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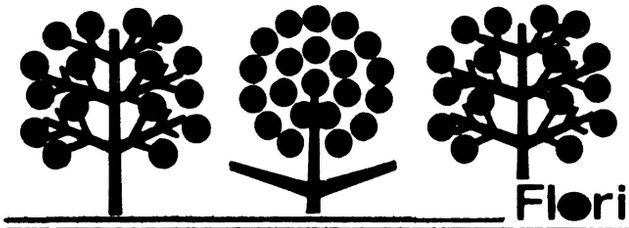

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BLACKSBURG, VIRGINIA

DISEASES OF EUONYMOUS

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The major diseases are powdery mildew, crown gall, and anthracnose. Under field and landscape culture, certain green cultivars of euonymous are highly susceptible to powdery mildew. Variegated cultivars of E. japonica are rarely observed infected with powdery mildew.

Low-growing euonymous like E. acuta are frequently infected with crown gall. Landscape plantings are damaged by this disease.

Under container culture, several cultivars of Euonymous japonica are seriously defoliated by anthracnose. Frequent irrigation and rains create optimum conditions for disease. A disease, of similar symptoms, called scab (Elsinoe euomymi-japonica) has been reported on euonymous but is not common in the Southern U.S.

Anthracnose

Anthracnose leaf spot of euonymus, caused by Colletotrichum gloesporioides, is a serious leaf spot disease. Under certain environmental conditions, the plants can become so severely damaged as to lose most of the leaves and suffer a stem dieback, making the plants unsaleable.

Anthracnose etiology

The colletotrichum fungus is capable of overwintering in the previously infected host tissue, most likely as vegetative mycelium, and is dependent on periods of precipitation and high relative humidity for spore dispersal, germination and penetration. The fungus is capable of repeated infections of new tissue throughout the growing season.

Mahoney (1) found that after a 48-hour wetting period extensive new anthracnose lesions were evident on both leaves and stems. New lesions were so numerous as to coalesce and many leaves were abscising. Acervuli which appeared as small black dots were detected in the established lesion centers, especially after periods of precipitation and high humidity. In all cases, where new infections were detected, relative humidity was greater than 90% for at least 24 hours after 48 hours of leaf wetness. He found the greatest number of lesions per square centimeter were detected at shorter time periods of exposure to high humidity.

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Symptoms

The disease appears on the leaves as discreet circular, dark brown lesions which measure from 0.5-3.0 mm in diameter with light tan necrotic centers. The spots occur on the upper and lower leaf surface (Fig. 1). During the later stages of infection, a reddish discoloration may be noted in the tissue surrounding the lesion and necrotic lesion centers may drop out, creating a "shot-hole appearance". Stem lesions appear as raised, brown, circular to elliptical regions which measure from 0.5-3.0 mm in diameter with a light tan center (Fig. 2).

Control

Control of anthracnose type plant disease is dependent on the particular host plant and prevailing weather conditions. Anthracnose is usually more prevalent during wet weather conditions; therefore, chemical control measures are most beneficial at such times. It has also been established that anthracnose pathogens overwinter in previously infected foliage, stems, and petioles of living plants. When economically feasible, sanitation, such as removing diseased prunings and dead stems, may be of value in the control of anthracnose diseases.

Crown Gall

Crown gall, caused by the bacterium Agrobacterium tumefaciens, has a very broad host range which involves over 40 families, both herbaceous and woody. Many woody ornamentals are susceptible. Crown gall was first found in the United States in 1904 and is now well distributed through the country.

Symptoms

Rounded, convoluted galls, ranging in size up to several inches, usually form at the soil line on most suscepts (Fig. 3). On euonymus, however, galls may form anywhere along the stem.

Bacteria enter the plants through wounds; often the result of pruning and propagating procedures. The bacteria can survive in the soil for a period of two or more years.

Control

The most effective control is the exclusion of the bacterium from the nursery. This can be achieved by using only healthy stock for propagation and sterilizing propagating tools frequently to remove bacteria.

Powdery Mildew

Powdery mildew, caused by the fungus Oidium euonymi-japonici, is prevalent through the South and on the Pacific Coast on euonymus. The green euonymus 'Patens' is the most susceptible cultivar.

Symptoms

The fungus mycelium forms white powdery mildew growth on upper and lower leaf surfaces, often when plants are crowded with insufficient air circulation (Fig. 4). Unlike most fungi, mildew spores do not require a layer of free water on the leaf surface to germinate; a high humidity is sufficient. In fact, spraying euonymus plants with a high pressure water hose prevents development of this disease.

Control

Provide for good air circulation when planting, or prune shrubs and trees to remove the foliage of surrounding plants.

Selected References

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3. SPENCER, D. M. 1978. The powdery mildews. Academic Press, New York. 565 pp.

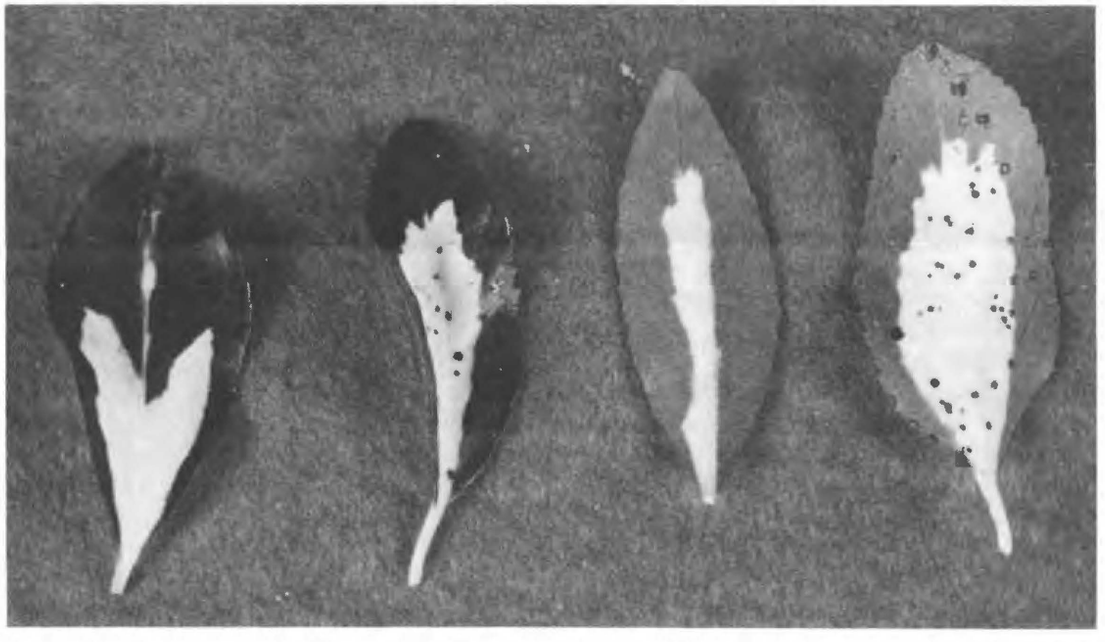

Figure 1

Figure 2

Figure 3

Figure 4

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