

Plants vs. Plagues. A full scientific paper about how a bio insecticide and a bio fertilizer can fight aphids.

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Abstract:

This is a scientific paper, in which we explain how to get rid of aphids and making you plant grow strong and healthy. That's why we use green biotecnology to make this happen, in this case we, applied a bio insecticide to get rid of these kind of plagues, and a bio fertilizer that will recover the plant's nutrients.

Introduction:

There are many types of plagues in the plants which are a real problem for both the agriculture and house plants. A plague is defined as any animal species that the human being consider harmful to himself, to a property or to the environment, in this case to the plants.

Nutrients are essential for every single type of plant. They need them to grow up, fight diseases, and to bear fruits. But if they don't get enough nutrients, it could lead to several problems. Some plagues absorb these nutrients, affecting their production, growth, and exposing them to diseases.

Today we will focus in a common plague called Aphid, aphids absorb plants nutrients, causing the leaves and buds to deform and reduce their growing.

To stop aphids we can use a bio insecticide based in a fungus called *Beuveria bassiana* which will kill aphids. Also we can use a bio fertilizer called *Rhizobium*, which help the plant recover the nutrients, after the plague is gone. By understanding the use of these materials, we can keep our plants clean and healthy.

Problem:

As we mention early the nutrient are essential for many types of plants, because, without these nutrients growth and survival would not occur.

Aphids are small insects (not longer than about 0.16 inch), they absorb the sap and nutrients from the plant, causing the leaves

and buds to deform and reduce their growing. They can even make the plant loss leaves, and leaf loss can affects the quantity and quality of the final harvest. It is also important to mention that they can introduce toxins into the plant, systematically altering its development. This is why aphids are a problem to the house plants and agriculture.



Methodology:

To eliminate aphids we will use BioBassiana MI, a Bio insecticide made with *Beuveria Bassiana* fungi. The steps we need to follow in order to make this bio insecticide works correctly, are the following:

1. Make a Pre-Mixing: First we need to add 2-4 grams per liter of the powder to the water in a thermally sealed container, then, shake it for 30 to 40 seconds (Do not use hot water).
2. After the pre-mix is done, add it to the tank of a sprayer pump, and add more water to complete the mix.
3. Finally we can start spraying the *Beuveria Bassiana* to the plants with plagues.

The plagues should die after 3 to 5 day.

Now that aphids are gone we will be using a bacteria, used as a bio fertilizer, called *Rhizobium* this will that will help the plant to recover their nutrients. *Rhizobium* belongs to a type of bacteria that sets nitrogen when it gets in contact with the roots of the plant. To obtain this bio fertilizer, we will follow these steps.

1. Mix *Rhizobium* with the seeds of a plant, dechlorinated water,

and cooking oil.

2. Once the mix is ready, the only thing next to do is to plant the mix, since it has seeds from a plant.

As a result, the plant will grow healthier.

Solution:

As a solution to this problem, we can apply a bio insecticide that can eliminate this kind of plagues, and by the use of a bio fertilizer that will help this plants to recover after the damage.

In this case we used a BioBassiana MI, a bio insecticide that based on *Beuveria Bassania*, which is a fungus that when enters to an insect, it grows through the skin and extends inside until it is killed. We also used a bio fertilizer by the name of *Rhizobium*, this bacteria is placed into the roots of the plant, setting it of nitrogen and nutrients, helping the plant recover from the plague.

To conclude, we can apply this biotecnology solutions that will help us to maintain our plants clean and strong from aphids.

Information sources:

www.ecured.cu

www.portalfruticola.com

aviporto.com

cep.unep.org

http://www.cannagardening.com/aphids_in_detail

<http://articulos.infojardin.com/boletin/1-plagas-enfermedades/plagas-y-enfermedades-mas-importantes-en-plantas.htm>

<https://www.jardinedia.com/plagas-las-plantas-tipos-existen-combatirlas/>

<https://hortintl.cals.ncsu.edu/es/content/las-relaciones-entre-las-plagas-y-las-plantas-c2>

<https://www.agroterra.com/blog/actualidad/insecticida-biologico-beuveria-bassiana/65014/>

<https://www.biobestgroup.com/es/biobest/plagas-y-enfermedades/pulgones-4958/>

<https://www.ecoterrazas.com/blog/insecticidas-naturales/>

<https://www.intagri.com/articulos/fitosanidad/beuveria-bassiana-en-el-control-biologico-de-patogenos>

<https://anatisbioprotection.com/en/news/beuveria-bassiana-spray.html>

https://www.youtube.com/watch?time_continue=43&v=0HA8Kg3Kv7M&feature=emb_logo


