1. PaDIL Species Factsheet

Scientific Name:
*Cryphonectria parasitica* (Murrill) M.E. Barr
Ascomycetes

Common Name
Chestnut blight

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- Department of Agriculture, Water and the Environment
- Department of Primary Industries and Regional Development, Western Australia
- Plant Health Australia
- Museums Victoria
2. Species Information

2.1. Details

**Specimen Contact:** Dr Jose R. Liberato - jose.liberato@nt.gov.au  
**Author:** Liberato JR & Robin C  
**Citation:** Liberato JR & Robin C (2006) Chestnut blight (*Cryphonectria parasitica*) Updated on 7/28/2016  
Available online: PaDIL - http://www.padil.gov.au  
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2.2. URL

Live link: http://www.padil.gov.au/pests-and-diseases/Pest/Main/136620

2.3. Facets

**Status:** Exotic Regulated Pest - absent from Australia  
**Group:** Fungi  
**Commodity Overview:** Horticulture  
**Commodity Type:** Pome fruits  
**Distribution:** USA and Canada, Europe and Northern Asia, Africa, South and South-East Asia

2.4. Other Names

*Diaporthe parasitica* Murrill  
*Endothia gyrosa var. parasitica* (Murrill) Clinton  
*Endothia parasitica* (Murrill) P.J. Anderson & H.W. Anderson  
*Valsonectria parasitica* (Murrill) Rehm.

2.5. Diagnostic Notes

**Symptoms**
The fungus enters wounds, grows in and under the bark and eventually kills the cambium all the way around the twig, branch, or trunk (Anagnostakis 2000). The first symptom is a small orange-brown area on the bark of the stem or branches. Later sunken cankers form and the bark may crack. Yellowish to orange stromata containing conidiomata break through the bark. Distinctive yellow tendrils (cirrhi) of conidia extrude from the stroma in wet weather. Perithecia may be formed on the same stroma. Stromata may reach densities of 50 per cm² on American chestnuts. The canker expands around the circumference of the stem or branch resulting in wilting and death of the branch above the canker (Crop Protection Compendium 2005).

**The fungus:**
“Stromata scattered, often confluent, at first immersed in the periderm, becoming erumpent, valsoid, yellow to yellowish brown, prosenchymatous, composed of loose weft of hyphae in the upper part and hyphae mixed with substrate cells in the lower region, up to 3 mm wide and 2.5 mm high. Perithecia grouped, more or less oblique, globose to depressed globose, up to 400 μm broad with dark brown to black, cylindrical, ostiolar beak converging through the stromatic disc and exposing the papilla at the surface with the pore lined on the inside by hyaline, filiform, periphyses; beaks up to 900 x 200 μm. The perithecial wall is composed of hyaline to subhyaline, pseudepaprenchymatous cells towards the outside and hyaline, elongated, more or less rectangular cells towards the inside. The neck is composed of vertically elongated, dark brown cells. Asci
clavate to clavate cylindrical, thin walled, unitunicate, 8 spored, 32—55 x 7—8.5 µm, with a non-amyloid apical apparatus, loosening from the hymenium and freely floating in the centrum cavity. Ascospores irregularly biseriate in the ascus, hyaline, one septate, not or very slightly constricted at the septum, elliptic, usually straight, rounded at the ends, 7—12 x 3—5.5 µm. Conidiomata pseudostromatic, immersed, erumpent, separate or aggregated, yellow to yellowish brown, globose, pulvinate, unilocular or complex and multilocular or convoluted, variable in size up to 300 µm wide, with one ostiole. The wall is composed of subhyaline to pale brown, pseudoparanchymatous cells and between locules the cells are somewhat elongated. Conidiophores branched, septate, hyaline, smooth, up to 60 µm long, 1.5 µm wide, formed from the cells lining the conidiomatal cavity. Conidiogenous cells enteroblastic, phialidic, determinate, integrated, terminal or lateral, usually below a septum, hyaline, tapering at the apex with an indistinct channel and collarette. Conidia hyaline, one celled, ellipsoidal, to somewhat bacilliform, 3—5 x 1—1.5 µm" (Sivanesan & Holliday 1981).

The EPPO (European and Mediterranean Plant Protection Organisation) Standards on Diagnostics describes identification techniques for this pathogen (Jurc & Turchetti 2005).

2.6. References


2.7. Web Links

3. Diagnostic Images

Cracked bark due Cryphonectria parasita infection (copyright, for reproduce copies email robin@bordeaux.inra.fr).
**Host symptoms - stem**: Cécile Robin INRA

Yellowish to orange stromata of the C. parasitica breaking through the bark (copyright, for reproduce copies email robin@bordeaux.inra.fr).
**Host symptoms - stem**: Cécile Robin INRA

Mycelial fans under the stem bark (copyright, for reproduce copies email robin@bordeaux.inra.fr).
**Host symptoms - stem**: Cécile Robin INRA
Stained asci.
**LM:** J.R. Liberato DPI&F

Ascus (top) and ascospores.
**LM:** J.R. Liberato DPI&F

Ascospores (stained ascospores at the top).
**LM:** J.R. Liberato DPI&F

Asci.
**LM:** J.R. Liberato DPI&F

Orange stromata of *C. parasitica* emerging through bark of canker on twig of *Castanea crenata*.
**Stereo microscope:** J.R. Liberato DPI&F

Orange stromata of *C. parasitica* emerging through bark of canker on twig of *Castanea crenata*.
**Stereo microscope:** J.R. Liberato DPI&F
Orange stromata of *C. parasitica* emerging through bark of canker on twig of *Castanea crenata*.

**Stereo microscope**: J.R. Liberato DPI&F

Orange stromata of *C. parasitica* emerging through bark of canker on twig of *Castanea crenata* (the dark dots within the stromata are the ostiolar beaks of the perithecia).

**Stereo microscope**: J.R. Liberato DPI&F

Orange stromata of *C. parasitica* emerging through bark of canker on twig of *Castanea crenata*.

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