Pathogen of the month – June 2011

Pyricularia angulata Hashioka

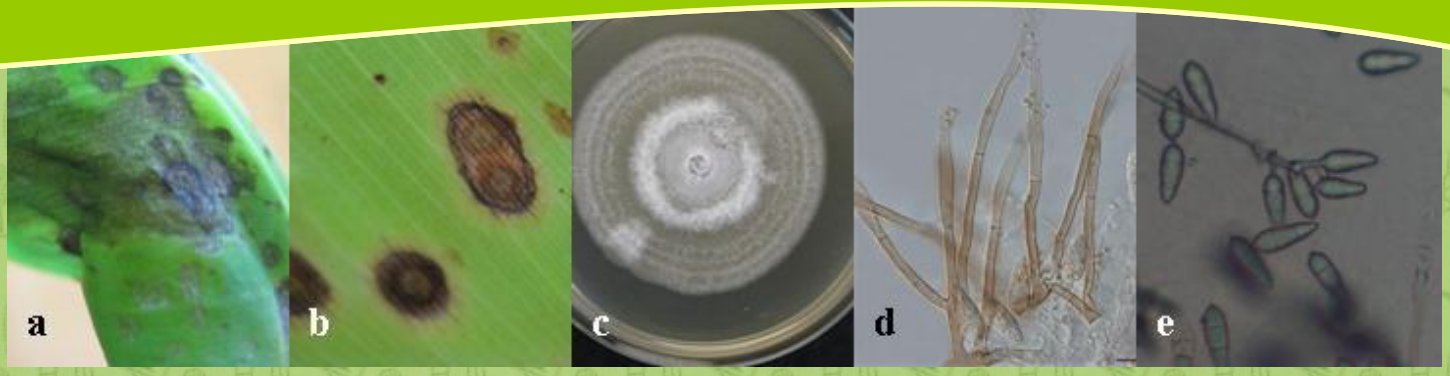

Fig. 1. *Pyricularia angulata;* severe symptoms on a banana leaf (a); zonate coalescing lesions on leaf (b); colony on PDA (c); denticulate conidiophores (d); and conidia (e). Photo credits M. Male (a,b,c,e) and R. Shivas (d)

Disease: Banana blast
Pathogen: *Pyricularia angulata*
Classification: K: Fungi, D: Ascomycota, C: Sordariomycetes, O: Magnaporthales, F: Magnaporthaceae

Pyricularia angulata (Fig. 1) is a fungal pathogen in Southeast Asia and Central America but is rarely encountered in Australia. *P. angulata* is known to infect all parts of the banana plant and is also a saprophyte on banana trash. Recently in far north Queensland, it has been found infecting leaves in tissue cultured banana plants in a number of nurseries. Members of the *Pyricularia* genus have a global distribution affecting mostly monocotyledenous plants, the most important being *P. oryzae*, the pathogen responsible for Rice Blast.

Host Range:

P. angulata is known to be pathogenic only on banana plants in the genus *Musa*.

Impact:

In far north Queensland, banana blast thrives in the warm, moist conditions found in nurseries where plants are in very close proximity to each other and sequential plantings ensure a constant source of host material. These conditions are ideal for banana blast outbreaks. Once transplanted to the field, disease symptoms don't develop further. Less favorable conditions for disease development and the fungicide programs used for the control of yellow Sigatoka most likely control banana blast.

In Southeast Asian and Central American countries, *P. angulata* affects plants at all growth stages. The most serious symptom is pitting disease of fruit, which leads to economic losses both in the field and as a post-harvest disease.

Key Distinguishing Features:

On leaves, lesions start as small, light tan coloured spots 1 mm in diameter that develop into circular or elliptical tan coloured spots 3-4 mm in diameter with a yellow margin. Mature lesions are brown in colour, 8-10 mm in diameter with a slightly darker margin and zonate appearance (Fig. 1b). Adjacent lesions coalesce to produce large areas of necrotic tissue. On fruit, pits first appear as faint, reddish-brown circles 2-4 mm in diameter with a narrow water-soaked halo. The centre remains green. After 48 hours, the centre darkens and becomes depressed. Lesions may then grow up to 10 mm in diameter. In culture, denticulate conidiophores and 2-septate conidia are key features (Fig. 1d,e).

Control:

Cultural controls include reducing humidity and plant density in the glasshouse. Good crop hygiene in the field reduces inoculum, which is found in hanging banana trash.

Further Reading:

Bussaban *et al.* (2005) *Mycologia* **97**, 1002-1011.
Hashioka (1971) *Trans Mycol Soc Japan* **12**, 126-135.
Hoette (1936) *Proc Roy Soc Vic* **48**, 90-95.
Kim *et al.* (1987) *Korean J Plant Pathology* **3**, 114-119.
Meredith (1963) *Ann Appl Biol* **52**, 453-463.
Male *et al.* (2011) *Australasian Plant Disease Notes,* DOI: 10.1007/s13314-011-0008-8

Key Contacts: Mike Male, DEEDI. Ph: 07 4064 1157; Lynton Vawdrey, DEEDI. Ph: 07 4064 1132.