

52. Kabatina Tip Blight of Junipers

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Eastern redcedar and Rocky Mountain juniper, native to the Great Plains, are important trees in windbreak, wildlife, and landscape plantings. Branch tips of both tree species have been damaged by the fungus, *Kabatina juniperi*.

Hosts and Distribution

Inoculation studies and observations by European workers indicate that, in addition to infecting *Juniperus virginiana* and *J. scopulorum*, the fungus may infect many other junipers including *J. depeana*, *J. squamata*, *J. chinensis*, *J. communis*, *J. sabina*, and *J. horizontalis*. *Kabatina juniperi* was found recently on ornamental junipers in Ontario. In the United States, the fungus has been found in Nebraska, Indiana, Wisconsin, New Jersey, New Hampshire, and Maine, and is probably more widespread.

The closely related *Kabatina thujae* is a pathogen of *Thuja*, *Chamaecyparis*, and *Cupressus*. Some consider the two fungi similar enough to be the same species, referring to the juniper pathogen as *K. thujae* var. *juniperi*. Further studies of isolates from both Europe and North America are needed to clarify the taxonomy of the genus.

Symptoms and Signs

Symptoms of infection become apparent in early spring, before shoot growth begins. When healthy

juniper foliage loses its winter coloration and turns green, diseased foliage turns yellow-brown (fig. 52-1). The discolored portion of infected branch tips averages about 5 inches long in eastern Nebraska. Small, black fruiting bodies called acervuli are usually present in a sunken grayish area at the base of the discoloration (figs. 52-2, 52-3).

The rounded to ellipsoidal fruiting bodies may be found beneath the host epidermis as early as February. They break through the host epidermis beginning in March, and are numerous in April and May; numbers decrease throughout the summer. Occasionally acervuli can be found in September and October.

Conidia are produced successively at the tips of tapered spore-bearing cells that cover the surface of the acervulus (fig. 52-4). The conidia (4.5–8 μm by 2.3–3 μm) are hyaline, ellipsoid, and unicellular. The presence of conidia and spore-bearing cells results in a granular appearance of the surface of the acervulus (fig. 52-3).

Disease Cycle

K. juniperi enters plants through wounds. Many insects are known to feed on the foliage and branches of junipers, including larvae of species of *Dichomerus* and *Contarinia*. These insects make wounds through which the fungus could infect the trees.

In Nebraska, symptoms on naturally infected junipers



Figure 52-1. Branches of eastern redcedar infected with *Kabatina juniperi*. Note the discoloration and dieback of the branch tips.



Figure 52-2. Base of discolored zone of infected eastern redcedar branch. Note the numerous small, dark acervuli.

appear in the spring on tissues produced the previous year. This occurrence, plus the absence of acervuli during the winter, suggests that infection occurs during the previous growing season. The fungus, which can survive cold temperatures, probably overwinters within the branchlets.

The fungus can be grown in culture. Colony characteristics vary with isolate and medium, but colonies are usually flat, dark, and sometimes have sparse aerial mycelium. Spores are produced on denticles (tooth-like projections) on the sides of vegetative hyphae. Large numbers of spores form mucoid masses on the colony surface.

The optimum temperature for both germination and growth of Nebraska isolates of *K. juniperi* is 75°F, although germination, growth, and infection can take place at cooler temperatures. High relative humidity (95 percent or greater) also favors infection.

Damage and Control

Any disease that reduces the growth or esthetic value of junipers in the Great Plains warrants attention. *Kabatina thujae*, closely related to *K. juniperi*, has caused serious shoot mortality in members of the Cupressaceae. Current levels of infection of junipers by *K. juniperi* in the Great Plains, however, are not serious enough to warrant control in windbreak or farmstead plantings. Control in landscape plantings may be desirable for esthetic reasons, but no specific techniques have yet been developed. Control of wounding agents such as insects may reduce infection levels. Pruning and destruction of

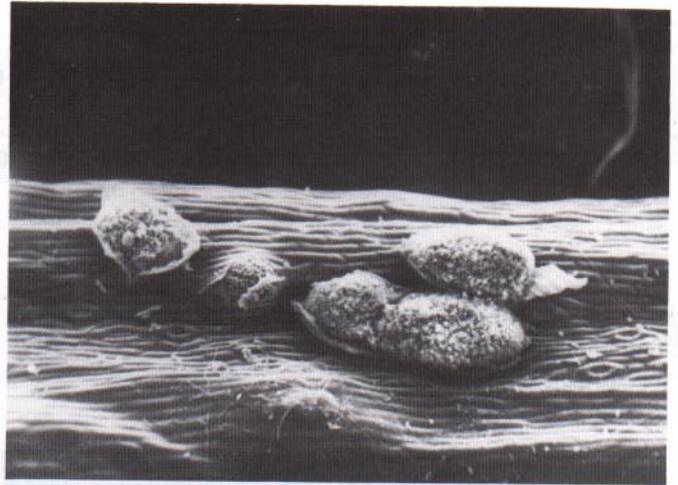
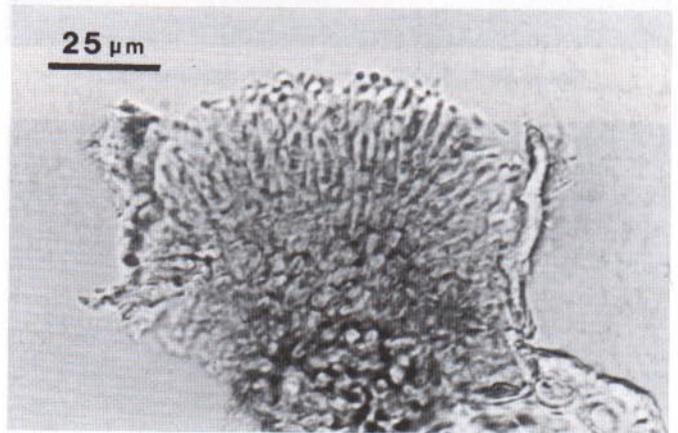


Figure 52-3. Acervuli of *K. juniperi* that have broken through the host epidermis. Note the granular appearance of the surface. [Approximately X100].

Figure 52-4. Cross section through an acervulus of *K. juniperi*. One-celled spores are formed on the surface of the acervulus. [Approximately X500].



infected branchlets may reduce levels of inoculum, but would result in more wounded tissue. European studies indicate that *K. thujae* is sensitive to the fungicide mancozeb. The unsightly appearance of infected trees is often improved when lower branches elongate and the dead branch tips fall from the tree.

Selected References

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