

9. Passalora Blight

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Hosts

Passalora blight (Cercospora blight), caused by *Passalora sequoiae* (syn. *Cercospora sequoiae*), is associated with several members of the cypress family (*Juniperus*, *Cupressus*, *Chamaecyparis*, *Thuja*, *Cryptomeria*) and the bald cypress family (*Taxodium*, *Sequoia*, *Sequoiadendron*). Nursery seedling infection by *P. sequoiae* has been reported on eastern redcedar, giant sequoia, cypress, and bald cypress. A similar disease on cypress and junipers, also commonly known as Passalora blight, is caused by *Pseudocercospora juniperi* (syn. *Cercospora sequoiae* var. *juniperi*).

Distribution

Both fungi that produce Passalora blight have wide distribution in the Southern and Midwestern United States. *P. sequoiae* also has been reported from the West Coast and Hawaii.

Damage

Damage to seedlings in the nursery by both fungi varies from very light to almost complete defoliation. In southern forest nurseries, *P. sequoiae* has caused serious damage to eastern redcedar; while in the North Central States, *P. juniperi* has been a more significant problem on Rocky Mountain juniper in windbreaks and other plantings. No information is available on infected seedling survival and growth rates after outplanting; however, Passalora blight is likely to continue to develop in the field on seedlings infected in the nursery. The danger of introducing the fungus into new areas exists if infected seedlings are outplanted.

Diagnosis

Seedling foliage with Passalora blight becomes brown along the stem and on the lower branches. The disease continues to develop upward and outward until only the upper branch tips remain green on severely infected seedlings (fig. 9.1). This damage pattern differentiates Passalora blight from the more common Phomopsis blight on juniper (see chapter 12) where the disease develops from the tips of the branches inward.

The fruiting structures of both fungi are very similar. Dark brown pustule-like structures, or stromata, develop on needles shortly after they turn brown, and are easily visible with a hand lens. The stromata are

50 to 115 microns in diameter for *P. sequoiae* and 60 to 200 microns in diameter for *P. juniperi*. Yellow-brown to brown conidiophores protrude from the stromata, forming a compact layer over the surface. The conidiophores are geniculate (bent abruptly; knee shape) and are 50 to 125 by 4 to 6 microns for *P. sequoiae* and 20 to 45 by 3 to 5 microns for *P. juniperi* (fig. 9.2). The two fungi can be distinguished by their conidial characteristics. *P. sequoiae* spores are yellow-brown, cylindrical, slightly tapering, mostly 5 to 6 septate, echinulate (prickles) and average 40.5 by 5.4 microns (fig. 9.3). *P. juniperi* spores are olive-brown, cylindrical, mostly 5 to 6 septate, slightly echinulate, and average 40.8 by 3.1 microns.



Figure 9.1—*Passalora blight* symptoms on eastern redcedar. Photo courtesy of the University of Wisconsin.

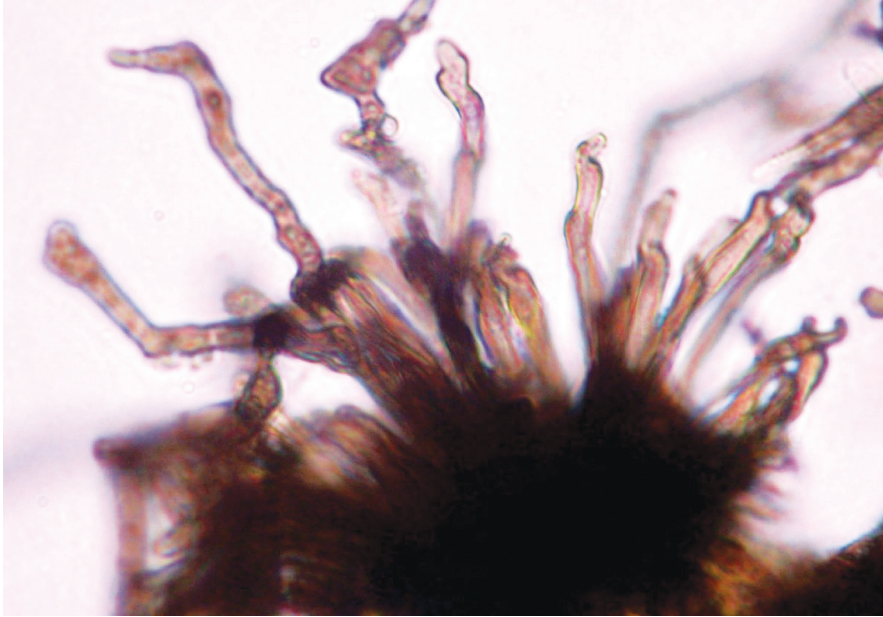


Figure 9.2—Conidiophores of *Passalora sequoiae*. Photo by Charles S. Hodges.

Biology

Initial infection of first-year nursery seedlings usually comes from older infected plants in the nursery or from infected nearby windbreaks or landscape plantings of susceptible hosts. Spring inoculum is produced from fungal



Figure 9.3—Conidia of *Passalora sequoiae*. Photo by Charles S. Hodges.

structures that overwintered on needles of infected trees or seedlings. Disease symptoms develop within 2 to 3 weeks, and fruiting bodies form after the foliage turns brown. The resulting conidia are spread primarily by wind. Production of conidia and new infections can occur throughout the spring and summer. Wet weather and moderate temperatures favor disease development.

Control

Prevention

Do not use known hosts of the two fungi as windbreak or landscape plants in or near the nursery. If known-host plants are present, remove any that are infected. Variation in resistance to *P. juniperi* among genotypes of eastern redcedar and Rocky Mountain juniper has been reported. In general, eastern redcedar has been found to be more resistant to

P. juniperi than Rocky Mountain juniper. If available, use seed sources resistant to Passalora blight.

Cultural

Use irrigation early in the morning to promote rapid drying of foliage. After a disease outbreak or lifting, incorporate residual seedlings and debris into the soil to reduce spring inoculum.

Chemical

Fungicides labeled for use in forest nurseries against leaf or needle diseases on conifers can be used to reduce infection and spread of Passalora blight. A standard spray schedule may be necessary throughout the growing season to control this disease in some areas.

Selected References

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