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Fungal Leaf Spot Diseases of Amelanchier

Serviceberry or shadblow, *Amelanchier* species, can be a vibrant part of Connecticut's fall landscape with leaves that turn from vivid yellows to golds, oranges and reds. Fruit on this native plant is delicious and attractive to wildlife and people. However, wet, rainy springs can result in infection by various leaf spot fungi that cause these trees and shrubs to drop most of their leaves before we can enjoy the fall color display (Figure 1).

Entomosporium and *Microsphaeropsis* leaf spots have plagued the *Amelanchier canadensis* in the CNLA Discovery and Education Garden at The Connecticut Agricultural Experiment Station, Valley Laboratory since a few years after it was planted in 1999.

***Entomosporium* Leaf Spot**

Causal Agent

Entomosporium mespili (sexual state synonym: *Diplocarpon mespili*). As the acervuli mature, a white conidial mass can be found on top of the lesion (Figure 2). *Entomosporium* conidia are 5 celled and bug-like with several flexible appendages (Figure 3).

Hosts

All hosts are rosaceous, in the subfamily Pomoidae. Chokeberry, *Aronia*; Flowering Quince, *Chaenomeles*; Cotoneaster; Hawthorn, *Crataegus*; Apple, *Malus*; Firethorn, *Pyracantha*; Pear, *Pyrus*; and Mountain Ash, *Sorbus* are common landscape plants in the Northeast that are in this group and

therefore susceptible. On pear, this disease is known as *Fabraea* leaf spot.

Disease Cycle

In New England, *Entomosporium* overwinters as mycelia in leaves or young stem tissue. In spring, as air temperatures approach 70°F, the primary infection begins as conidia are formed in acervuli in lesions. With rain and wind for dispersal and tender, newly emerging leaves, the infection is successful. If these favorable conditions persist, secondary and tertiary cycles of infection can occur on new leaves. The sexual stage of this disease has not been seen on our plant at the Valley Laboratory.



Figure 1. Serviceberry on September 7 with most of its leaves already on the ground. © CAES, Rose Hiskes

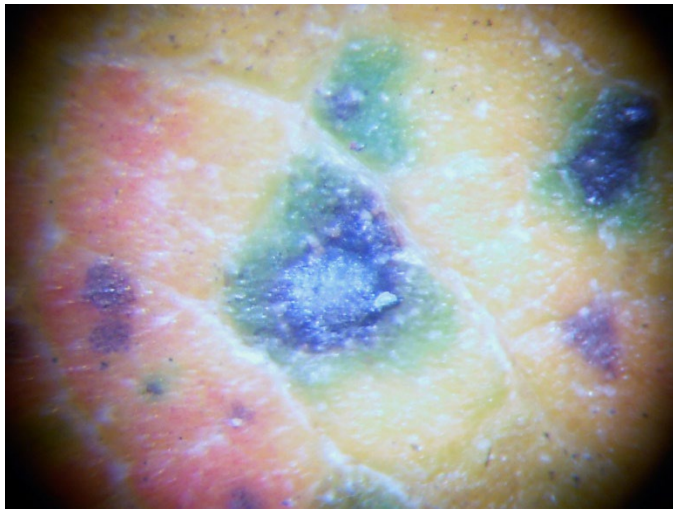


Figure 2. Amelanchier leaf with *Entomosporium* lesion with conidial mass (magnified). © CAES Rose Hiskes

Symptoms

Tan to gray sunken lesions with a darker margin develop on upper leaf surfaces (Figure 4). In Figure 4 both *Entomosporium* and *Microsphaeropsis* lesions are visible. Tissue around the *Microsphaeropsis* lesions remains green with the dark, raised pycnidia visible. As the season progresses lesions can coalesce causing leaves to drop early. Infection usually begins with lower leaves and progresses toward the top of the canopy.



Figure 3. Five celled, bug-like conidia of *Entomosporium mespili* (magnified). ©CAES DeWei Li

Stems and fruits can become infected as well.

Microsphaeropsis Leaf Spot

Causal agent and Symptoms

Sinclair lists lists *Coniothyrium* spp. (synonym *Microsphaeropsis*) as causing leaf spots with the level of pathogenicity unknown. On the *Amelanchier canadensis* at the Valley Laboratory clusters of black, raised pycnidia surrounded by green leaf tissue were visible on the leaves that had dropped early (Figure 4). Mature pycnidia are visible in a fallen leaf (Figure 5). After culturing in a moist chamber for a few days, a wet mount revealed the dark, single celled spores (Figure 6) that were tentatively identified as *Microsphaeropsis*.

Hosts

Sinclair lists apple, *Malus*; pear, *Pyrus*; bearberry, *Arctostaphylos*; beech, *Fagus*; buttonbush, *Cephalanthus*; elm, *Ulmus*; and hickory, *Carya* as possible hosts.

Disease Cycle

Not much is known about the life cycle of this pathogen.

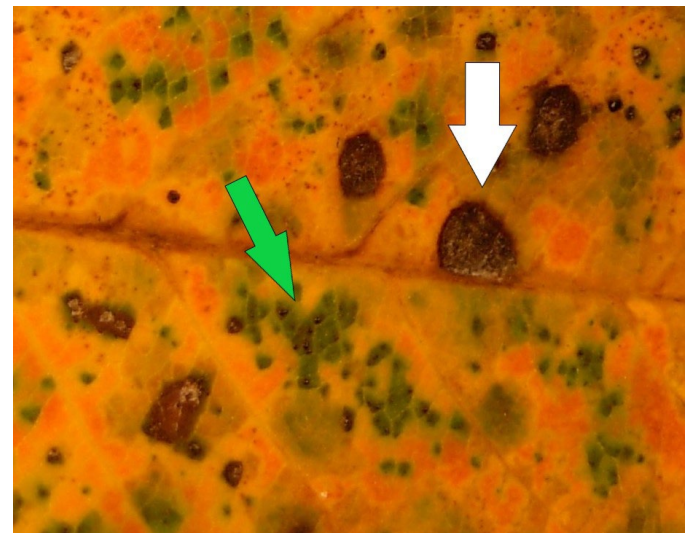


Figure 4. Amelanchier leaf on August 27, magnified. Green arrow shows *Microsphaeropsis* lesions. White arrow shows *Entomosporium* lesions. ©CAES, Rose Hiskes.

Management

Both of these fungal leaf spot diseases can be managed in multiple ways. A combination of practices will most likely give better results.

Cultural

Keep plants in good health so they can resist infection. Fertilize in spring if a soil test indicates a need. If needed, prune to open the canopy to additional air movement. Water deeply and infrequently during extended hot, dry, windy periods.

Sanitation later in the season, as affected leaves begin to fall, may be helpful in reducing inoculum for infection next spring. To the extent possible, rake up and remove leaves by burning, if allowed, or put in the municipal trash. Do not compost diseased material. However, nearby affected trees on properties where fall cleanup does not occur, may well be a source of inoculum for your plant next spring.

Resistance

‘Autumn Brilliance’ is listed as a resistant cultivar in a University of Wisconsin publication.



Figure 5. *Microsphaeropsis* pycnidia embedded in *Amelanchier* leaf (magnified). ©CAES, Rose Hiskes

Chemical

Fungicide sprays are rarely needed for leaf spot diseases on deciduous plants. Each season the tree starts over with a new set of leaves. If the weather is

unfavorable to the disease, none or very little disease may develop. However, if the plant is declining and other causes have been ruled out, and is being defoliated early for multiple years, protectant fungicides, such as mancozeb and chlorothalonil, can be applied in the spring as leaves are emerging. If the weather stays favorable to the disease, follow label directions and apply additional sprays as directed.

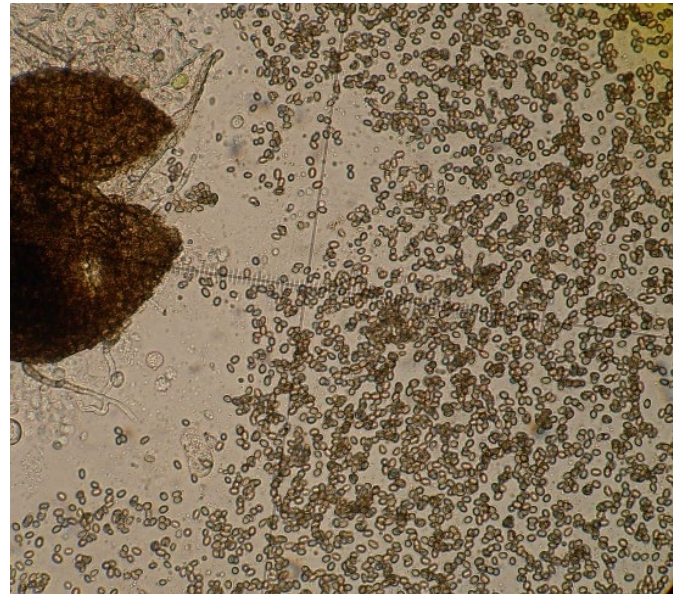


Figure 6. Pycnidia and spores of a *Microsphaeropsis* species (magnified). ©CAES, Rose Hiskes

November 2019.

REFERENCES

- Hansen, M. A. *Diplocarpon mespili* (*Entomosporium* leaf spot on *Photonia*). Virginia Tech University. Accessed on Bugwood Wiki 23 Nov., 2018.
- Mahr, S. 2017. Serviceberry, *Amelanchier* spp. University of Wisconsin, Madison. Master Gardener Website.
- Sinclair, W. A. and H.H. Lyon. 2005. Diseases of Trees and Shrubs. Cornell University Press: Ithaca, NY, and London.