

DISEASES OF ITALIAN CYPRESS AND RELATED SPECIES IN TEXAS

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Many distinctive trees in the conifer family Cupressaceae are popular choices for Texas landscapes: bald cypress (*Taxodium* spp.), junipers (*Juniperus* spp.), arborvitae (*Thuja* spp.), and cypress (*Cupressus* spp.).

Most popular among the cypresses are Italian cypress (*C. sempervirens*), Arizona cypress (*C. arizonica*), and Leyland cypress (*x Cupressocyparis leylandii*). Their unique pyramid and column-like shapes make them attractive for hedges and windbreaks or as individual, well-placed landscape specimens. With fertile, moist, but well-drained soils and full sunlight, these drought-hardy trees will provide beauty and contrast to the landscape for decades. However, with their increasing use in recent years, several diseases have emerged that limit their lifespan in Texas landscapes.

DISEASES

Cankers Seiridium Canker

Cause

Seiridium canker is one of the most common cankers in Texas, usually on the increasingly popular Italian cypress, but also on juniper and arborvitae. The pathogen is a fungus—either *Seiridium unicorne* or *S. cardinal* (Fig. 1)—that infects the inner bark of trees, causing dead lesions (cankers) on branches and trunks. The pathogen enters a tree via a wound through the bark. Freeze damage, hail, insect feeding,



Figure 1. Microscopic view of *Seiridium* sp. spores/conidia. (Source: Sheila McBride)

mower damage, pruning cuts, weed-eater damage, wind damage, and other sources of wounds all help to increase the likelihood of infection.

Symptoms

The first symptoms are isolated, dead branches (Fig. 2). As the disease progresses, more of these “flags” occur throughout the tree because of fungus spores dispersed during wet, rainy, and windy conditions. Distinct, sunken, necrotic (dead) lesions can occur along with the dead branches, sometimes with gummy, resinous exudates leaking out of the surface (Fig. 3). As the cankered areas continue to spread from a branch into the trunk, they may eventually girdle and kill entire portions of the upper crown. If conditions are conducive to disease development, the entire tree can die over 3 to 5 years.



Figure 2. Dead and necrotic branches on Italian cypress. (Source: Sheila McBride)



Figure 3. Italian cypress trunk with resinous exudate. (Source: Sheila McBride)

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Management

Cypresses are drought-tolerant and grow best on well-drained soils. Clayey, poorly drained soils are particularly damaging to them and will predispose them to infection. But, any environmental conditions that stress the tree can make it unable to resist infection. Choose other trees to plant on sites unsuitable for growing cypresses.

Prevent infections by planting trees on proper soil types, watering judiciously during periods of drought, and avoiding wounds. Use remedial pruning on dying and dead branches to delay disease progress and destroy or discard all pruned materials. Between pruning different trees or making cuts within diseased trees, clean the pruning tools with a solution of 10 percent household bleach. There are no direct chemical controls for seiridium canker.

Botryosphaeriacanker (Bot canker)

Cause

The fungus *Botryosphaeria stevensii* causes botryosphaeria canker. In addition to Italian cypress, it occurs on eastern redcedar and other junipers. In many respects, bot canker is similar to seiridium canker. Wounds in trees increase the incidence and severity of bot canker, and, unlike seiridium canker, bot canker disease may occur on vigorously growing trees.

Symptoms

The flattened cankers are sometimes difficult to see. Expose them by scraping the bark from the surface to reveal the dead, brown tissue in the infected lesion; healthy tissue will be white under the bark surrounding the canker margins. Patterns of branch and trunk dieback are the same for both bot and seiridium canker diseases (Fig. 4).



Figure 4. *Botryosphaeria* canker on *Juniperus deppeana*.
(Source: John Ruter, University of Georgia, Bugwood.org.)

Microscopic examination of diseased tissues to identify the typical fungal fruiting bodies and spores may be necessary to distinguish the two different pathogens.

Management

There are no chemical controls for bot canker; pruning and sanitation are the only measures available for minimizing disease progress.

Foliar problems

[*Cercospora* blight]

Cause

Cercospora needle blight, caused by the fungus *Passalora sequoia* (formerly *Cercospora sequoia*) is a problem on Arizona cypress, arborvitae, and other cypresses. Eastern redcedar (*J. virginiana*) is resistant to *Cercospora* blight.

Symptoms

The symptoms begin in mid-to-late summer in the older scale needles located on the branches closest to the main trunk. These leaves turn dull green and brown and fall off during the following months. Defoliation proceeds for a few years from the inner part of the branches to the tip until the branch dies. Infected trees develop thin, spindly canopies, with symptoms often starting in the lower crown and moving



Figure 5. *Cercospora* needle blight, *Passalora sequoia* on oriental arborvitae.
(Source: Florida Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Bugwood.org.)

upward toward the tree top (Fig. 5). Wet, rainy weather that splashes the spores throughout the canopy encourages infections and can eventually kill the tree. The pathogen spreads more quickly and is more severe when trees are planted in tight groups. These conditions impede air circulation that helps to dry foliage.

Management

Treat *Cercospora* blight with copper-based fungicides and other types of commercially available fungicides. Valuable plantings may warrant the use of chemical controls, applied promptly upon proper diagnosis of the disease. Multiple applications may be necessary during the summer, particularly during rainy periods. In Texas, begin applications in May and continue them every 2 to 3 weeks as long as conditions are conducive to disease development.

(Phomopsis blight)

Cause

The fungus *Phomopsis juniperovora* causes phomopsis blight. It is more common on eastern redcedar, although some true cedars (*Cedrus* spp.) and arborvitae (*Thuja* spp.) are also predisposed.

Symptoms

Unlike *Cercospora blight*, new, young needles on the ends of the branch are more susceptible (Fig. 6), causing branches on trees with phomopsis blight to die from the tip to the base. Needles turn light green, followed by red-brown, dead shoots that finally turn ash gray. Under a hand lens, the typical black fruiting bodies of the fungus look like small, black pimples embedded in the dead tissues (Fig. 7). The pathogen grows through the infected needles on the young shoots and eventually advances to the main stem where major portions of the canopy may be girdled and die. These symptoms, sometimes described as tip blight, may begin in the spring and progress all summer.

Management

Because phomopsis blight can be particularly damaging in commercial nurseries, there are important management protocols based on regular use of fungicides, removal of diseased plants, and judicious watering to avoid wet, humid conditions and overhead irrigation. In landscape specimens, remedial pruning of diseased tips and branches during dry weather might sufficiently manage



Figure 6. Phomopsis blight on eastern redcedar. (Source: Robert L. Anderson, USDA Forest Service, Bugwood.org.)



Figure 7. Close-up view of *Phomopsis juniperovora* fruiting bodies on redcedar. (Source: Robert L. Anderson, USDA Forest Service Bugwood.org.)

the disease. Fungicides control the disease in highly valuable landscape specimens.

Other tip blights

Cause

Several fungal pathogens cause progressive dieback of the outer twigs and branches, mostly on junipers, including *Kabatinia juniper*, *Sclerophoma pythiophila*, and *Seimatisporium berckmansii* (*Berckmann's blight*). Although they rarely damage mature trees, they can be serious on young trees and nursery plants.

Symptoms

As with many of the foliar diseases, symptoms normally appear first on the lower portions of the canopy because the fungi that cause them produce spores on the dead twigs lying on the ground beneath the tree. Over time, infections work up through the tree, causing progressive branch dieback, and potentially killing the tree.

Management

Regularly rake and destroy or discard all dead needles (leaves), twigs, and branches. Prune the same types of materials from the tree as well. When moving between trees, clean the pruning tools with a 10 percent solution of household bleach. Unlike phomopsis blight, there are no chemical products available for treating these other tip blights.

Root diseases

Phytophthora root rot – *Phytophthora cinnamomi*

Cause

A soil-inhabiting, fungal-like organism (an oomycete), *Phytophthora cinnamomi*, causes phytophthora root rot. This pathogen increases in soils that retain high soil moisture levels for days because of overwatering, poor drainage, or both.

Symptoms

Phytophthora rots small feeder roots so the tree cannot supply the canopy with the necessary water and nutrients it needs to grow and survive. As a result, portions of the crown turn a pale green or yellow that eventually progresses to brown over a few weeks (Fig. 8). The branches and leaves eventually become dry and brittle. Removing the bark at the base (crown) of the lower portion of the trunk reveals a distinct line of necrotic (brown), dead tissue. This necrosis (death) occurs when infection kills the feeder roots and the pathogen grows up through the larger roots, eventually

reaching the base of the tree. The roots will be brown and rotted. Spatially, in the landscape, the mortality appears to spread from one plant to adjacent ones, forming clusters of diseased trees (Fig. 8).



Figure 8. Phytophthora root rot on *leland* cypress.
Source: John Ruter, University of Georgia, Bugwood.org.

Management

Cultural practices such as supplying proper drainage and reducing irrigation reduces soil moisture and environments conducive for the growth of the pathogen. Commercially available fungicides labelled for use on phytophthora in the landscape also control root rot on Italian cypress.

Extension Plant Pathology:
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