

Pink Hibiscus Mealybug

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Abstract

The pink hibiscus mealybug (PHM), *Maconellicoccus hirsutus* (Green), is an exotic pest species that invaded California in 1999 and Florida in 2002. PHM has also been detected in Louisiana in 2006. Worldwide, PHM has been recorded from over 300 host plant species, including citrus, ornamentals, and vegetables. Despite federal (USDA-APHIS-PPQ) and state department of agriculture efforts to regulate and control the spread of PHM to other susceptible states, periodic movement of infested plant material does occur.



Anagyrus kamali, an encyrtid wasp
Photo: Dale E. Meyerdirk, USDA-APHIS-PPQ
www.ipmimages.org

Why is Early Detection of PHM Important?

- PHM has a broad host range and is capable of quick population explosions.
- Climatic suitability for establishment in several southern U.S. states and potential to persist in greenhouses.
- Estimates indicate PHM could cost \$750 million/yr if further establishment occurred.
- Biological control options, primarily consisting of releasing the parasitic wasps, *Anagyrus kamali* Moursi and *Gyranusoidea indica* Shafee, Alam and Agarwal (Hymenoptera: Encyrtidae) are effective in the landscape for management. Chemical options are necessary in the nursery trade as there is a zero tolerance for established populations due to regulatory implications.
- Early detection is primarily accomplished through regular scouting potential host plants and pheromone trap (i.e. Delta trap) monitoring.



Male PHM
Photo: United States National Collection of Scale Insects Photographs Archive, USDA ARS
www.ipmimages.org



Delta trap containing PHM pheromone (top) to trap males (bottom).



Field Identification

- Useful for initial screening
- Not definitive for regulatory confirmations, new host, state, or county records
- In general, most mealybug keys are based on the adult female.

•Key Characters:

- Oval, red body
- 1 or 2 pairs of lateral wax filaments.
- Wax accumulates at tip of abdomen.
- Body bleeds reddish-brown fluid when pierced.
- Eggs are a bright pink to red color.

- Note: Field characters may not be as apparent for samples preserved in alcohol for long periods of time.



PHM eggs
Photo: FDACS-DPI



Adult Female PHM
Photo: Lyle Buss, UF



Reddish-brown liquid of crushed PHM
Photo: Dale E. Meyerdirk, USDA-APHIS-PPQ
www.ipmimages.org

Signs of Damage

- High populations result in excess production of honeydew and promote sooty mold growth.
- PHM inserts a toxic saliva when feeding. Damage may have a crinkled appearance known as 'bunchy top' on hibiscus.



'Bunchy top' PHM Damage
Photo: FDACS-DPI

Educational Efforts

- During 2005, the NPDN was involved in a collaborative USDA-CSREES critical needs grant project with the National IPM Centers, USDA-APHIS-PPQ, the National Plant Board, and several Land Grant University scientists to provide response, diagnostics, and education for this important exotic species.
- National teleconference training
- National pest alert
- PHM Training Workshop
- PHM Website



Taxonomic Identification

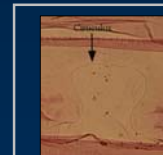
- The presence, absence, shape, or number of several key characters may be used including the following:
 - Body shape
 - Antennal segmentation
 - Leg morphology
 - Cerarii
 - Anal bar
 - Ducts and pores
 - Circulus (circuli) (a simple area of variable size lacking setae and pores and believed to assist in adhesion)



PHM Leg.
Photo: Greg Hodges, FDACS-DPI



Cerarii character on legless mealybug
Photo: Greg Hodges, FDACS-DPI



Hourglass shaped circulus of the pink sugarcane mealybug
Photo: Greg Hodges, FDACS-DPI



Hypogaeococcus pungeri, three circuli
Photo: Greg Hodges, FDACS-DPI



Strongly pronounced anal bar of citrus mealybug
Photo: Greg Hodges, FDACS-DPI



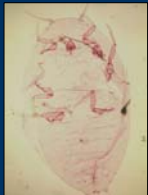
Inconspicuously pronounced anal bar of PHM
Photo: Greg Hodges, FDACS-DPI



The absence of an anal bar in *Hypogaeococcus pungeri*
Photo: Greg Hodges, FDACS-DPI

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- Anal bar present
- 4-6 pair of cerarii
- Oral rim tubular ducts numerous
- Circuli present



Adult Female PHM
Photo: Greg Hodges, FDACS-DPI

References and Acknowledgments

Chiborne, L. (January 23, 2006). The Pink Hibiscus Mealybug Website <http://www.mtec.fas.ufl.edu/>
Many of the images and diagnostic information included in this presentation are from:
Hodges, A. and G. Hodges. 2006. Pink hibiscus mealybug identification. Online. Plant Health Progress doi:10.1094/PHP-2006-0414-01-DG.
A special thanks to Jana Medley, Entomology & Nematology Department, University of Florida for graphics design assistance.