

Distribution of Dieback Associated with *Thielaviopsis* Black Root Rot of Japanese Holly

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ABSTRACT

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Thielaviopsis basicola has been isolated from the roots of Japanese holly growing in containers in four plant nurseries and from numerous landscape plantings of Japanese holly in 12 counties and cities in Virginia and has been reported from four other states. Isolates of *T. basicola* were cultured from Virginia landscape plantings showing top chlorosis, stunting, and dieback.

Japanese holly (*Ilex crenata*) was reported as a new host of *Thielaviopsis basicola* (Berk. & Br.) Ferr. in 1976 (2). The original diseased plants were collected from a large nursery in Virginia producing Japanese holly in containers. Symptoms of black root rot caused by *T. basicola* included stunted growth, chlorosis, reduction of foliage, and blackening and decay of roots, but not dieback. Since then, we have isolated *T. basicola* from Japanese holly plants from Tennessee and from four nurseries and numerous landscape plantings in Virginia. It has also been reported from North Carolina (R. K. Jones, *personal communication*), Alabama (3), and Florida (1).

We have observed a serious top dieback in established Japanese holly of varying sizes and ages over the last 10 yr in landscape plantings throughout Virginia. Isolations from diseased holly stems on potato-dextrose agar have shown a high frequency of *Phomopsis*. Stress of undetermined nature was suspected. We report here the incidence of a top dieback of Japanese holly often found in association with black root rot in Virginia.

MATERIALS AND METHODS

As part of a survey of Japanese holly diseases, Virginia Cooperative Extension Agents during 1977-1979 and 6 mo of 1980 sent in for examination 59 specimens from Japanese holly plants with dieback. In addition, holly plants from two declining plantings on the Virginia Polytechnic Institute and State University campus were examined for *T. basicola*. Four commercial nurseries producing Japanese holly in containers submitted specimens of stunted plants for diagnosis.

RESULTS

Although many of the specimens sent in from landscape plants with dieback did not have adequate root samples, 28.8% of the 65 adequate specimens contained *T. basicola*, determined either microscopically or by baiting roots on carrot slices according to the technique of Yarwood (5). These specimens came from 12 counties and cities in Virginia. Plants from both Virginia Polytechnic Institute landscape plantings and from all four commercial nurseries were positive for *T. basicola*.

DISCUSSION

These results demonstrate that dieback of Japanese holly is frequently associated with root rot. No study has yet been made

of a possible cause and effect relationship, but plants weakened by colonization of the root system by *T. basicola* may be more susceptible to dieback than are healthy plants.

Landscape plantings of colonized plants appear to be widely distributed in Virginia. Container-grown plants from the four commercial nurseries were typically stunted and frequently chlorotic and had reduced root systems when colonized by *T. basicola*. Three of these nurseries are in eastern Virginia and the fourth is in the Blue Ridge Mountains. We assume that plants colonized by *T. basicola* have been and will be distributed to other locations in Virginia and to other states, because Japanese holly is widely sold to other nurseries.

Isolates of *T. basicola* from Japanese holly have a wide host range (4). Although physiologic races are not known in *T. basicola*, isolates vary in pathogenicity on different hosts. Thus, the potential exists for inadvertently distributing the pathogen over a wide host range as well as over a wide geographic range on *Ilex crenata* cultivars.

LITERATURE CITED

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