

ANTHRACNOSE OF EVERGREEN CHINESE ELM— FUNGICIDE EVALUATIONS

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Evergreen Chinese elm, *Ulmus parvifolia* Jacq., is widely planted as a street and landscaping tree. In years when rains are frequent or prolonged, anthracnose can cause the tree to be very unsightly. The disease attacks young tissues, including developing shoots and expanding leaves. Mature leaves are resistant but may be spotted under conditions particularly favorable for infection.

The disease can be most severe when frequent rainy periods occur in the spring as new growth is developing. The young, blighted growth turns brown and dries. Infected tissues frequently have a black, scabby appearance with narrow white areas at the margins of the blackened areas. The white areas are accumulations of conidia (spores) of the fungus (*Gloeosporium* sp.), which are spread in wind-blown and splashed water. Water is also necessary for infection. Under dry conditions the disease is not active.

The disease was particularly damaging in 1978. In 1979, many evergreen Chinese elms lost their leaves because of low temperature; when new foliage emerged, it was free of visible infections. Where the elms were diseased in 1979, the infection occurred later than in previous years.

Because there is little information on fungicidal control of the disease on evergreen Chinese elm, a trial was initiated to evaluate fungicides. Elm seeds were collected in November from 'Drake' trees grown in

Evaluation of Fungicides for Control of Anthracnose on Evergreen Chinese Elm

Product and active ingredient	Amount per liter	Equivalent amount per 100 gal.	Disease rating*
Manzate 200 (80% mancozeb)	1.8 g	1.5 lb	0.3 a
Daconil 2787 (75% chlorothalonil)	1.8 g	1.5 lb	1.0 ab
Tersan 1991 (50% benomyl)	0.6 g	0.5 lb	1.3 ab
Stauffer Captan (50% captan)	2.4 g	2.0 lb	1.7 b
Tri-Basic (53% Cu in basic copper sulfate)	6.0 g	5.0 lb	3.3 c
Control —	—	—	4.0 cd
Navlet's Copper Oil (28% copper oleate)	5.3 ml	2.1 qt	4.2 cd
Cyprex (65% dodine)	0.9 g	0.75 lb	4.5 d
Citcop (48% copper salts of fatty and rosin acids)	5.0 ml	2.0 qt	4.7 d

*Average of six evaluations: 0 = no disease; 5 = severe disease. Ratings with different letters differ at 1 percent level of statistical significance.

Hayward and planted immediately in a greenhouse maintained at 13° to 27° C (55° to 81° F). Seedlings were transferred to 4-inch clay pots filled with a potting mixture composed of 50 percent fine sand and 50 percent peat. Fertilizer was supplied daily through the irrigation system.

In April, when the plants were 30 to 45 cm (12 to 18 inches) tall, they were sprayed with the fungicides with six plants per treatment. Eight days after the fungicide applications, conidia (2.3 x 10⁶/ml) were atomized onto the foliage. The conidia were obtained from naturally infected leaves. Inoculated plants were covered with plastic bags and placed

out of direct sun. The bags were removed after 64 hours. Disease evaluations were made 13 days after inoculation. The fungicides, rates and disease evaluations appear in the table.

Mancozeb, chlorothalonil, and benomyl provided the best control, but only benomyl is presently registered for use in controlling the disease.

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