Horticulture Diagnostic Laboratory

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Cenangium Canker

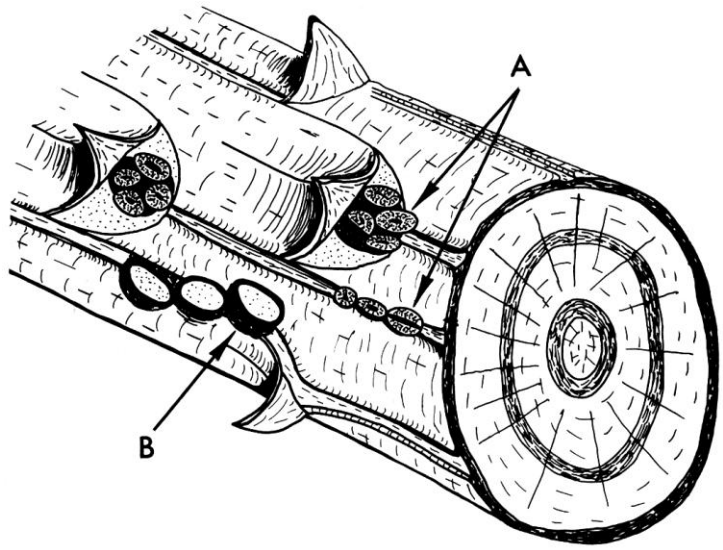

Illustration of the fruiting bodies of *Cenangium ferruginosum* on a pine twig; (A) closed cups when dry: (B) open cups as they appear after hours of exposure to rain or fog. The branch is approximately ¼ inch in diameter. (Illustration from *Cenangium Canker of Pines*. George W. Hudler, Associate Professor Plant Pathology. Cornell University. 10/77.

Introduction: *Cenangium* canker (caused by *Cenangium ferruginosum* and *C. atropurpureum*) is a fungus disease commonly found on most species of pine and on some spruce and fir species. Usually, the disease occurs on lower, shaded branches of mature trees and actually aids tree growth by removing essentially non-functional branches. The fungus also plays a role in rotting dead pine debris and promotes the return of minerals and nutrients to the soil. Occasionally pines stressed by drought, wounding, extremely cold weather, or other factors, will suffer twig and/or branch dieback from the infection by *Cenangium.* The disease occurs sporadically, usually once every several years. If the disease occurs yearly on the same tree, a chronically stressful site is likely.

Symptoms: The disease has several diagnostic features. A sharp boundary between brown, dead bark and living tissue exists. Needles brown from the bases toward the tips and are often cast during the summer after the affected branch has died. Little or no resin is produced on infected tissue. Dark staining does not occur (*Atropellis* canker) nor does yellow-green discoloration (*Scleroderris* canker).

Fig. 1. Apothecia (more or less closed) on a Scots pine twig. (Petr Kapitola, State Phytosanitary Adminitration, www.Bugwood.org)

Disease Cycle: Infection by the fungus can take place anytime between mid-July and mid-September. Spores of the fungus are expelled during wet weather and must land and germinate in a wounded portion of a twig or branch. Germinating spores cannot penetrate directly through intact bark, and infection through needles is not known to occur. In the summer following that of infection, infected branches are girdled by the fungus and die. Browning of needles associated with branch death may occur rapidly with the onset of hot, dry weather in early summer.

Fruiting occurs 2-4 weeks after branch death and is evident by the appearance of clusters of small (1/16 inch diameter), cup-like structures in bark crevices and other openings (**Fig. 1**). When dry,

Fig. 2. Open apothecia on a Scots pine twig after keeping it moist. (Petr Kapitola, State Phytosanitary Adminitration, www.Bugwood.org)

the structures are light brown and shriveled, but upon wetting they open to expose an orange inner surface characteristic of the fungus (**Fig. 2**). Spores produced in these fruiting bodies are wind-disseminated to new sites of infection.

Management Strategies: At present, there are no chemicals registered or recommended for management of *Cenangium* canker. Dead branches should be pruned and buried, burned, or composted. The combination of environmental factors necessary for severe disease incidence occurs rarely.

Reprinted from *Cenangium Canker*. The Plant Disease Clinic. Cornell University. Created, KLS, 8/99

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