

12. Powdery Mildew of Lilac

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Lilacs (*Syringa* spp.) are planted throughout the Great Plains. Most varieties sprout readily from roots, creating dense thickets that make lilac valuable for use in windbreaks, especially in the central and northern Great Plains.

One of the few pathogens that infects and damages lilacs is *Microsphaera alni*, which causes powdery mildew of lilac foliage.

Hosts and Distribution

Powdery mildew fungi infect most species of deciduous woody shrubs and trees. Some are highly specific, infecting only one host, while others have a wide host range. *M. alni* infects not only lilac but a large variety of plants, including alder, birch, hornbeam, hophornbeam, chestnut, holly, maple, hickory, golden chinkapin,

beech, honeylocust, walnut, sycamore, oak, elm, and basswood. With such a wide host range, the fungus is distributed throughout the Great Plains.

Even though powdery mildew fungi can infect most species and varieties of lilac, there is a considerable range of host susceptibility.

Symptoms and Signs

During mid-summer, leaves develop small white or gray dusty-looking patches. These patches enlarge throughout the summer, and by early fall the entire leaf surface may be covered with a white powdery-looking substance (figs. 12-1, 12-2). Later in the fall, small pinpoint-sized brown to black structures develop throughout the powdery areas. These are the sexual fruiting bodies of the fungus.



Figures 12-1, 12-2. Lilac leaves infected by powdery mildew fungus.

Microscopically, the white powder consists of fungus mycelium and asexual spores (fig. 12-3). The sexual fruiting bodies, called cleistothecia, have numerous slender appendages that are dichotomously branched at the tips. Several asci are contained in each cleistothecium.

Disease Cycle

The pathogen overwinters in fallen leaves as partially developed ascospores (fig. 12-4). These spores mature during wet spring weather, and are then exuded from the black fruiting bodies. These spores are blown or splashed onto non-infected foliage. After germination, haustoria of the fungus penetrate the leaf tissue and are restricted to a single layer of cells, the palisade layer. Mycelium growing on the leaf surface produces asexual spores, which are powdery white. These asexual spores are dispersed by wind and rain to other leaves, starting new infections.

The fungus grows best during warm, damp, summer weather. At the onset of cool weather, growth slows or ceases and the sexual fruiting bodies are produced; they overwinter on dead leaves.

Damage

Powdery mildew fungi seldom cause enough damage to warrant control measures. However, when infection is extensive, the unsightly appearance caused by these fungi is often severe enough that homeowners may wish to attempt control. Extensive infections occur in late fall just before the leaves drop normally, and reduce the aesthetic and ornamental values of landscape plants.

Control

The easiest way to control powdery mildew is to prevent its occurrence. The disease is best prevented by using resistant species, cultivars, and varieties. Removal of all dead leaves and leaf pieces in the fall will reduce the amount of primary inoculum during the following spring, thereby reducing the number of initial infections.

The severity of infection can be minimized by providing good air circulation and sunlight. Dense plantings, shady areas, and damp places all favor disease development.

Chemicals can be used to either prevent infection or to control established infections. Chemicals should be applied initially when the new leaves are emerging, and repeated as per label instructions. Sulfur has long been used for control. Bayleton and benomyl are two newer chemicals that are registered for powdery mildew on lilac. Both work systemically and have good residual action. Bayleton is a foliar spray, while benomyl may be used as either a soil drench or foliar spray.

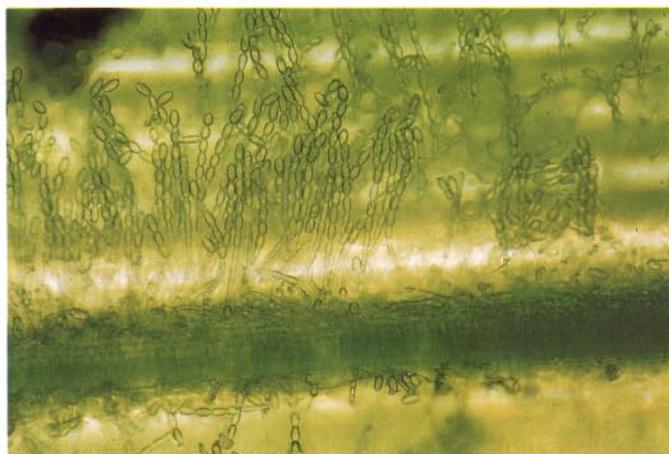


Figure 12-3. Chains of conidia of powdery mildew fungus.

Selected References

- Fenicchia, Richard A. Susceptibility of lilacs to leaf curl necrosis and powdery mildew. *Plant Propagator*. 23(3): 7-13; 1977.
- Hepting, George H. *Diseases of forest and shade trees of the United States*. Agric. Handb. 386. Washington, DC: U.S. Department of Agriculture; 1971. 658 p.
- Tattar, Terry A. *Diseases of shade trees*. New York: Academic Press; 1978. 361 p.

Figure 12-4. Life cycle of a powdery mildew fungus.

