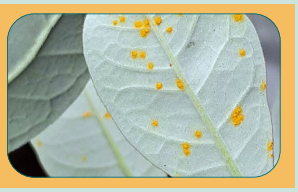
Myrtle rust (*Austropuccinia psidii*)



Introduction

The rust fungus is native to South America. It was first described on guava from Brazil in the late 19th century, and its presence was subsequently noted across countries in South and Central America and the Caribbean. Since then, the pathogen has been steadily spreading around the world. Significant introduction milestones include North America in the 1970s, Hawaii in 2005, Japan in 2007, China in 2009, and most significantly reaching Australia in 2010 where it is now widespread along the East coast. In 2013, the fungus was found in South Africa for the first time, followed by its detection in mainland New Zealand in 2017. Currently, they are no records of its presence in Europe [see distribution].

Introductions of the fungus are commonly associated with imported live plant material and plant products, such as young fruit buds, fruits, cut flowers, and foliage. Additionally, the fungal spores can be dispersed over long distances via air currents, as well as through contaminated clothing and luggage.

Host

Myrtaceae – nearly 500 species recorded to date, but the number of host species keeps expanding [see list of hosts]. The hosts include: important timber, amenity, and indigenous plants from a diversity of ecosystems.

Biology

Myrtle rust disease is caused by the fungus *Austropuccinia psidii.* Before it has been referred as *Uredo rangeii* and *Puccinia psidii,* and the disease as eucalyptus or guava rust. Several strains or biotypes of the fungus are known, affecting the level of virulence and disease on different hosts.

Myrtle rust is a primary obligate pathogen. This fungus produces numerous pustules, usually appearing on young, soft, actively growing leaves, such as shoot tips and young stems. From the pustules, large numbers of dry powdery spores are released. Like many other rusts, the fungus may produce a range of different spore types to complete its lifecycle, but myrtle rust predominantly relies on the production of urediniospores and can complete its lifecycle solely on plants of the Myrtaceae family.

To germinate, myrtle rust spores require high humidity, moisture on leaf surfaces for more than 6 hours, and temperatures ranging from 15 to 25°C. Extended periods of low light, exceeding eight hours after spore contact, can enhance germination. Initial symptoms are seen within 3 to 5 days, and new pustules can mature and release spores within 10 to 12 days, leading to very rapid disease outbreaks. Spores can remain viable for up to three months and can be wind-dispersed over long distances, facilitating further spread and persistence of the disease.

Symptoms

For details of the symptoms, scan or click on the QR code to access the accompanying poster.

More information

- CABI Digital Library: https://doi.org/10.1079/cabicompendium.45846
- EPPO Global Database: https://gd.eppo.int/taxon/PUCCPS
- Myrtle Rust in New Zealand: https://myrtlerust.org.nz
- Australian Network for Plant Conservation : https://www.anpc.asn.au/myrtle-rust/
- Annual Review of Phytopathology: https://doi.org/10.1146/annurev-phyto-080516-035256
- New South Wales Government: https://www.dpi.nsw.gov.au/biosecurity/plant/insect-pests-and-plant-diseases/myrtle-rust

Acknowledgements
This factsheet was written by Charles Lane, Fera Science Ltd, UK. With contributions from B3 and Ministry for Primary Industries in New Zealand, and Plant Health Australia and Botanic Gardens of Sydney. Edited and produced by Itxaso Quintana, BGCI, March 2024.