Leaf Spot of Ligustrum sinense Caused by Corynespora cassicola and its Control

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ABSTRACT

Corynespora cassicola was consistently associated with a serious new disease of variegated Ligustrum sinense. Leaf spots are light brown with purple margins, with heavy infection resulting in leaf abscission. On nonvariegated L. sinense, leaf spots are brown, with prominent yellow halos. Daconil, Dithane M-45, Thiabendazole, and Benlate gave excellent disease control.

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Additional key word: cross-inoculation.

Ligustrum sinense Lour. is a hardy, semideciduous shrub used as accent or foundation plants around the home. Variegated and nonvariegated forms of this species exist, with the variegated much more popular.

An undescribed leaf spot on L. sinense has become increasingly serious in Florida. Symptoms on variegated L. sinense begin as tiny, reddish, circular leaf spots, which enlarge to form light-brown lesions with purple margins. The lesions often coalesce, followed by leaf abscission. On nonvariegated L. sinense, leaf spots are light brown with dark brown margins, have prominent yellow halos, and measure 1 to 2 mm in diam. Corynespora cassicola (Berk. & Curt.) Wei was consistently associated with the leaf spot disease of variegated and nonvariegated L. sinense.

We report here evidence for the pathogenicity of C. cassicola to L. sinense and for control of it with several fungicides.

MATERIALS AND METHODS.—Isolates of C. cassicola were grown on potato-dextrose agar (PDA) or V-8 juice agar (VJA) for 10 to 14 days under continuous fluorescent light, which promoted sporulation. Spores were suspended in sterile tap water. The remaining mycelium plus agar was comminuted in sterile tap water for 30 s in a Waring Blender. These inocula were filtered through several layers of cheesecloth and combined. The

Fig. 1. Leaf spot of Ligustrum sinense caused by Corynespora cassicola: A) variegated L. sinense showing light-brown lesions with purple margins; B) nonvariegated L. sinense showing light-brown spots with dark-brown margin and prominent yellow halo.
combined inoculum was sprayed on both leaf surfaces of the
the test plants with a glass atomizer and pressure pump at
6.89 × 10^3 N/m² (1 psi). Control plants were sprayed
with sterile water. Then plants were covered with
polyethylene bags and incubated in a mist chamber in the
greenhouse. The bags were removed after 3 days, and
plants were left in the mist chambers an additional 4 days,
when the plants were transferred to greenhouse benches.
Disease readings were made within 10 days following
inoculation, by estimating the percentage of leaves
infected.

Several pathogenicity trials showed that a number of
isolates of _C. cassinicolor_ from variegated _L. sinense_ were
pathogenic and a highly virulent isolate was selected for
use in further experimental studies. Isolates of _C.
cassinicolor_ were also obtained from nonvariegated _L.
sinense_, hydrangea ( _Hydrangea macrophylla_ Ser.) (2),
and cucumber ( _Cucumis sativus_ L.) (1). These isolates,
plus the virulent isolate from variegated _L. sinense_, were
used in cross-inoculation trials employing all
combinations of isolates and hosts.

Four fungicides were tested for effectiveness in disease
control: Benlate 50 WP [methyl 1-(butylcarbamoyl)-2-
benzimidazolcarbamate] at 0.57 g/liter; Daconil 75 WP
(tetrachloroisopropylthiocarbamate) at 1.7 g/liter; Dithane M-
45 (coordination product of zinc ion and manganese
ethylene bisdithiocarbamate) at 2.25 g/liter; and
Thiabendazole [2-(4-thiazolyl) benzimidazole] at 0.57
g/liter. Surfactant F (E. I. DuPont De Nemours & Co.,
Inc., Wilmington, Delaware) was added to Benlate and
Plyac (Allied Chemical, New York, New York) was added
to the other fungicides, each at 4 drops/liter. Six
variegated _L. sinense_ plants in 10.2-cm (4-in) diam pots
were sprayed to runoff with each fungicide 8 days and
again 1 day prior to inoculation in the manner described
above. Six plants not treated with fungicides were
inoculated and six more nonsprayed plants were left
uninoculated as controls. Disease ratings were made as
described above.

**RESULTS AND DISCUSSION.**—Inoculation with
_C. cassinicolor_ isolated from _L. sinense_ produced symptoms
indistinguishable from those found on naturally infected
plants. On the variegated plants, tiny, reddish, circular
leaf spots were formed, which enlarged to light-brown
lesions with purple margins. On nonvariegated plants,
typical brown lesions with distinct yellow halos were
produced (Fig. 1). The fungus was consistently reisolated
from the resulting lesions. These results prove that _C.
cassinicolor_ is the causal agent of these diseases.

In cross-inoculation trials with isolates of _C. cassinicolor_
from variegated and nonvariegated _L. sinense_,
hydrangea, and cucumber, the respective isolates from
hydrangea and cucumber were host specific. The isolates
from variegated and nonvariegated _L. sinense_ were cross-
pathogenic, but neither one attacked hydrangea or
cucumber.

All fungicides tested gave excellent disease control
when used as protective sprays. Disease incidence on the
plants that were sprayed with fungicide and then
inoculated ranged from an estimated 0.12% of the foliage
infected on Benlate-treated plants to 1.8% on Daconil-
treated plants, compared to 31.2% on the inoculated
controls that received no fungicide. Untreated and treated
noninoculated control plants were free from infection.

**LITERATURE CITED**

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