

## *Pestalotiopsis podocarpi* Podocarpus Foliage Blight and Tip Dieback

### **BACKGROUND**

In the month of November 2016, a landscaper reported to the Hawaii Department of Agriculture (HDOA) sickly podocarpus (*Podocarpus gracilior*) trees at a Kailua residence. The trees were in various stages of decline and started showing yellowing and browning foliage, defoliation, and tip dieback. Soil and chemical analysis conducted by the landscaper revealed no abiotic abnormalities, which could cause these problems. Samples of affected leaf and stem tissues were submitted to the United States Department of Agriculture, Animal and Plant Health Inspection Service, Plant Protection and Quarantine, National Identification Services (USDA-APHIS-PPQ-NIS). The infecting pathogen was identified as the fungus *Pestalotiopsis podocarpi* (Dennis) X. A. Sun & Q. X. Ge on December 5, 2016 by John McKemy. This identification was the first report of the fungus in Hawaii and the United States.

### **HOST RANGE AND DISTRIBUTION**

The fungus, *Pestalotiopsis podocarpi* was first described in 1990 from China infecting *Podocarpus macrophyllus*, *P. nagi*, and *Torreya grandis*. Additionally, the fungus was reported from Japan infecting *P. macrophyllus* and from Scotland infecting *P. latifolia*. No other distribution information is available. In Hawaii, the fungus has been observed (at varying severities) infecting *Podocarpus gracilior* on all major islands. The fungus has not been reported infecting other *Podocarpus* species or conifers in Hawaii and the United States.

### **SIGNS & SYMPTOMS**

- ▶ Uneven growth of tree foliage (Fig. 2)
- ▶ Leaf drop, defoliation, and chlorotic or brown appearance of tree foliage (Fig. 2)
- ▶ Browning, stunting, and dieback at branch tips (Fig. 3A) that includes browning leaf tips (Fig. 3B) and stunted flowers (Fig. 3C)
- ▶ Branches bend to form brown shepherd's crooks (Fig. 4)
- ▶ Microscopic fungal spores present on infected plant materials can spread by wind, human interactions, animals, and water splashing (e.g. rain and overhead watering). Spores can enter and infect trees through open wounds or natural openings.
- ▶ Sometimes, brown foliage and dead limbs caused by black twig borers (BTB) can be mistaken for disease symptoms (Fig. 5A). BTB damage and disease symptoms can occur concurrently on the same tree. Podocarpus foliage blight and tip dieback show uniform symptoms, while BTB damage shows clear isolation between infested and non-infested material. Additionally, BTB damaged limbs will have a small borer hole at the end closest to the main part of the tree (Fig. 5B).



Figure 1. A healthy tree with even growth and green foliage.

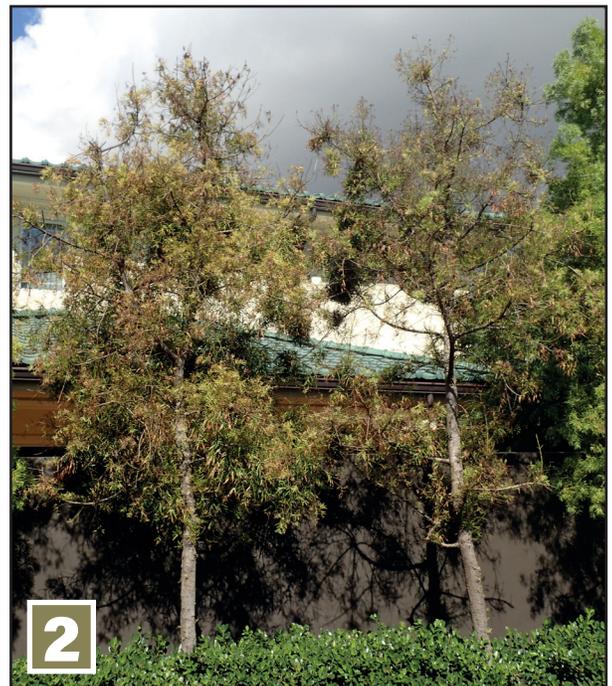


Figure 2. Unhealthy trees displaying uneven growth, chlorosis, and browning.

# *Pestalotiopsis podocarpi*

## Podocarpus Foliage Blight and Tip Dieback

If infected, plants may display few to all symptoms. Disease severity depends on stressors affecting the tree as well as the tree's innate resistance.

### MANAGEMENT

HDOA recommends removing and disposing of infested plant parts, pruning overcrowded plants for better circulation, planting in sunny spots, and avoiding excessive fertilizing. To prevent spreading the disease, sanitize tools between plants or locations. Additionally, some broad-spectrum fungicides for ornamentals can be used to treat the disease and systemic insecticides for BTB damage but consult a local county extension agent before proceeding.

### ACKNOWLEDGEMENTS

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### FOR MORE INFORMATION

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- ▶ Enebak, S. A. (2012). *Pestalotiopsis* foliage blight. Forest Nursery Pests: 52-53. <https://rngr.net/publications/forest-nursery-pests/conifer-diseases/pestalotiopsis-foliage-blight>
- ▶ Gillman, E. F. & Watson, D. G. (2014). *Podocarpus gracilior*: weeping podocarpus. UF IFAS Extension, University of Florida. ENH652. <http://edis.ifas.ufl.edu/pdffiles/ST/ST49300.pdf>
- ▶ Keith, L. M., Velasquez, M.E., & Zee, F. T. (2006). Identification and characterization of *Pestalotiopsis* spp. causing scab disease of guava, *Psidium guajava*, in Hawaii. *Plant Disease* 90 (1): 16-23.

If you have any questions please contact us through [hdoa.ppc@hawaii.gov](mailto:hdoa.ppc@hawaii.gov) or call 643-PEST(7378).



Figure 3. A: Stunted branch; B: Browned leaf tip; C: Stunted flowers.



Figure 4. Shepherd crooks formed at top of tree.



Figure 5. A: BTB damage to individual branch B: Borer hole at base of stem.