

FOREST PEST SPECIES PROFILE



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Chrysosporthe cubensis (Bruner) Gryzenhout & M.J. Wingfield

Other scientific names:

Order and Family: Ascomycota: Incertae sedis

Common names: *Eucalyptus* canker; *Eucalyptus* canker disease

Chrysosporthe cubensis (previously named *Cryphonectria cubensis* (Bruner) Hodges) is a widespread fungus well known for the canker disease it causes, particularly in *Eucalyptus* species. The cankers result in limb and trunk breakages, stunted and distorted growth, and often mortality. This is a very important disease in eucalypt plantations as it is known to kill significant numbers of trees, particularly those in young plantations, and as a result it is a major constraint to the successful establishment of eucalypt plantations.



Fruiting bodies of *Chrysosporthe cubensis* - perithecia embedded in and protruding from bark removed from cankered tissues of *Eucalyptus grandis* (Photo: E.L. Barnard, Florida Department of Agriculture and Consumer Services, Bugwood.org)

DISTRIBUTION

The geographic origin of this pathogen is unknown. The original host is thought to be clove (*Syzygium aromaticum*) which is native to Indonesia (Myburg, Wingfield and Wingfield, 1999). However, others have suggested that *C. cubensis* is native to South and Central America based upon its wide occurrence in the region, its high phenotypic diversity in various South America countries and the discovery of this pathogen on native *Miconia* species in Colombia (Gryzenhout *et al.*, 2006).

It is found throughout tropical and subtropical regions of the world including Brazil, Colombia, Cuba, Mexico, Suriname, Venezuela, US (Florida, Hawaii, Puerto Rico), Cameroon, Democratic Republic of Congo, Republic of Congo, Tanzania (Zanzibar), Australia, China, India, Indonesia, Malaysia, Singapore and Western Samoa (Gryzenhout *et al.*, 2004).

IDENTIFICATION

Detailed descriptions of the morphology of *Chrysosporthe cubensis* can be found in Gryzenhout *et al.* (2004) and Myburg *et al.* (2004).

Conidiomata of *Chrysosporthe cubensis* occur separately or on the top of an ascostroma and are distinguishable from ascomata by their pyriform shape, attenuated necks, conidiomatal locules and distinct stromatic tissue (Gryzenhout *et al.*, 2004). They are generally superficial, black, pyriform to globose with attenuated necks (Gryzenhout *et al.*, 2004; Myburg *et al.*, 2004). Conidiophores are hyaline and consist of a globular to rectangular basal cell that branches irregularly at the base or above into cylindrical cells (Gryzenhout *et al.*, 2004). Conidia are hyaline, non-septate, oblong, and secreted as bright spore tendrils or droplets (Gryzenhout *et al.*, 2004).

Ascomata are semi-immersed in the bark and are recognizable by extending, fuscous-black, cylindrical perithecial necks (Gryzenhout *et al.*, 2004; Myburg *et al.*, 2004). Ascstroma stand 120–230 µm above the level of bark and are 280–490 µm in diameter (Gryzenhout *et al.*, 2004). Ascospores are fusoid to oval with a septum that is usually central and tapered apices (Gryzenhout *et al.*, 2004; Myburg *et al.*, 2004).

HOSTS

Species from the Myrtaceae, Melastomataceae and Lythraceae families including *Syzygium aromaticum*, *Melastoma malabathricum*, *Lagerstroemia indica*, *Clidemia sericea*, *Rhynchanthera mexicana*, *Psidium cattleianum* and species of *Eucalyptus*, *Tibouchina* and *Miconia*.

BIOLOGY

Chrysosporthe cubensis infects trees through wounds, particularly at the bases of young trees. The most common method of infection is believed to be through asexual spores that are dispersed by rain splash although wind disseminated sexual spores are also common (TPCP, 2002b). Infection is favoured by warm temperatures and rainfall (Myburg, Wingfield and Wingfield, 1999). Lesions expand more rapidly in plants that are well-watered than in those where the soil or climate is relatively dry (Sinclair and Lyon, 2005).



Symptoms and damage caused by *Chrysosporthe cubensis* on *Eucalyptus grandis* - bark fissures at the base of infected tree (L) and advanced canker development (R).

(Photo: E.L. Barnard, Florida Department of Agriculture and Consumer Services, Bugwood.org)

SYMPTOMS AND DAMAGE

Chrysosporthe cubensis causes a canker disease which results in girdling of stems, limb and trunk breakages, stunted and distorted growth, wilting and often mortality (Gryzenhout *et al.*, 2004; Nakabonge *et al.*, 2006). This is a very important disease in eucalypt plantations as it is known to kill significant numbers of eucalypts, particularly those in young plantations. The cankers can be found at the bases of hosts or higher up on the trunks (Nakabonge *et al.*, 2006).

DISPERSAL AND INTRODUCTION PATHWAYS

The movement of infected plants and trees can spread the pathogen to new areas.

CONTROL MEASURES

Breeding for disease-tolerant eucalypt hybrids has been successful in managing the disease caused by *Chrysosporthe* spp. in some countries, such as Brazil and South Africa (Nakabonge *et al.*, 2006). Planting of disease tolerant eucalypts, and avoiding planting in high risk areas, can help reduce losses in plantations (TPCP, 2002b).

References

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