State of Hawaii
DEPARTMENT OF AGRICULTURE

New Pest Advisory
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Figure 1. Early symptoms of rust disease on ohia

Ohia Rust

Puccinia psidii Winter

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Introduction. In April 2005, an ohia plant, *Metrosideros* sp., infected by a rust disease was submitted to the University of Hawaii (UH), College of Tropical Agriculture and Human Resources (CTAHR), Agricultural Diagnostic Service Center's (ADSC) Plant Disease Diagnostician Desmond Ogata by a Waimanalo (Oahu) grower who specializes in native plants. There are no records of a rust disease on ohia in Hawaii or elsewhere. In May 2005, rose apple, *Syzygium jambos*, heavily infected with a similar rust disease was observed on the Maunawili Trail by Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW) staff. In July 2005, two species of *Eugenia* – *E. koolauensis* and *E. reinwardtiana*, and guava *Psidium guajava* were observed in Makiki with a similar rust disease. Infected ohia plants have since been observed in Manoa, Makiki, and Kalihi. All the confirmed reports of this rust disease are from the island of Oahu.

Symptoms. Symptoms of the disease first begin as tiny bright yellow powdery eruptions in a circular pattern on the leaf or stem surface (Fig. 1). These infection loci or spots expand and become necrotic (Fig. 2), and spread over the entire leaf, stem, or shoot. Leaves and stems can be deformed by the disease (Fig. 3 and 4), and growing tips can die back if the infection is severe. These symptoms are more likely to be seen on tender, young growing points.

Figure 2. Rose apple with typical symptoms of yellow ring patterns on foliage followed

Figure 3. Rose apple with rust infection on new growth.

Figure 4. Advanced disease condition on ohia plant.

Although not yet seen in Hawaii, the disease can also cause similar symptoms on fruit.

Identification. Based on records of a rust disease that is known to occur on ohia-related plant species, this rust was tentatively identified as *Puccinia psidii* Winter. The identification of this rust pathogen was later confirmed (2006) by Dr. Shaobin Zhong, UH CTAHR PEPS, using DNA profiles for *P. psidii*. According to records from Brazil (1) and Florida (2), *P. psidii* has a very wide host range, which includes eucalyptus, paperbark tree, guava, rose apple, allspice, myrtle, species of *Eugenia* and others. It is commonly referred to as eucalyptus rust and guava rust in Florida, the Caribbean, and Central and South America.

Distribution. Since April 2005, surveys and request for disease sightings have shown that this rust is widespread in the State, occurring on various members of the Family Myrtaceae on all the Hawaiian islands (except Niihau).

Management. At the present time, there is no approved fungicide that can be used in controlling this disease. The Department recommends good sanitation practices, such as, removing and bagging and or destroying infected leaves or other plant parts as soon as symptoms appear. Also, keeping the foliage dry when irrigating will help in lowering disease levels.

Under Plant Quarantine Interim Rule 07-2, a quarantine has been imposed to restrict the importation of all plants and plant parts in the family Myrtaceae from areas known to be infested with ohia rust. South America and the states of Florida and California have been determined to be areas infested with ohia rust. This quarantine was established to prevent the introduction of additional and possibly more virulent strains of ohia rust into Hawaii.

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References

Coutinho, T.A., Wingfield, M. J., Alfenas, A.C., and Crous, P.W. 1998. Eucalyptus rust: a disease with the potential for serious international implications. Plant Disease 82:819-825.

Rayachhetry, M.B., Van, T.K., Center,T.D., and Elliott, M.L. 2001. Host range of *Puccinia psidii*, a potential biological control agent of *Melaleuca quinquinervia* in Florida. Biological Control 22:38-45.