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NATIVE PLANTS OF GUATEMALA

Lesson 5: Other uses of the native plants

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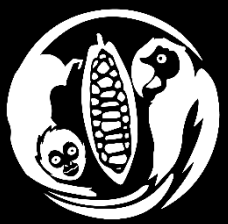




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CONTENTS

- ❖ Natural dyes
- ❖ Cultural plants
- ❖ Construction material
- ❖ Biotechnology



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DYE PLANTS: Historical context

- In Guatemala, the use of dyes of vegetable origin dates back to the classic period of the Mayas, approximately 2,600 BC. C.
- The Mayan used natural dyes to decorate their vessels, codices, murals and others.
- Although little evidence remains, their textiles were dyed with natural dyes extracted from plants, as narrated by chroniclers, and these textiles have been widely recognized as one of the highest expressions of their cultural development.
- During the colonial period, natural dyes represented a high income for the Spanish crown; among them the Campeche wood, Brazil wood, the indigo, the achiote and the red cochineal (*Dactylopius coccus*).





Cochineal grana (*Dactylopius coccus*)



Niij (*Llaveia axin*)



www.youtube.com/watch?v=z1wMix9-04E&t=5s
<https://youtu.be/OaJmlvb18Ss>



THE ANIL, INDIGO OR JIQUILITE

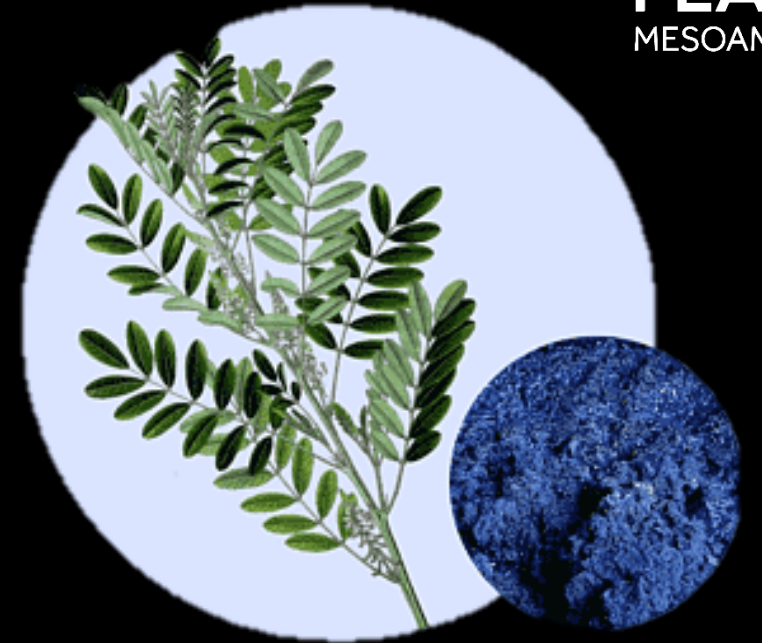
- It has been considered the color of kings and the king of colors.
- It was used in Guatemala since pre-Hispanic times by the Mayans for whom the color blue was associated with the deities of rain, fertility, it was also the color used for sacrifices.
- It was one of the most used dyes in traditional fabrics
- It was sent from Guatemala to Europe because it is recognized as one of the best blue pigments.



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- Among their great techniques, they developed the converting of the indigo plant combined with a clay to achieve the wonderful "Mayan blue" which bears that name because the development of it belongs to them.

- Standley & Steyermark in their book *Flora of Guatemala*, mention the species *Indigofera suffruticosa* and *I. tinctoria* as known and used by the pre-Columbian inhabitants of Guatemala and the Yucatan Peninsula.



Indigofera suffruticosa



CAFÉS

Cáscara de coco - *Cocos nucifera* - Arecaceae

Corteza de nance - *Byrsonima crasifolia* - Malpighiaceae

Corteza de ilámo o aliso - *Alnus jorullensis* - Betulaceae

Corteza de mangle - *Rizophora mangle* - Rizophoraceae

Corteza de eucalipto - *Eucalyptus cinerea* - Myrtaceae

Corteza de caoba - *Swietenia macrophylla* - Meliaceae

Corteza de encino - *Quercus spp* - Fagaceae

Agallas de encino - *Quercus spp* - Fagaceae

Corteza de zapotón - *Pachira aquática* - Bombacaceae

Corteza de pino - *Pinus spp* - Pinaceae

Frutos del huizache, Espino Blanco o subín - *Acacia farnesiana* - Fabaceae

Corteza de eucalipto - *Eucalyptus globulus* - Myrtaceae

Fruto del falso almendro - *Terminalia spp.* - Combretaceae

Corteza de Espino Blanco, Subin - *Acacia farnesiana* - Fabaceae

Frutos de Guanacaste - *Enterolobium cyclocarpum* - Fabaceae

Corteza de Quebracho - *Lysiloma bahamense* - Tanino

Corteza de Sare - *Acacia ripiaria* - Leguminosae - Tanino

Flor de pascua - *Poinsettia pulcherrima* - Euphorbiaceae

AMARILLOS

Carotenoides

Flor de muerto - *Tagetes lícida* - Asteraceae

Pericón - *Tagetes erecta* - Asteraceae

Barba de león - *Cuscuta spp* - Convolvulaceae

Barba de León - *Cuscuta corymbosa* - Convolvulaceae

Chilca - *Senecio salignus* - Astereaceae

Cáscara de granada - *Púnica granatum* - Lythraceae

Cúrcuma - *Cúrcuma longa* - Zingiberaceae

Palo de mora - *Chlorophora tinctoria* - Moraceae

Hoja de mango - en combinación con amoníaco - *Mangifera indica* - Anacardiaceae

Hoja de falso almendro - *Terminalia - spp* - Combretaceae

Tamarindo - *Tamarindus indica* - Fabaceae

Barba del Sol - Flor Barbona- *Caesalpinia pulcherrima* - Caesalpinaceae

Corteza de palo de pito - *Erythrina berteroaana* - Fabaceae

Falso pimienta - *Schinus molle* - Anacardaceae



ROJOS

Antonciananos

Cochinilla - *Dactylopius coccus cacti*

Palo de Brasil - *Haematoxylum brasiletto* - Fabaceae

Sangre de Drago, Sangre de perro, Lloro sangre - *Croton draco* - Euphorbiaceae

Noni - *Morinda citrifolia* - Rubiaceae



ANARANJADOS

Achiote- Bixa Orellana- Bixomina

AZULES

Índigo - *Indigofera guatemalensis* - Fabaceae

Sacatinta, muicle - *Justicia spicigera* - *Jacobina spicigera* - Acanthaceae

Jiquilite - *Justicia spp.* - Acanthaceae

Paraíso Blanco Moringa - *Moringa oleífera* - Moringaceae

Irayol - *Genipa americana* - Rubiaceae





Senecio salignus

Common name: Chilca,
chilco, Ch'homp

Distribution: Almost
throughout the Guatemalan
highlands until 3,000 m.

Useful part for dyeing:
The leaves and the whole
plant.

Color: Yellow gold



Tagetes erecta

Common name: Marigold

Distribution:

It is grown and cultivated
throughout Guatemala.

Useful part for dyeing: Leaves
and stem.

Color: Yellow, light green in some
varieties and olive green in
combination with iron sulfate.



Tagetes lucida

Common name: Mexican
Tarragon

Distribution: It is grown in almost
all of Guatemala.

Useful part for dyeing: Leaves
and stem.

Color: Yellow



Bixa orellana

Common name: Achiote, Annatto.

Distribution: Alta Verapaz, Baja Verapaz, Chimaltenango, Chiquimula, El Progreso, Izabal, Jutiapa, Petén, Suchitepéquez, Retalhuleu, Santa Rosa and Sacatepéquez

Useful part for dyeing:

The paste obtained from ground seeds.

Color: Orange and ocher orange.



Pachira aquatica

Nombre común: Zapoton, Zapote Bobo

Distribution: Escuintla, Izabal, Retalhuleu, Petén

Useful part for dyeing:

The bark of the trunk and the rind of the fruit.

Color: Yellow, light green in some varieties and olive green in combination with iron sulfate.



Bucida buceras

Nombre común: Pucté, Pactí, Black Olive

Distribution: Alta Verapaz, Huehuetenango, Izabal, Petén

Useful part for dyeing:

leaves.

Color: Light brown



Pterocarpus officinalis

Common name: Sangre de Drago

Distribution: Izabal

Useful part for dyeing: Cortex. As the bark is cut, it exudes a blood-colored sap. The sap has been used as an astringent and disinfectant.

Color: Red



NEGROS

Fruto de cascalote - Guanacaste, nacascolo *Caesalpinia coriaria*
Fabaceae - en combinación con sulfato de hierro.

Nogal - *Juglans spp* - Juglandaceae tanino.

Jagua, crayó - *Genipa americana* - Rubiaceae

Icaco - *Chrysobalanus icaco* - parte útil: hojas y fruto - Chrysobalanaceae

Barretillo, chicajol - *Eupatorium ligustrinum* - Asteraceae

Palo de Campeche - *Haematoxylum campechianum* - Fabaceae

En combinación con índigo.

MORADOS

Palo de Campeche - *Haematoxylum campechianum* - Fabaceae

Haematoxylum campechianum

Common name: Palo de Campeche,
Campeche tree

Distribution: Alta Verapaz, Izabal,
Rethaluleu, Petén

Useful part for dyeing:

The wood of the center (the heart).

Color: Strong purple, lilac, gray, black,
blue.











This tree has been historically very important since pre-Columbian times, the Mayans called it "ek" (that means heart) for the red heart of the wood, which is where the dye is extracted.

This tree is in danger of extinction






















CULTURAL PLANTS :

Cacao flavorings

Foto			Nombre común <i>Nombre científico</i>
			Guapinol <i>Hymenaea courbaril</i>
			Zarzaparrilla <i>Smilax aspera</i>
			Cordoncillo <i>Piper amalago</i>
			Caulote <i>Guazuma ulmifolia</i>



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				<p>Castaña <i>Sterculia apetala</i></p>
				<p>Cabeza de ángel <i>Calliandra plumerillo,</i> <i>Calliandra anomala</i></p>
				<p>Muc, orejuela <i>Cymbopetalum penduliflorum</i></p>
				<p>Bucut, Carao <i>Cassia grandis</i></p>
				<p>Palo de sangre <i>Virola guatemalensis</i></p>



Bonak

Virola koschnyi



Guaco

Mikania micrantha



Malaquete

Xylopiya frutescens



Vainilla

Vainilla planifolia



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CULTURAL PLANTS : Incense making

According to the Popol Vuh, the Mayans used different trees to make incense. Some of these species are:

- ✓ **Balsamum:** *Myroxylon* spp.
- ✓ **Copal, pom:** *Bursera microphylla*
- ✓ **Pom:** *Protium copal*
- ✓ **Palo-jiole, muliche, Gumbo-limbo:** *Bursera simaruba*
- ✓ **Pine resin as incense:** *Pinus pseudostrobu*, *Pinus oocarpa*.
- ✓ **Liquidambar,** *Liquidambar styraciflua*
- ✓ **Croton (cochinal croton) *crotan sanguifluus*** (Popol Vuh)
- ✓ **Oak species:** *Quercus* species.
- ✓ **Rubber:** *Castilla elastica*.
- ✓ **Marigold:** *Tagetes erecta*, *Dahlia variabilis*, *Tagetes lucida*, burned with **white pericon**.
- ✓ **Stevia:** *Stevia eupatoria*. Most used as medicinal incense

Incense made from pine resin



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Different types of incense

http://www.wide-format-printers.org/FLAAR_report_covers/705193_Proessing_incense.pdf



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Collecting Copal in Semuc Champey



PLANTS FOR CONSTRUCTION: Palms



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[www.maya-archaeology.org/FLAAR Reports on Mayan archaeology Iconography publications books articles/72 Qeqchi Kekchi Palm-thatched Houses Alta Verapaz and Izabal Guatemala 2014.pdf](http://www.maya-archaeology.org/FLAAR%20Reports%20on%20Mayan%20archaeology%20Iconography%20publications%20books%20articles/72%20Qeqchi%20Kekchi%20Palm-thatched%20Houses%20Alta%20Verapaz%20and%20Izabal%20Guatemala%202014.pdf)

Corozo
Acrocomia aculeata

Q'eqchi'
(K'ekchi')
"Palm-thatched"
H O U S E S



Chisec, Alta Verapaz, June 2014

**Other kinds of plants are actually used for thatch
Besides just palm fronds (grass for example)**

Over the years we have made friends with local Q'eqchi' Mayan people in various aldeas, communities, and villages. Don Chus (about 30 minutes from La Chua research and park, north-western Alta Verapaz) was able to identify the grass-like plant that I had noticed being used as thatch. He even took us out to a field where we could see the actual grass-like plant (this field belonged to him and associates; we prefer to do our photography on property owned by people we know and who know us).

The photographs in this PDF were gathered to send to Dr Hasso Hohmann, who is knowledgeable about Maya architecture in general, and especially the architecture of Copan.

Aq

Panicum sp, Lancentillo

Q'eqchi' house with roof of ak, a zacate (grass-like plant), found on one of the dirt roads from Senahu down to the Polochic area of Izabal.

Rhipidocladum pittieri
Babu, Jimba

- A genus of bamboos native to America.
- Use for caster.
- Manufacture of furniture and various articles for personal use, for example: costume jewelery, earrings, necklaces, toys, lamps and curtains.



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BIOTECHNOLOGIES: Phytoremediation



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Genipa americana
Irayol





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Acacia farnesiana
Subín





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Zea mays

Maize

Phytoremediation and biofuels



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**THANKS FOR THE
ATTENTION!**

