

59. Sirococcus Shoot Blight of Spruce

Kathryn Robbins and Edward M. Sharon

Sirococcus shoot blight, caused by the fungus *Sirococcus strobilinus*, affects conifers throughout the North Temperature Zone of North America and Europe. The disease chiefly affects current year's shoots.

Hosts and Distribution

Sirococcus shoot blight occurs in the United States and Canada on several species of pine, spruce, and hemlock. In the Great Plains, this disease occurs on blue spruce and Norway spruce in Kansas, and has been reported on blue spruce in South Dakota.

The disease is not common in the Great Plains, but its distribution and importance could increase if infected nursery stock is planted.

Symptoms and Signs

The fungus causes tip dieback and cankers on current year's growth. Foliage distal to the infection becomes chlorotic, dies, turns reddish-brown, and is shed (figs. 59-1, 59-2). Infected elongating shoots may curl and become hook-shaped.

Symptoms of this disease are similar to those of winter drying or frost injury. Shoots killed by *Sirococcus* are usually scattered, however, and fewer in number than the more uniform pattern of injury associated with winter drying or frost.

Small black fruiting bodies (pycnidia) form on bud scales and other parts of dead shoots (fig. 59-3). Spores (conidia) in these fruiting bodies are hyaline, fusiform, 2-celled, and approximately 2 by 12 μm .



Figures 59-1, 59-2. Infected blue spruce shoots from which foliage has been cast.

Figure 59-3. Fruiting bodies (pycnidia) of *Sirococcus strobilinus* on infected spruce stem.

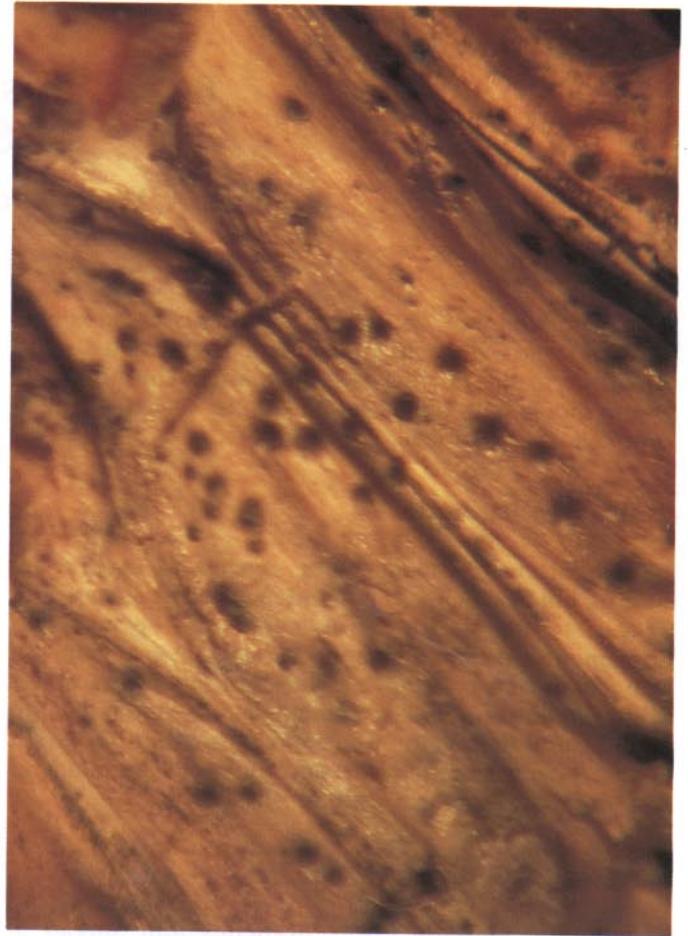
Disease Cycle

Infection begins in needles and spreads into the stem to form a canker. The fungus grows within the succulent stem tissue but rarely into older wood. When infection occurs in the area of elongation, the restricted growth in the cankered area causes the shoot tip to curl over and form a crook.

As the canker develops, fruiting bodies that form on dead shoots produce large numbers of spores which are spread to nearby susceptible hosts by splashing rain or irrigation water. Under favorable conditions of high humidity, mild temperature, and low light, the spores germinate and infect current year's shoots.

Damage

Sirococcus shoot blight causes growth loss, stress, and an unsightly appearance of ornamental spruce, and can kill seedlings. In certain situations, the fungus may be seed-borne, causing damage to nursery and containerized seedlings.



Control

Cool, humid, shady conditions that favor infection should be avoided. If shoots on ornamental spruce become infected, they should be clipped off and destroyed to reduce the spread of spores. Infected nursery seedlings should be destroyed to prevent spread of the disease. Preventive chemical sprays developed for pines in California and in the Lake States may be effective on spruce nursery stock and ornamentals in the Great Plains.

Selected References

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- Wall, R. E.; Magasi, L. P. Environmental factors affecting *Sirococcus* shoot blight of black spruce. *Canadian Journal Forest Research* 6: 448-452; 1976.