

THE CURIOUS CASE OF ANTS THAT LIVE IN GALLS



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**Translate into english:
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DEDICATION

**To Alice who brings out the
pure curiosity of making science.**

PRESENTATION

This book is part of the PhD thesis of Nina de Castro Jorge, supervised by Professor Rosy Mary dos Santos Isaias, in the Graduation Program in Plant Biology of the Universidade Federal de Minas Gerais, entitled “Woody galls in *Eremanthus erythropappus* (DC.) McLeisch: anatomical alterations and ecophysiological implications.

Once upon a time, there was an ant named *Nesomyrmex*, Neso for his close friends.

Neso and his family live at Itacolomi Park in Ouro Preto city in Minas Gerais state, Brazil. They are always walking around the Candeial next to the Capel, looking for food and a safe place to live.



Neso loves the Candeial, he thinks the Candeia trees are very pretty with their flowers grouped as small white balls, and many trees are all together forming the Candeial, is an spectacular show.

**One day, Neso, that is very courageous,
decided to climb the candeia trees.**



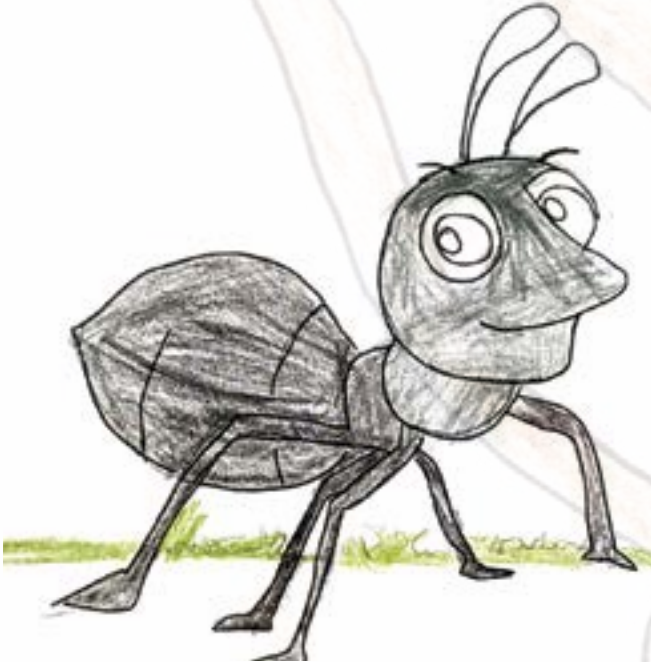
**He has heard that there was a sweet juice,
named nectar, coming from the plant up
there,
and that many ants like it.
And there he goes, looking for the dreamy
nectar.**

But Neso was not prepared to what he would find there, and he was greatly surprised when in one of the branches, he found

a small ball that looked like part of the plant, but that he had never seen before



**He became astonished, and did not understand what the small ball was. Was the plant sick?
May he have discovered something new?
What was that?**



Neso, that is very curious, decided to stroll around to look for more of those strange balls.

And he could not believe in what he saw. The more he walked, the more numerous the balls were.

He realized that there were different balls. Some were small and soft, while others were large and hard.



Neso also realized that there was a noise coming from inside the small balls, it looks like someone was living inside it.

He tapped with his legs on top of the ball, and called:

- Hey, I can hear you. Who are you?
How did you get inside this ball?

Neso did not expect the answer and got paralyzed when he heard a voice saying:
- Hi. I am the *Neolasiopitera*, you can get away from here. You cannot touch me, I am protected inside here.



Neso got astonished, and speechless. He did not know what to say, indeed. Where were that voice coming from? And why did it think he would attack?

Neso decided to go down the tree and call his friend Camponotus, to follow this adventure.

Cam was very smart and Neso know she should have an explanation for all that madness.



**Neso and Cam
came back
to the tree to
talk to the
inhabitant of
the bizarre ball.
Cam
began the
conversation:**

**-Hi Mr I
don't know...
Neolasiooo.
May I call you
Neo? Me and
my friend are
curious about
your house.**



**We have never seen something like
this before.
May you help us understand how did you
construct this plant-house?**



- Well
sweetie, aren't
you enemies?
May I be sure
you are not
trying to take
me out of
here?

- Of course
not, Mr Neo.
We are ants
and are
very curious
about your
home, we
just want to
understand.



- Okay, that's all right, I will tell you, he said.

This history comes from a long long time ago...

One day, my great-grandparents, decided to put their eggs on some plant branches.

They thought the eggs would be protected up here.



They did not expect the plant to react to the eggs in its branches.

And you cannot imagine how hard it was to construct this ball.

The plant reacting, and my great-grandmother counter attacking, and from this battle comes a ball like this one, where I live today.



**-Wow! What a terrible thing Mr Neo, a battle!
What happened to the eggs of your great
grandmother?**

**This is the cool part of
our history.**

**And neither us nor the
plant was waiting for
that.**

**The larvae hatched
from the eggs and
could survive inside the
balls, and more, they
could feed from the
plant cells.**



- Woow, sounds incredible!



-That's it. Afterwards, when the larva developed, it could dig a tunnel and escape from inside the ball. It told all the family how it survived inside the ball. An nowadays, all my family lives in balls like this.

**- But, if it is so good why were you afraid when we called you?
- asked Cam**



Well, in the old days, when we did not live inside the plants, life was very hard.




There was little food, we were cold or hot, the rain carried our eggs away, and lot of us died.

And what was worse, there were always some predators trying to eat us. Inside the balls, everything is quite good. We have food, the temperature is warm and comfortable, and we can grow in peace.

It is true that sometimes, some enemies try to catch us here.

Sometimes they can do it, and I was afraid you were one of these enemies.



An illustration of a brown plant branch with several green leaves. A prominent, rounded, brownish-orange gall is attached to the branch. A smaller, similar gall is visible on a lower branch. The background shows faint outlines of other branches.

- **Wow Mr Neo, your history is very interesting. But tell me, does your house have a name?**

- **Well, we call it our home, but I have heard some curious people that come here and try to understand how we leave naming our homes as **GALLS.****

- **OH! Gall! Loved it, it is a nice name. But what happens with the gall when you leave it?**

- **Unfortunately, it dies. It is our presence inside it that makes the gall alive and growing. When we leave the gall, it stops growing and die.**



Cam, at this moment, had a brilliant idea. She was tired of walking around the Candeial without a house to be her home. And she started thinking what she could do to live inside a gall when Mr Neo left it.



And she must be fast. For his smart tone of voice, Mr Neo would certainly leave the gall soon.

**Cam knew a very smart guy,
that leaved nearby in other
Candeia branches, Mr Fungo.
Mr Fungo should know what
she might do to live in the
gall.**



**Mr Fungo got enchanted with the idea.
A protected place, with warm climate and
available food? It sounds impressive.**

**When Mr Neo left the gall,
Mr Fungo went there and
found it really a nice place to
leave in.**

**Cam and Mr Fungo decided
to live together inside the
gall.**



**As time went by, Cam turned
the gall into her home, a real ant
nest. And soon, Cam, the worker
ants, larvae and eggs, from where
new ants would soon be born,
inhabited the gall.**

Just like, wise Mr Neo stimulated the gall to be alive, which contributed to its own survivorship, the presence of Mr Fungo and of Cam family performed a similar role.



And then, even after Mr Neo left, the gall stayed alive. Differently from what happened when one of Mr Neo's parents went out and there was no one to leave in that house.

Neso, which was not brave enough to live inside the gall promptly, told the news to some ant families.



Real image of a gall occupied with fungi and ants.

These families strolled around the Candeial to see the novelty and found galls to be their houses.

Since then, if you look carefully to the galls with a small hole in Candeia trees, you can find ants and fungi inside them, leaving protected from the enemies and dangers from the outside.



Scientific curiosities:

Do you know that all living beings have a name, which are their scientific names? These names are created by curious people, the scientists, who study, describe, and name each one of the living beings.

The characters of our story are real and they have scientific names, as well.
Let's find out?!

Neso is the scientific name of an ant named *Nesomyrmex* and Cam for the scientists is an ant named *Camponotus*.

The smart Mr Neo was described by the scientists as *Neolasioptera*.

And the Candeia, the tree where the whole story goes on is the *Eremanthus erythropappus*.