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Seiridium canker of Junipers and Cypress

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Over the past several months the Oklahoma State University Plant Disease and Insect Diagnostic Laboratory has received several samples of Leyland cypress and eastern red cedar with a mysterious "flagging" and tip dieback of limbs (Fig. 1). Homeowners report that they notice a single (or several limbs) displaying these symptoms, and in a short time (several weeks to a month) many more limbs on the tree become symptomatic. Upon closer examination of the symptomatic limbs near the region of active dieback (the point where green plant material interfaces with brown dead material) active cankers are generally found. Cankers are depressions or open wounds in the bark. Actively expanding cankers associated with this disease often exude resin (Fig. 2). Microscopic examination of these active cankers has revealed fungal fruiting structures (pycnidia) containing spores (condia) of the fungus causing the disorder (Fig. 3). Based on spore structures, we have identified the fungus causing the canker disease as *Seiridium unicorne*. Seiridium canker caused by *Seiridium spp.* has been identified in other regions of the United States, including Texas and Kansas, and Europe. To our knowledge this is the first report of the disease in Oklahoma.

Fig. 1. Typical dieback symptom of an infected Leyland cypress limb.

Fig. 2. An active canker caused by infection of Leyland cypress by *Seiridium unicorne.* Note the resin production in the open canker region.

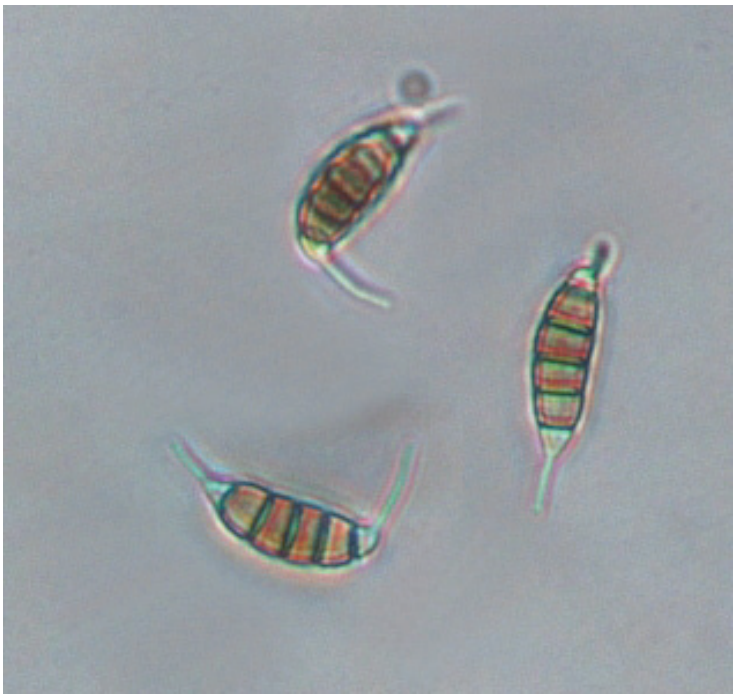

Fig. 3. Photomicrograph of the spores (conidia) of the fungus *Seiridium unicorne.*

Seiridium cankers are caused by three species of fungi in the genus *Seiridium.* In Oklahoma we have only identified *Seiridium unicorne.* Seiridium canker has been reported as a major problem on arborvitae; baldcypress; cypress (Arizona, Italian, and Leyland); and to a lesser extent, junipers in other parts of the country. Hosts reported as resistant include Japanese cedar (*Cryptomeria japonica*) and Sierra juniper (*Juniperus occidentalis*). On susceptible hosts, infection usually results in a lens shaped canker as described above. As the cankers expand they can girdle the twig, branch, or stem upon which they are found. Resin production within cankers is common. However, in older trees or slowly growing trees, resin production may not occur. Often fungal fruiting structures are found in mature cankers and spores can be identified with a microscope (Fig. 3). Aggressive strains of the pathogen can kill a small tree rather quickly

(less than a year). On larger trees, death of the tree may take several years. Symptoms can be more severe in trees already stressed by drought or lack of available nutrients.

Spores of the fungus overwinter in bark tissue. During wet weather spores are released and spread to new hosts or previously uncolonized tissue. Trees that are stressed from winter injury or drought are typically more prone to infection. Spores can be dispersed locally through simple splashing or runoff of water. Transmission of the pathogen has also been noted by use of contaminated pruning tools and movement of infested seed or planting stock. Spores can survive very dry periods or unfavorable conditions and remain viable for more than a year. While spore dispersal and infections occur during wet periods, symptom development is often noticed during dry and hot periods when the plant is stressed.

There are no chemical control measures for Seiridium canker. Management of the disease is focused on planting resistant hosts in areas with a history of Seiridium canker. Preventing stress to trees is also recommended by supplying supplemental water during dry periods and maintaining proper plant nutrition. Plants that are not stressed will be less prone to infection by the pathogen. Pruning cankered limbs and destroying them can help limit spread of the pathogen to other portions of the plant. Severely affected plants should be removed from the landscape to limit spread to other susceptible hosts in the area.

LITERATURE CITED

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