



Fig. 1. *Puccinia psidii*; (a) Symptoms on *Eucalyptus grandis* seedling; (b) Stem distortion and multiple branching caused by repeated infections of *E. grandis*, (c) *Syzygium jambos*; (d) *Psidium guajava*; (e) Urediniospores. Photos: A. Alfenas, Federal University of Viçosa, Brazil (a, b, d and e) and M. Glen, University of Tasmania (c).

Common Name: Guava rust, Eucalyptus rust

Disease: Rust in a wide range of Myrtaceous species

Classification: K: Fungi, D: Basidiomycota, C: Pucciniomycetes, O: Pucciniales, F: Pucciniaceae

Puccinia psidii (Fig. 1) is native to South America and is not present in Australia. It causes rust on a wide range of plant species in the family Myrtaceae. First described on guava, *P. psidii* became a significant problem in eucalypt plantations in Brazil and also requires control in guava orchards. A new strain of the rust severely affected the allspice industry in Jamaica in the 1930s. *P. psidii* has spread to Florida, California and Hawaii. In 2007, *P. psidii* arrived in Japan, on *Metrosideros polymorpha* cuttings imported from Hawaii.

Host Range:

P. psidii infects young leaves, shoots and fruits of many species of Myrtaceae.

Impact:

In the wild, in its native range, *P. psidii* has only a minor effect. As eucalypt plantations in Brazil are largely clonal, impact in areas with a suitable climate is mainly determined by resistance or susceptibility of the clone. High mortality rates may occur in susceptible clones. Most populations of eucalypt species tested have some degree of genetic resistance, though some other Australian species have shown very little resistance.

P. psidii is an effective biological control for *Melaleuca quinquenervia*, an Australian native that has become an invasive weed in Florida. Along the east coast of Australia, *M. quinquenervia* is a key species in river ecosystems. *P. psidii* causes

epiphytotics on *Syzygium jambos* in Hawaii, with repeated defoliations able to kill 12m tall trees.

Key Distinguishing Features:

Few rusts are recorded on Myrtaceae. These include *P. cygnorum*, a telial rust on *Kunzea ericifolia*, and *Physopella xanthostemonis* on *Xanthostemon* spp. in Australia. In Brazil, *Phakopsora rossmaniae*, or more often, its uredinial stage, *Physopella jueli*, occurs on *Campomanesia* spp. Rust on any Myrtaceae species that is not one of the above is likely to be *P. psidii*. Distinguishing features include microscopic characters of urediniospores and the lack of marginal paraphyses in urediniosori. DNA analyses can also be used to identify and detect *P. psidii*.

Control:

Chemical control is possible, but unlikely to be economically or environmentally feasible for broad-scale application to plantations or native vegetation in Australia.

Further Reading:

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