

Mealybug Infestation of Horticultural Plants and Garden Plants and their Control Measures - A Short Review

Jai S Ghosh*

Department of Biotechnology, Smt. K. W. College, Sangli, India

*Corresponding Author: Jai S Ghosh, Professor, Department of Biotechnology, Smt. K. W. College, Sangli, India.

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Abstract

Mealybugs are no doubt a very minor infestation for many crop plants but can cause notable damage to horticultural plantation and the related products. It was however, responsible for the damage to the cassava crops in Africa during a draught a few years back resulting in wide spread famine in many east African countries. These pests are very difficult to control using conventional pesticides. The only effective control measure is the biological control measures using predators.

Keywords: Mealybug Infestation; Horticultural Plants; Garden Plants; Control Measures

Introduction

These are tiny insects belonging to the subfamily Pseudococcidae. These live sucking the sap out from the leaves sometime leading to yellowing of the leaves which finally drop. These are usually found on ornamental plants, horticultural plants and on hibiscus plants [1].



Figure 1: Mealy bug *Maconellicoccus hirsutus* on hibiscus [1].

The organisms weave a cocoon around themselves and remain firmly attached on the tender stems and leaves. Sometimes they are also found on the petals of the flowers and that is a repelling appearance.



Figure 2: Mealybugs on hibiscus flower [2].

Besides Hibiscus these bugs also infest other horticultural plants like mango, citrus fruits, banana, custard apple, tomatoes and egg-plants [3]. *Planococcus citri* a versatile mealybug has been found to infest not only citrus plants and fruits, but also other fruits like mango, banana and black pepper (*Piper nigrum*). Many woody ornamental plants and some herbaceous perennials can be infested including cactus, coral bells (*Heuchera*), figs (*Ficus*), flax grasses (*Phormium*), fuchsia, gardenia, hibiscus, jasmine, mimosa, *Miscanthus* grasses and oleander. The cypress bark mealybug can be a serious pest on Monterey cypress in urban areas and also attacks other species of cypress, cedar, and juniper

In African subcontinent the mealybug- *Phenacoccus manihoti* causes havoc in the Cassava crops which is a staple crop in many of the countries there. This was accidentally introduced in many parts of Africa. Many of the nations of the subcontinents often faces spells of draught and at that time the only means of survival is this cassava crop, thus helps to prevent famine. However, in 1991 the infestation was so severe that during the draught there was severe famine in many parts of Africa [4]. *Talinum triangulare*, Croton and Poinsettia are other alternate hosts of this mealybug [4]. However, this parasite infestation shows that they cannot survive for more than one generation on plants like tomatoes and certain citrus fruits [5].

The general life cycle of these bugs are as:

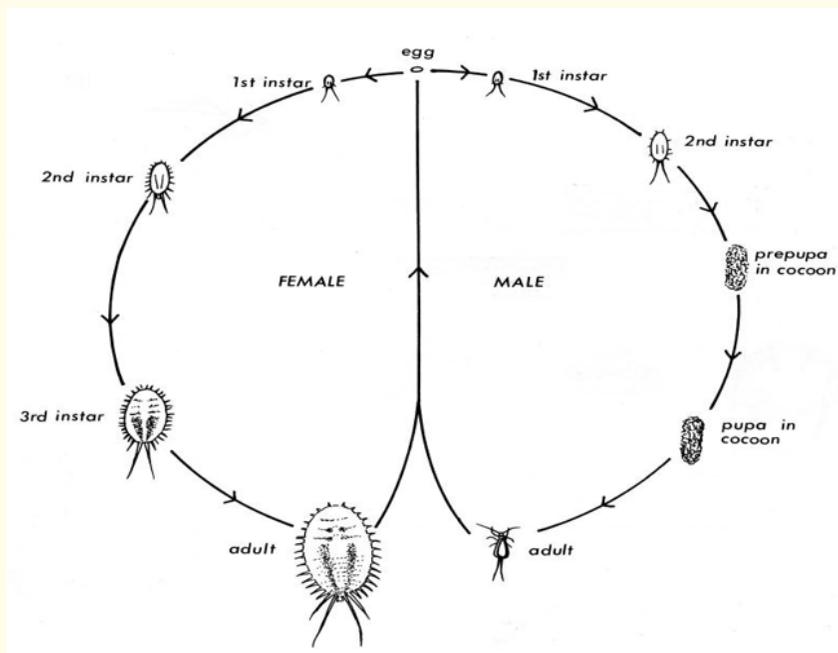


Figure 3: A typical pseudococcid life cycle [6].

The female lays about 100 to 200 eggs in a span of 10 to 12 days. The eggs are usually on the underside of the leaves of the host plant.

Control measures

There are different control measures adopted to control this pest at different places. At home when the ornamental potted plants or garden plants like hibiscus is infested the best control measures that are resorted to is to spray the infested parts with a mild soap solution (preferably using baby soaps) or pest soaps (available in some parts of the world) and the bugs will disappear immediately [7]. Since these creatures have a hiding habit they can be found in places like bottom of the pots or in some cases in the remotest petiole corner of the plants only to reappear after some days. Then again the process may be repeated. The only thing to remember here is that it may not work when there is a severe infestation. Many people suggest that application of extracts of *Azadirachta indica* some time does help. The best practice to remember is to prune the infested parts at the onset of the infestation and avoid excess of nitrogen fertilizers to the plants [7].

In certain horticultural places, if the infestation is moderate, then a spray of dichlorvos is often resorted to, as the last resort, because this organophosphate pesticide has a residual effect on many fruits especially like grapes [8].

However, the best pest control measure to control these pests is to use biological control agents. These are mostly predatory insects like ladybird beetle. These when released in the field the infestation would gradually disappear as the numbers of the predators increase. These predators are specially reared in large numbers and then released on the infested area [9]. Likewise, several workers have tested different biocontrol agents to contain the infestation of mealy bug at different places [3].

In African countries to control *Phenacoccus manihoti* the biocontrol agents used were the Afrotropical species of the subgenus *Gitonides knob* was more promising to effectively control the mealybug [10]. This is a larvae predator and is very useful and effective control agent.

Conclusion

Being a very minor infestation in many regions, not much attention is being given to control this infestation. Therefore, very little work has been done towards implementing Integrated Pest Management principles to control the bugs. The significance was realized when there was a famine in Africa due to short-supply of cassava during the draught of 1991 and now control measures are being implemented only for this crop which becomes a staple crop of the people there during draught conditions. Secondly, it appears that biocontrol agents like the use of predators are the only measures which can and will effectively control the infestation.

A similar infestation was sweeping the sugarcane crop in India a few years back and it was the infestation of Woolly-Aphid. This pest is also similar to mealy bug and the only control measure is the use of predators. The predator which was very and is still very effective in the control of this infestation is the ladybird beetle (*Harmonia axyridis*). The other lady bird beetle known is the *Coccinella septempunc.*

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