A shrub or tree from 2 to 5 meters high or more, it grows fast can be found trees of 10 meters high, it presents heterogeneity in their botanical forms and shapes of the fruit and different colors of the flower from white, pink to violet. The leaves present alternative arrangement with smooth edge. The flowers are in terminal panicles, once fecundated they form a green to red fruit in capsule dehiscent sometimes oval or oblong to oblate, with or without trichomes, with two valves which contains from 30 to 60 seeds covered with a red aril used commonly as colorant (Mazzani., C. Marín R., V. Segovia 2000)

**Distribution:** According with Standley and Steyermark, it grows from 1000 meters of altitude or less, it is found near to villages along the route used as living fence, in Guatemala is commonly in Petén, Alta, Baja Verapaz. Izabal, El Progreso; Zacapa, Chiquimula; Jutiapa, Santa Rosa, Escuintla, Sacatepequez, Quezaltenango; Chimaltenango; Suchitepequez, Retalhuleu, San Marcos

**Uses:** Its main use is as colorant. Since the ancient Maya, they used annatto to color the cacao drink, the consistency of the drink and color it was similar to blood, offered to their gods and drank only for the elite people.

Also the red color of the aril it is used to color traditional food as cochinita pibil in Mexico, pepian rojo, tamales, cacik, adobado, in Guatemala and other traditional dishes, it is used to color cheese, butter, cosmetics, ceramic and lacquer.

As medicine it is used as astringent, antiseptic, emollient, antibacterial, antioxidant, expectorant, healing, diuretic, laxative, hypoglycemic, stomach disorders. Infusion of leaves are used as analgesic, skin and vaginal inflammation, infections caused by bacteria and fungi, fever, hypertension, blood vomiting, diarrhea, hemorrhoids, angina, abscesses, headache disorders. Its root in decoction it is advisable against malaria and asthma.



Different forms and color of achiote fruits.



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