

THE LABGEM AND
TARGET SPECIES

QUICK FACTS

WWW.LABGEM.COM.BR

Fábio Vieira

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GENETICS AND FOREST IMPROVEMENT LAB

FEDERAL UNIVERSITY OF RIO GRANDE DO NORTE
Forest Engineering

WEBSITE AND ADDRESS:

WWW.LABGEM.COM.BR
RN 160 - KM 03 - DISTRITO DE JUNDIAÍ 59280-000
MACAÍBA, RN - BRAZIL

Who we are and goals

WRITTEN BY FÁBIO VIEIRA

The Genetics and Forest Improvement Lab (LabGeM), coordinated by Prof. Fábio Vieira, was inaugurated on November 26 2012, at Federal University of Rio Grande do Norte (UFRN), campus Macaíba, RN State, Brazil. We carry out population genetic studies with forest species of economic and ecological importance – the research is aimed at the genetic conservation and improvement of the species. The LabGeM welcomes high school, undergraduate and postgraduate students, as well as researchers from various institutions.

Our mission is to generate scientific and technological information about conservation and genetic improvement of forest tree species for the state of Rio Grande do Norte and Northeast Brazil. In this mission, we seek to assist in the formation of new scientists, who could be multipliers of the acquired knowledge and contribute effectively to the preservation, sustainable use and restoration of the forest biomes, especially the Caatinga semiarid.



*“What is the use of a house if
you haven't got a tolerable
planet to put it on?”*

- Henry David Thoreau -

He is best known for his book *Walden*, a reflection
upon simple living in natural surroundings

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Laboratory cleanup

The Laboratory of Genetics and Forest Improvement performs its activities to minimize possible impacts on the environment.

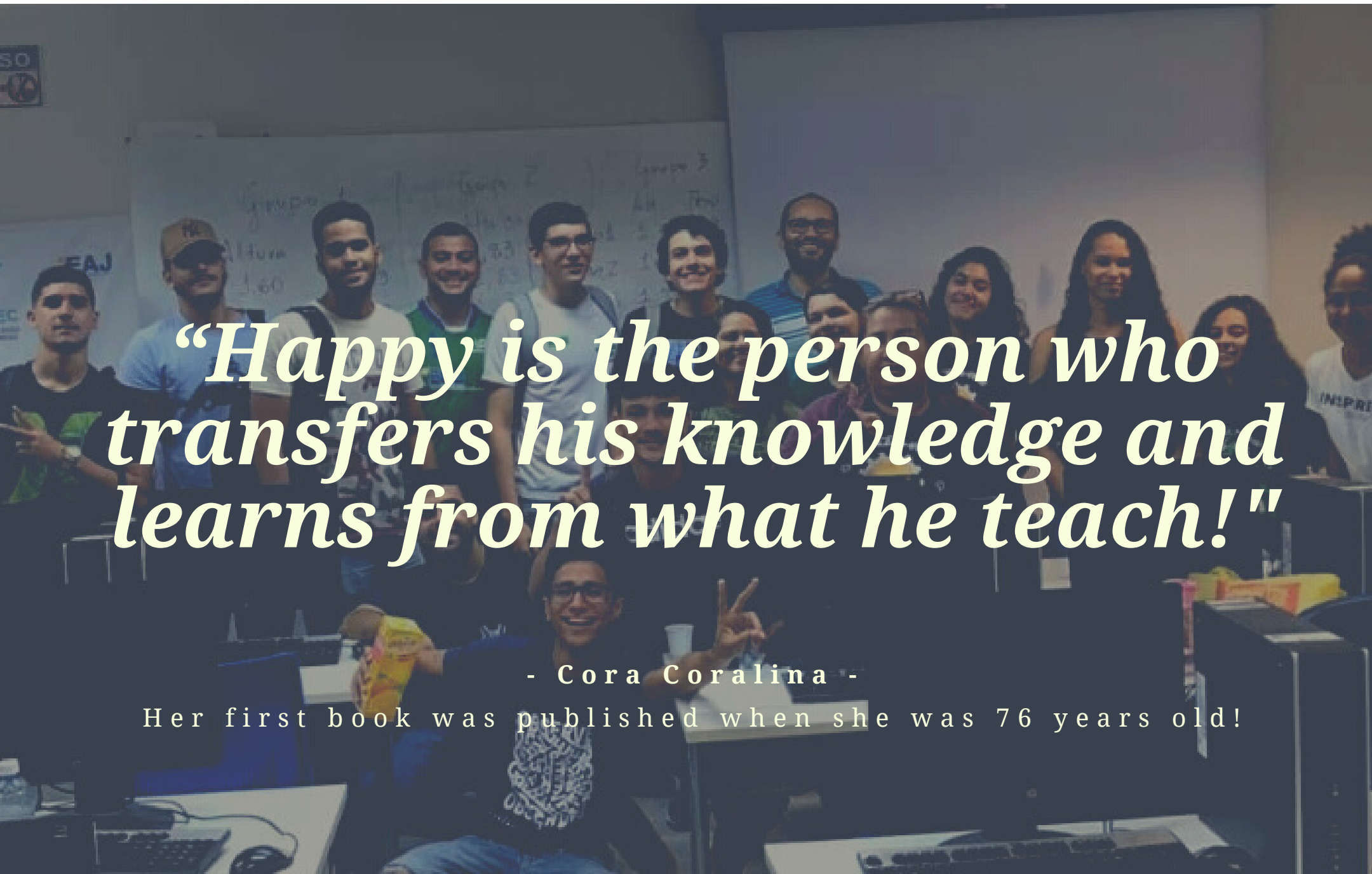
Thus, measures related to environmental management are adopted, such as control of the consumption of natural resources (water and energy) and proper storage of chemical residues produced.

We store chemical residues in LabGeM following technical guidelines and management procedures.

We consider recommendations for the disposal of chemical residues available in texts, which deal with procedures appropriate to the area of molecular genetics. When there is demand, the waste is collected by the Programa de Gestão Integrada de Resíduos da UFRN and sent to its final destination.

Professors, technicians and students work in an integrated manner to properly dispose of waste generated. Some essential criteria are used such as to separate garbage into suitable containers; to store the collection bottles in an adequated room, not discarding the waste down the sink, sewer or empty places. We indicated always to use personal protective gear.

LabGeM adopts the objective liability rule, that is, each one is responsible for the waste generated. In addition, we practice the 3 R policy: Reduce + Reuse + Recycle.



“Happy is the person who transfers his knowledge and learns from what he teach!”

- Cora Coralina -

Her first book was published when she was 76 years old!

Lab Alumni

MSc students:

Clarice Ribeiro Cardoso - FAPERN Scholarship
Ayane Emília Dantas dos Santos
Raiane Pereira de Sales - CAPES Scholarship
Kyvia Pontes T. das Chagas - CAPES Scholarship
Francival Cardoso Felix- CAPES Scholarship
Jéssica R. M. dos Santos - CAPES Scholarship
Richeliel Albert R. Silva - FAPERN Scholarship
Luciana Gomes Pinheiro - Lab Technician
Fernando dos Santos Araújo - FAPERN Scholarship
Daniel Ferreira da Costa - CAPES Scholarship
Rodrigo Ferreira de Sousa - CAPES Scholarship

Undergraduate students:

Thereza Marinho L. de Oliveira
Abidã Gênesis da S. Neves - CNPq Scholarship
Luan Cavalcanti da Silva - CNPq Scholarship
Fernanda Moura F. Lucas - CNPq Scholarship
Ageu da Silva M. Freire - CNPq Scholarship
Kyvia Pontes T. das Chagas - CNPq Scholarship
Léia Níneke de L. Sousa - PROPESQ Scholarship
Jack Batista de Sousa - Bachelor Final Project
Jéssica R. M. dos Santos - PROPESQ Scholarship
Richeliel Albert R. Silva - CNPq Scholarship
Gean C. da Silva Santos - PROPESQ
Lorena Isabel Santos - Bachelor Final Project
Danielle de Moraes Lúcio - PROGRAD Scholarship
Luan H. B. de Araújo - PROGRAD Scholarship
Enaldo dos S. Segundo - PROGRAD Scholarship
Eduarda Ximenes Dantas - FAPERN Scholarship
Talita Geovanna F. Rocha - CNPq Scholarship

Lab Alumni

Undergraduate students:

Cynthia Azevedo G. Guerra - FAEX Scholarship
Brenda Lívia B. Carvalho - PROPESQ Scholarship
Arthur de Almeida Marinho - FAPERN Scholarship

Undergraduate monitors:

Amanda A. Queirós - PROGRAD Scholarship
Willy Teles de Moraes - PROGRAD Scholarship
Ana Luiza da Silva Lopes - PROGRAD Scholarship
Lucas Pinheiro Oliveira - PROGRAD Scholarship
Priscila Lira de Medeiros - PROGRAD Scholarship
Misrael Vieira Sales - PROGRAD Scholarship
Igor Diego de O. Xaxá - PROGRAD Scholarship
Ednor Elias Barbosa Neto - PROGRAD Scholarship

Technical studentship:

Gabriel Lucas D. da R. Vilela - CNPq PIBIC
Hosana Lourenço da Silva - CNPq PIBIC
Gean Carlos da S. Santos - CNPq PIBIC
Mario Ferreira da Silva - CNPq PIBIC
Erico Rodrigo Freitas - CNPq PIBIC



QUICK FACTS

A brief and illustrated eBook about forest species we have studied in recent years.

How to use it?

Currently, there is a high demand for scientific information about native forest species in Northeast Brazil, where more than half of the country's poor population is concentrated. For most of this population, extractive-based forest products constitute one of the few ways to improve income and quality of life in rural communities.

The region encompasses two critical tropical biomes, the Caatinga and the Atlantic Forest, which have rich socio-diversity. The Caatinga is one of the most significant areas in the seasonally dry tropical forests in South America, where most regions are undergoing environmental dryness.

It is also one of the most ecologically sensitive areas with increased responses to climate variability worldwide. Just as critical is the situation facing the Atlantic Forest, where most of the remaining fragments of forest are threatened by urban development and monocultures.

This instigates a quantitative and qualitative demand for research to fill the knowledge gap in this area, with the aim to support conservation programs and facilitate the sustainable use of biodiversity.

Here, we present in the following pages illustrated results about forest species we have studied in recent years. Our motivation is to multiply the relevance of conserving natural forests. As said Cora Coralina: "*Happy is the person who transfers his knowledge and learns from what he teaches!*" Her first book was published when she was 76 years old!

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01

Aromatic tree

The species produces a fragrant resin used in popular medicine

QUICK FACTS

Protium spp

Protium is a well-known tree genus because of the production of secondary metabolites, mainly classes of terpenes. It is diverse and abundant in the Amazon basin where it can be found in up to 35 sympatric species



Carnauba wax

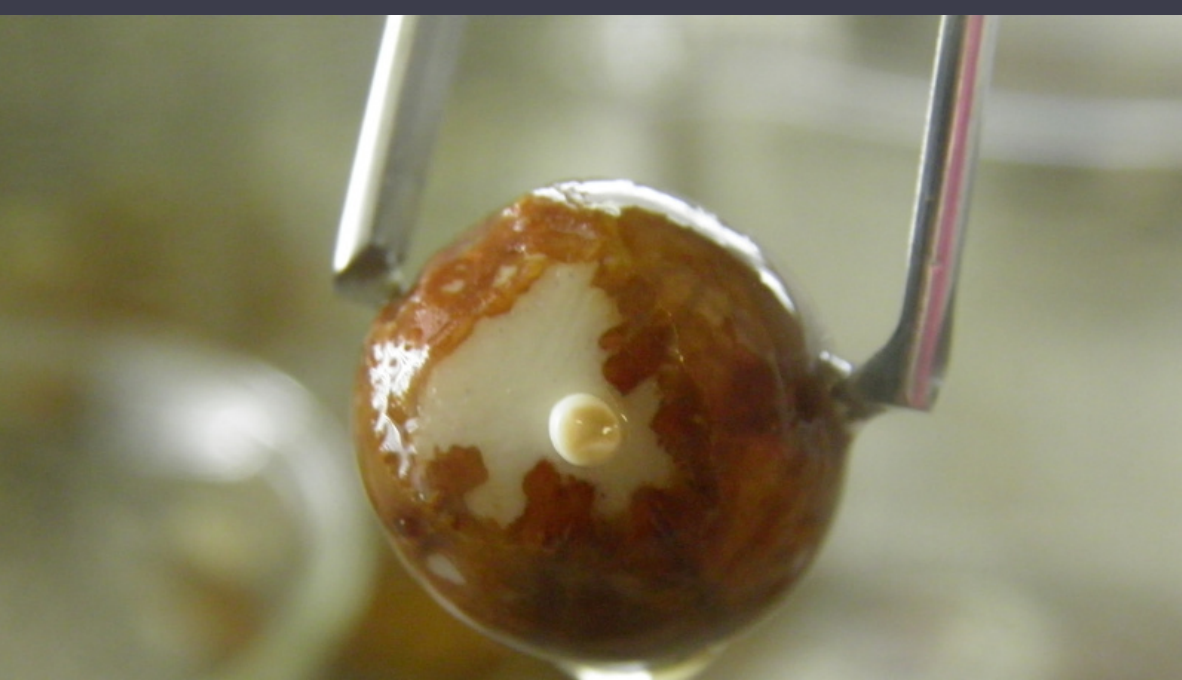
The third most important non-timber forest species in Brazil

**Brazilian
trees**

Quick Facts

CARNAÚBA

CARNAUBA WAX IS ONE OF THE MAIN HARVESTED PRODUCTS FROM NATIVE TREES SPECIES IN THE BRAZILIAN EXPORTS. THE PRODUCTION VALUE OF ITS WAXES AND FIBERS BRINGS IN MORE THAN \$55 MILLION PER YEAR.



03

Fig tree

Ficus bonijesulapensis grows on the rock surface and in the fissures of the rocks

QUICK FACTS

Ficus bonijesulapensis

F. bonijesulapensis is a fig tree with a discontinuous geographical distribution that is endemic to outcrops of carbonate rock in dry forests



04

On limestone

Many outcrop habitats have disappeared as a result of exploitation for limestone



05

Orchids

Cattleya granulosa is an endangered epiphytic orchid

Quick Facts

Cattleya granulosa

Cattleya granulosa is a Brazilian epiphytic orchid. It is threatened by loss of habitat, forest fragmentation and illegal harvesting due to its ornamental flower

Brazilian orchids

LabGeM
see more at: labgem.com.br



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Mangaba fruits

Hancornia is considered monotypic since it possesses only one species

Brazilian
trees

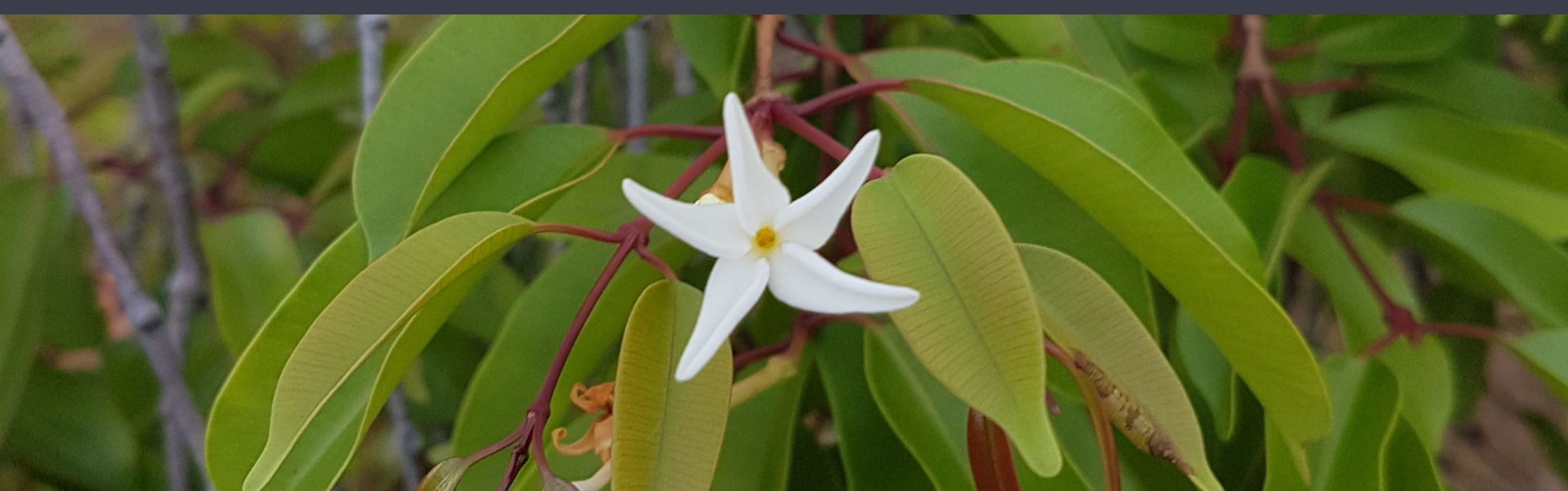
Quick Facts

MANGABEIRA

THE FRUITS OF THE MANGABEIRA ARE USED MAINLY IN THE BRAZILIAN NORTHEAST REGION TO SUPPLY THE AGROINDUSTRY SECTOR FOR THE PRODUCTION OF JUICES, SWEETS, ICE CREAM AND OTHER DERIVATIVES. THE HARVEST BRINGS IN AROUND \$1 MILLION PER YEAR TO BRAZIL



see more at: labgem.com.br



07

Pequi fruits

C. brasiliense is pollinated by small territorial bat species with low flight ranges

**Brazilian
trees**

Quick Facts

PEQUIZEIRO

Pequizeiro is one of the most important tree species in Brazil. The production value of its fruits and nuts alone can generate around \$5 million per year.



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Umbu fruits

Spondias tuberosa is widely distributed in the Caatinga domain

Quick Facts

UMBU

Spondias tuberosa known as *umbu* commonly grow in the Caatinga domain, a Brazilian tropical dry forest. The production value of its fruits alone can bring in around \$2 million per year



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Palm oil

One of the world's leading sources of vegetable oil

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Elaeis guineensis

The African palm tree *E. guineensis* is known as palm oil, one of the world's leading sources of vegetable oil. The palm oil became an integral component of Afro-Brazilian culture and cuisine.



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Juazeiro tree

One of the symbol plants of the Caatinga biome and has a relevant cultural interest

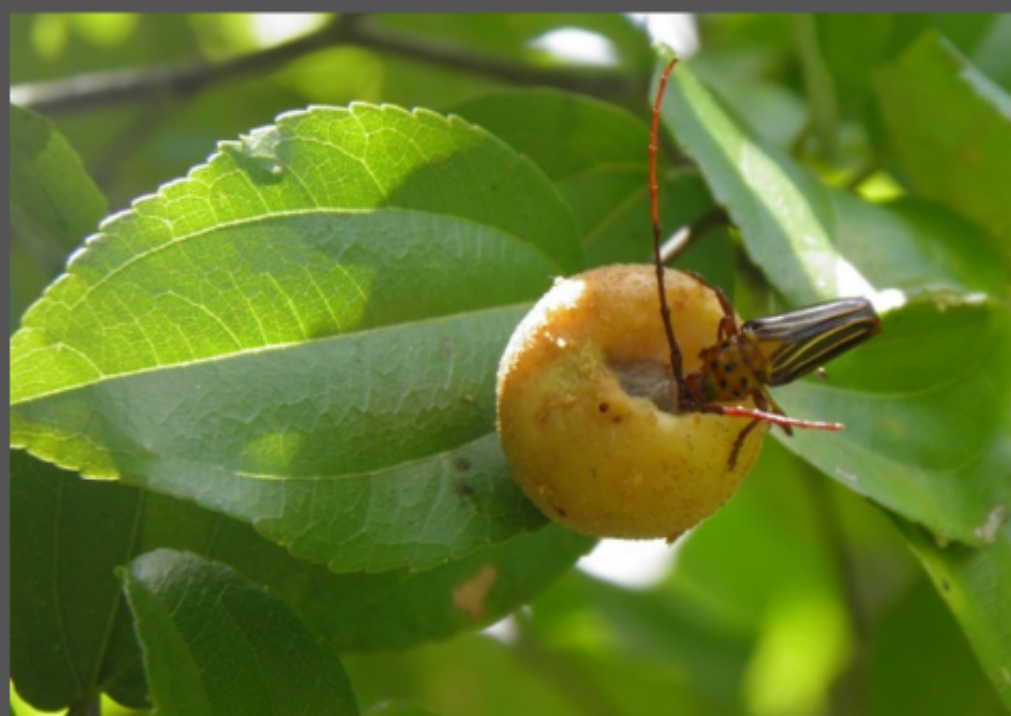
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Juazeiro

Ziziphus joazeiro, also known as juá, is among the symbolic trees of the Caatinga. It has economic relevance and valuable ecological, food, medicinal and ornamental qualities.



see more at:
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Jurema tree

The wood is widely used as firewood for the production of red ceramics.

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Jurema-preta

Mimosa tenuiflora:

typically occurs in semi-arid regions, being an indicator of early stages of ecological succession in anthropized environments.

Its main products are stakes, firewood and coal.

Also, it has medicinal properties and tanning substances in the bark.



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Cumaru tree

Amburana cearensis is a native tree of the Brazilian northeastern semiarid.

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Imburana

Amburana cearensis, popularly known as cumaru or imburana-de-cheiro, has significant economic and medical potential, but is threatened with extinction due to the predatory extraction of its wood.



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