



**Fig. 1.** Pistachio anthracnose; (a) Concentric lesions on leaves; (b) Dark lesions on mid ribs; (c) Fruit infection (d) spore masses forming on fruit; (e) Conidia and (f) appressoria of *Colletotrichum acutatum*. Photo credits: Hall and Pederick, SARDI South Australia.

**Disease:** Anthracnose

**Classification:** K: Fungi, P: Ascomycota, C: Sordariomycetes, O: Glomerellales, F: Glomerellaceae. G: *Colletotrichum*, S: *C. acutatum*

*Colletotrichum acutatum* J.H Simmonds was first reported on pistachio (*Pistacia vera*, Anacardiaceae) in 2001. The disease is endemic in Australia causing significant crop loss from damaged fruit, particularly in years of high rainfall close to harvest.

**The pathogen:** Anthracnose of pistachio is caused by the pathogen *Colletotrichum acutatum*. *C. acutatum* was originally named and described using morphological characteristics, however these are unreliable. It is now regarded as a species complex, with several species now named as independent taxa within the complex. *C. acutatum* from pistachio has been identified using morphological methods, however at the molecular level it is similar to *C. acutatum* from olive and almond in Australia.

**Host Range:** *C. acutatum* causes anthracnose on a diverse range of hosts including woody and herbaceous crops, ornamentals, fruits, conifers and forage plants. Isolates from almond, olive, strawberry and avocado are also pathogenic to pistachio.

**Biology and ecology:** The fungus survives in dormant buds, fruit, leaves, twigs and male flowers. Spores develop after rain or high humidity and are splash dispersed. There is very little requirement for continued humidity or wet weather to promote infection. Infections can occur at any stage of the

plant growth and remain quiescent or latent. Fruit are more susceptible when older or when wounded.

The disease impact is greatest in seasons with above average rainfall. While it was first observed in 2000, the disease was not of major concern to the industry until the extremely wet season of 2010 when significant crop losses occurred.

**Symptoms:** Infected leaves develop brown lesions often with concentric rings (Fig 1a). Dark lesions form on the leaf mid ribs (Fig 1b), petioles and fruit (Fig 1c), developing orange spore masses in high humidity (Fig 1d). Dieback of shoots and branches can also occur.

**Disease management:** Symptoms can be confused with those caused by *Botryosphaeria* and often the two pathogens occur together. Removal of infected material from the tree and under-tree areas has the potential to reduce inoculum sources. Permits have been obtained for some fungicides and a spray program is being developed by the industry.

**Further reading:** Ash & Lanoiselet (2001) Australasian Plant Disease Notes 30:365-366. Damm et al (2012) Studies in Mycology 73:37-113. McKay et al (2009) Phytopathology 99:985-995. Peres et al (2005) Plant Disease 89:784-796.

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