

Juniper Tip Blights

Mary Ann Hansen, Extension Plant Pathologist, Plant Pathology, Physiology, and Weed Science, Virginia Tech

In Virginia, juniper tip blight is caused by one of two different fungi, *Phomopsis juniperovora* or *Kabatina juniperi*. Symptoms of the two diseases are identical; however, some aspects of their control differ. Therefore, correct identification of the causal agent is important. These fungi can also attack other hosts, including *Cryptomeria*, *Chamaecyparis*, and *Thuja* species. They seldom cause significant damage in landscapes unless weather conditions become favorable for disease development. However, they can be very destructive in seedbeds, cutting beds, and lined-out stock in nurseries, or in mass landscape plantings that receive overhead irrigation.

Symptoms

Visible symptoms of tip blight include browning and dieback of young needles and shoot tips (fig. 1). Gray lesions usually girdle the shoot at the base of the dead tissue. Tiny, black or grayish fungal fruiting bodies may be visible in the gray lesions (fig. 2). On highly susceptible hosts, the fungus may invade and girdle larger stems, resulting in browning and death of major branches; however, this degree of disease severity is rare. Damage usually occurs in the terminal 4-6 inches



Figure 1. Severe damage from *Kabatina* tip blight on mass planting of juniper with overhead irrigation. (Photo by M. A. Hansen)



Figure 2. Fruiting bodies of *Kabatina juniperi* forming at base of dead shoot tip. (Photo by M. A. Hansen)

of the shoot. Both *Kabatina* tip blight and *Phomopsis* tip blight are most damaging on younger plants.

Symptoms of tip blight diseases can be easily confused with damage from either of two different insects, the juniper midge or the juniper tip midge. Both insects deposit their eggs inside young juniper shoots. The developing larvae mine the inside of the shoot and cause death of shoot tips. If affected shoot tips are carefully examined with a hand lens, small holes can be seen where the adult insect exited the shoot. These holes distinguish this type of damage from *Phomopsis* or *Kabatina* tip blight.

Disease Cycle

Phomopsis Tip Blight

During prolonged wet, cool periods in spring or fall, spores of *Phomopsis juniperovora* ooze from black fruiting bodies and are spread by splashing rain or overhead irrigation to other branches and adjacent healthy plants. Spores of this fungus can be produced throughout the summer, but most infections occur in spring and fall. Fungal spores germinate and the fungus invades young, healthy twigs (fig. 3). Older twigs are resistant to infection. The fungus penetrates young tissues rapidly and may kill first-year seedlings in nursery settings.



Figure 3. Tip dieback caused by the fungus *Phomopsis juniperovora*. (Photo by M. A. Hansen)

Kabatina Tip Blight

Kabatina juniperi produces its spores in the fall, but symptoms do not appear until late winter or very early spring (fig. 4). Unlike *Phomopsis juniperovora*, *Kabatina juniperi* infects through wounds caused by insects or mechanical damage. It does not invade healthy twigs.



Figure 4. Kabatina tip blight on juniper. (Photo by M. A. Hansen)

Control

Cultural Control

Viable spores of these fungi have been recovered from branches that have been dead for as long as two years. All blighted twig tips should be removed and burned or buried to eliminate sources of infection. Because *Kabatina juniperi* infections occur in fall through wounds, pruning should not be done in the fall. Pruning or shearing should be done on a dry day to reduce spread of the fungus to other plants on wet tools. Overhead irrigation, which spreads fungal spores, should be avoided. Mass plantings of juniper that receive overhead irrigation are especially prone to these diseases.

Resistance

Certain species and cultivars of juniper have been shown to have resistance to one or both of these diseases in field trials conducted in several states. Refer to tables 1-3, which include information from resistance trials conducted in Kentucky and New Jersey.

Table 1. *Juniperus* species and cultivars with resistance to both Kabatina tip blight and *Phomopsis* tip blight (Hartman et al. 1994).

- J. chinensis* Hetzii
- J. chinensis* ‘Mint Julep’
- J. chinensis* ‘Mountbatten’
- J. chinensis* ‘Keteleeri’
- J. chinensis* ‘Robusta Green’
- J. chinensis* ‘Saybrook Gold’
- J. communis* ‘Hibernica’

Table 2. *Juniperus* species and cultivars with resistance to *Phomopsis* tip blight (Hartman et al. 1994; Perry et al. 1982).

- J. chinensis* ‘Femina’
- J. chinensis* ‘Globosa’
- J. chinensis* ‘Spartan’
- J. chinensis* ‘Wintergreen’
- J. davurica* ‘Expansa’
- J. horizontalis* ‘Blue Chip’
- J. horizontalis* ‘Douglasii’
- J. horizontalis* ‘Emerald Isle’
- J. horizontalis* ‘Procumbens’
- J. sabina* ‘Arcadia’

J. sabina ‘Broadmoor’
J. sabina ‘Fastigiata’
J. scopulorum ‘Moffettii’
J. squamata ‘Fargesii’
J. virginiana ‘Cinerascens’
J. virginiana ‘Globosa’
J. virginiana ‘Reptans’
J. virginiana ‘Skyrocket’
J. virginiana ‘Tripartita’

Table 3. *Juniperus* species and cultivars with resistance to Kabatina tip blight (Perry et al. 1982).

J. chinensis ‘Aurea Gold Coast’
J. chinensis ‘Hetzii Glauca’
J. chinensis ‘Pfizeriana Aurea’
J. chinensis ‘Sargenti Glauca’
J. communis ‘Hornbrooki’
J. horizontalis ‘Marcellus’
J. procumbens ‘Nana’
J. procumbens ‘Variegata’
J. sabina ‘Tamariscifolia’
J. squamata ‘Expansa Parsoni’
J. virginiana ‘Prostrata Glauca’

Chemical Control

Fungicides containing the active ingredients, chlorothalonil or mancozeb, are registered for control of both Phomopsis and Kabatina tip blights, but because the fungi have different infection periods, timing of application for the two diseases differs. Treatment for Phomopsis tip blight should begin in early spring and continue at 10-14 day intervals. Spring treatments are not effective for Kabatina tip blight. Fungicide applications should begin in the fall for Kabatina tip blight. For information on rates of application, refer to the label or the information on Phomopsis needle and twig blight in the current Virginia Pest Management Guide for Home Grounds and Animals (VCE publication 456-018) <https://pubs.ext.vt.edu/456/456-018/456-018.html> or the Virginia Pest Management Guide for Horticultural and Forest Crops (VCE publication 456-017), <https://pubs.ext.vt.edu/456/456-017/456-017.html>. For information on the proper use of pesticides and fungicides, refer to any current VCE Pest Management Guide.

References

- Hartman, J., et al. 1994. *Biological and Cultural Tests* 9:161.
- Perry, R., et al. 1982. Susceptibility and Response of Juniper Species to *Kabatina juniperi* Infection in New Jersey. *Plant Disease* 66:1189-1191.

Disclaimer

Commercial products are named in this publication for informational purposes only. Virginia Cooperative Extension does not endorse these products and does not intend discrimination against other products which also may be suitable.