

## Phomopsis Tip Blight On Spruce

Peng Tian, Plant Diagnostic Clinic



The MU Plant Diagnostic Clinic recently received a spruce sample and confirmed that it has Phomopsis Tip Blight. Although the primary host of this disease is Juniper, we have seen increasing number of spruce trees that have been infected by this disease in the past years among different states.



**Figure 1. Dieback of needles** Photo: Peng Tian

**Name:** *Phomopsis* spp. (Suspected *Phomopsis juniperovora*)

**Symptom and Sign:** This disease normally affects new growth early in the season as well as any time right after pruning when young tissues emerge. It often infects the trees that might have suffered from environmental stresses such as drought or winter injury in the previous year. Older plants are more resistant to this disease than younger ones.

The symptoms start with color change of the needle tips from light green to brown and eventually develop to the dieback of needles (Fig. 1). If both the host and environmental factors favor the growth and colonization of pathogens, this disease would continue to progress by affecting the stems and causing girdling of the branches. Once the pathogens have established and matured in the plant tissue, the black asexual fruting bodies called pycnidia formed on the surfaces of symptomatic needles. Tendrils of conidia (asexual spores), also called cirrhi, are formed on the opening of pycnidia (Fig. 2).

**Life cycle:** The fungus overwinters on needles and stems of young trees that were infected in the previous year. Moderate temperature (60 ° to 82° F) and high humidity favors disease development. Spores are dispersed by rain splash, the wind, insects, or during pruning. The spores can re-infect the newly developed plant tissues through the year.

**Host range and damage:** This disease can affect many conifers such as pines, spruces, and firs across North America. It causes needle blight and twig dieback, reducing the vigor of the tree by weakening their health. The damage is typically not serious as they are mostly cosmetic. However, depending how long it has affected the tree as well how stressed the trees is, heavy infestations can result in branch dieback and the death of the entire tree.



**Figure 2. Pycnidia producing tendrils of spores (cirrhi)** Photo: Peng Tian

**Disease management:**

1. Select pathogen-free plants when purchasing them from the nursery. Consider planting resistant cultivars if the disease has been confirmed in the planting area.
2. Follow the weather condition of the previous year and keep the tree in the optimum condition by providing better irrigation and fertilization. Do not use overhead sprinklers for watering, instead, use irrigation or hose to water the plants.
3. Maintain the health of the tree by pruning and destroying symptomatic branches. If there are cankers observed, remove them several inches below to prevent the spread of this disease. Make sure to sterilize the pruning tools to prevent spread of the spores from one tree to another.
4. Application fungicide is recommended in nurseries as well as for trees with high value. But it may not be very effective for matured trees in the landscape. Products containing active ingredients such as mancozeb, thiophanate methyl, chlorothalonil, potassium bicarbonate, propiconazole, benomyl, and copper based products are effective for prevention of Phomopsis tip blight. These products are also effective in controlling other fungal diseases such as diplodia tip blight. Make sure to switch among different fungicide products to avoid the risk of fungicide resistance.

## References:

1. **Phomopsis Tip Blight of Juniper**, Paige Thrush, Nancy J. Taylor & Francesca Peduto Hand, The Ohio State University (<https://u.osu.edu/ornamentaldiseasefacts/nursery/phomopsis-tip-blight-of-juniper/what-is-it-what-to-do-about-it/>)
2. **Phomopsis Tip Blight**, Wisconsin Horticulture, Division of Extension (<https://hort.extension.wisc.edu/articles/phomopsis-tip-blight/>)
3. **Phomopsis Blight of Juniper**, Missouri Botanical Garden (<https://www.missouribotanicalgarden.org/gardens-gardening/your-garden/help-for-the-home-gardener/advice-tips-resources/pests-and-problems/diseases/needlecasts/phomopsis-blight.aspx>)
4. **Phomopsis Dieback of Spruce**, John Bonkowski, Landscape report, Purdue University

For appropriate diagnosis, the MU Plant Diagnostic Clinic can help you confirm if your plant has this disease. We encourage you to visit our website (<https://extension.missouri.edu/programs/plant-diagnostic-clinic>) and review submission guidelines before submitting your sample. If possible, you may take photos and send them to [plantclinic@missouri.edu](mailto:plantclinic@missouri.edu).

For sample submission and fee payment, you can either:

- 1) Visit our new online submission system at <https://extension.missouri.edu/services/plant-disease-sample>. Fill out the submission form online using your computer or mobile device and make payment online securely with a credit card.
- 2) Download the submission form at <https://extension.missouri.edu/programs/plant-diagnostic-clinic/sample-submission>. Fill it out and send to us together with your sample and payment. Check or money order. No cash please.

## Contact information:

University of Missouri–Plant Diagnostic Clinic  
28 Mumford Hall  
Columbia, MO 65211  
Phone: 573-882-3019  
Email: [plantclinic@missouri.edu](mailto:plantclinic@missouri.edu)