Pathogen of the month – August 2008

AUG08

Hymenochaete semistupposa Petch

Fig. 1. Incipient rot and white pocket rot caused by *Hymenochaete semistupposa;* incipient rot in regrowth karri (a); white pocket rot in regowth karri (b); basidiomes (c); setae (d); details of hymenium, scale bar = 10µm (e).
Photo credits E. Davison (a, b & e) and R. Robinson (c & d).

Disease: Incipient rot and white pocket rot of karri (*Eucalyptus diversicolor*)
Classification: K: Fungi, D: Basidiomycota, C: Homobasidiomycetes, O: Hymenochaetales, F: Hymenochaetaceae

Hymenochaete semistupposa (Fig. 1) is a widespread, but inconspicuous native fungal pathogen. It has a Gondwanan distribution, having been recorded from Australia, New Zealand, Indian sub-continent, Africa (South Africa, Kenya), South America (Argentina, Chile) and the Pacific (Hawaii). The basidiomes are usually produced on dead wood, and are associated with an underlying white pocket rot. Pathogenicity tests on regrowth karri (*Eucalyptus diversicolor*) trees have shown that *H. semistupposa* is not just a saprophyte, it can vigorously colonise the heatwood of live trees, initially causing incipient rot. Incipient rot develops into white pocket rot several years later.

Host Range:

H. semistupposa occurs on many genera of Myrtaceae (*Eucalyptus* spp., *Metasideros* spp.), but has also been recorded on *Banksia grandis*, *Acacia melanoxylon* and *Allocasuarina decussata.*

Key Distinguishing Features:

The resupinate basidiomes are frequently formed on the underside of logs, or under loose bark on dead trees. Basidiomes form circular, ellipsoidal or irregular patches up to 100 x 60 mm. When fresh the hymenial surface is dark brown with a light brown to orange margin. Dark brown, fusiform or subulate non-ornamented setae protrude from the hymenium, giving the fertile surface a velvety appearance. The hyphal system is monomitic. Basidiospores are hyaline, elliptic to oblong, 4 x 2 µm. Basidia are hyaline, 9-14 x 3-4 µm, paraphyses are hyaline, narrow (1 µm) originating below the basidia and extending above the hymenium.

Impact:

Incipient rot and white pocket rot are an important emerging problem in regrowth eucalypts. Wood affected by white pocket rot is unacceptable to the sawmilling industry. Wood affected by incipient rot is less durable than unaffected wood. Sawmill surveys of regrowth karri have shown that 77% of sawlogs are affected by incipient rot, a much higher incidence than in logs from virgin stands. These symptoms are already present in 12-year-old trees; the most dominant trees are the worst affected.

Options for management:

Wood rot fungi only infect through wounds. Surveys have shown that the most common infection point is branches, followed by borer galleries and basal scars caused by fire and armillaria. Control measures need to concentrate on reducing entry points, such as by using stocking density to manipulate branch size and persistence or controlling armillaria before replanting.

Further Reading:

Davison EM and Tay FCS (2008) Causes of incipient rot and rot in regrowth *Eucalyptus diversicolor* (karri) trees. *Plant Pathology* 57, in press. (doi: 10.1111/j.1365-3059.2008.01898.x)
Donnelly DJ and Davison EM (2008) Comparison of the occurrence of rot in sawlogs from regrowth and mature stands of *Eucalyptus diversicolor* (karri). *Australian Forestry* 71, 27-32.

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