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Occurrence of Anthracnose on English Ivy Caused by *Colletotrichum trichellum* in Korea

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Anthracnose symptoms severely occurred up to 50% on leaves of English ivy growing in greenhouses in Cheongwon area of Korea during disease survey in April, 2000. The symptoms developed as concentric spots with dot-like acervuli on leaves of the plant. A total of 24 isolates of *Colletotrichum* sp. were obtained from the spotted lesions and identified as *Colletotrichum trichellum* based on the morphological and cultural characteristics. Leaf spots similar to the original anthracnose symptoms were induced on the host leaves by artificial inoculation with the isolates of the fungus. This is the first record of *C. trichellum* causing anthracnose of English ivy in Korea.

KEYWORS: English ivy, *Hedera helix*, Anthracnose, *Colletotrichum trichellum*

English ivy (*Hedera helix* L.) is cultivated as an ornamental foliage plant all over the world. The plant was introduced into Korea from Europe and has been mostly grown in greenhouse condition for the home market. A lot of anthracnose symptoms were frequently observed on leaves of the plants growing in greenhouses in Cheongwon area of Korea during disease survey in April, 2000. At the early stage of disease development, symptoms

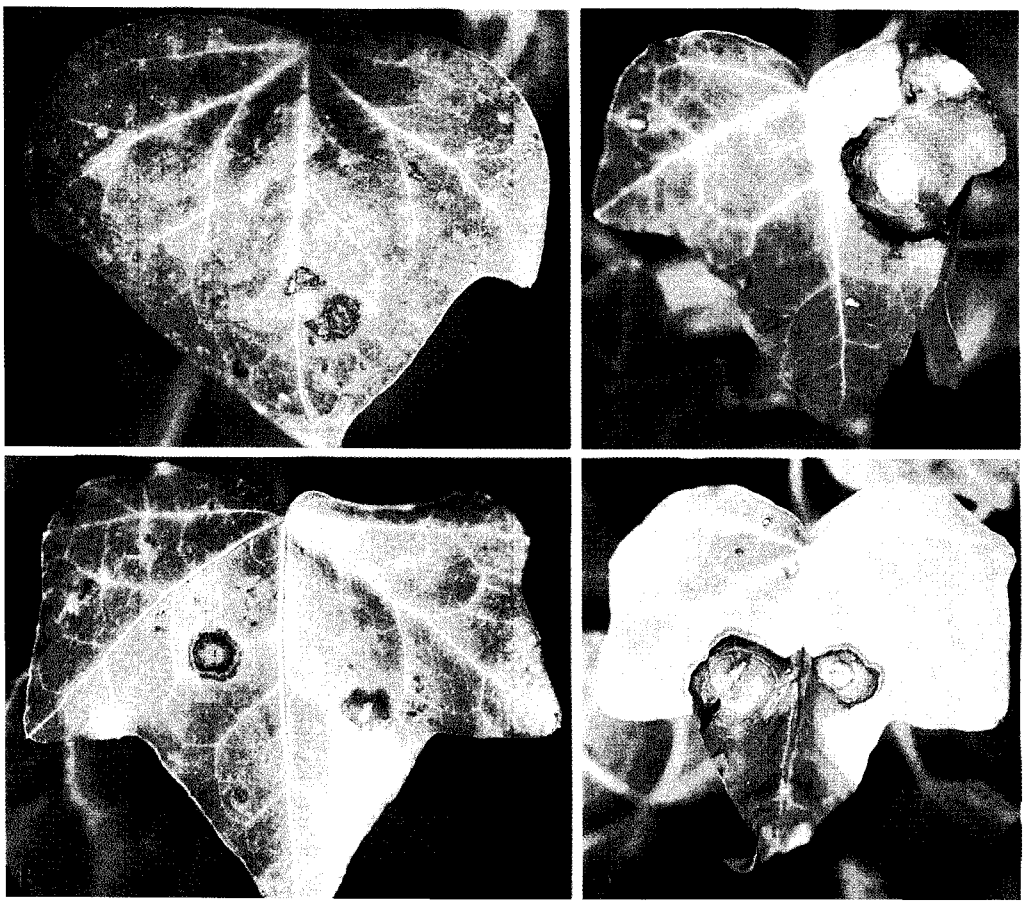

Fig. 1. Symptoms of anthracnose on leaves of English ivy. A and B, lesions at the early stage; C and D, lesions at the late stage.

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Table 1. Morphological characteristics of *Colletotrichum trichellum* isolated from leaves of English ivy

Source of isolates	Shape and size (μm) of structures		
	Conidium	Appressorium	Seta
The present study	Falcate, slightly curved and fusiform, 19~25×4~5	Brown to dark brown, lobed or crenate, 6~14×5~10	Dark brown to black, 1~6 septate, 45~235×4.0~5.5
Arx (1970)	Slightly curved and tapered at both ends, 14~24×4~6	Not described	Not described
Sutton (1980)	Falcate, not strongly curved and fusiform, 14~24×4~6	Brown, irregular, crenate and lobed, 12~18×8.5~12.0	Present

appeared as small, circular, brown to dark brown spots on the leaves (Fig. 1, A and B). As the disease progressed, the lesions irregularly enlarged and developed as concentric spots with dot-like acervuli within the spots (Fig. 1, C and D). Margins of the lesions turned tan to dark brown. Severely infected leaves dried with discoloration and blighted. The disease occurred up to 50% on leaves of English ivy in seven of nine fields surveyed. A preliminary study on the disease occurrence was previously reported by the authors (Kim *et al.*, 2000).

A total of 24 monoconidial isolates of *Colletotrichum* sp. were obtained from spotted lesions on leaves of English ivy. All the isolates were identified as *Colletotrichum trichellum* (Fr.:Fr.) Duke based on the morphological and cultural characteristics (Table 1 and Fig. 2). Colonies on potato dextrose agar (PDA) consisted of

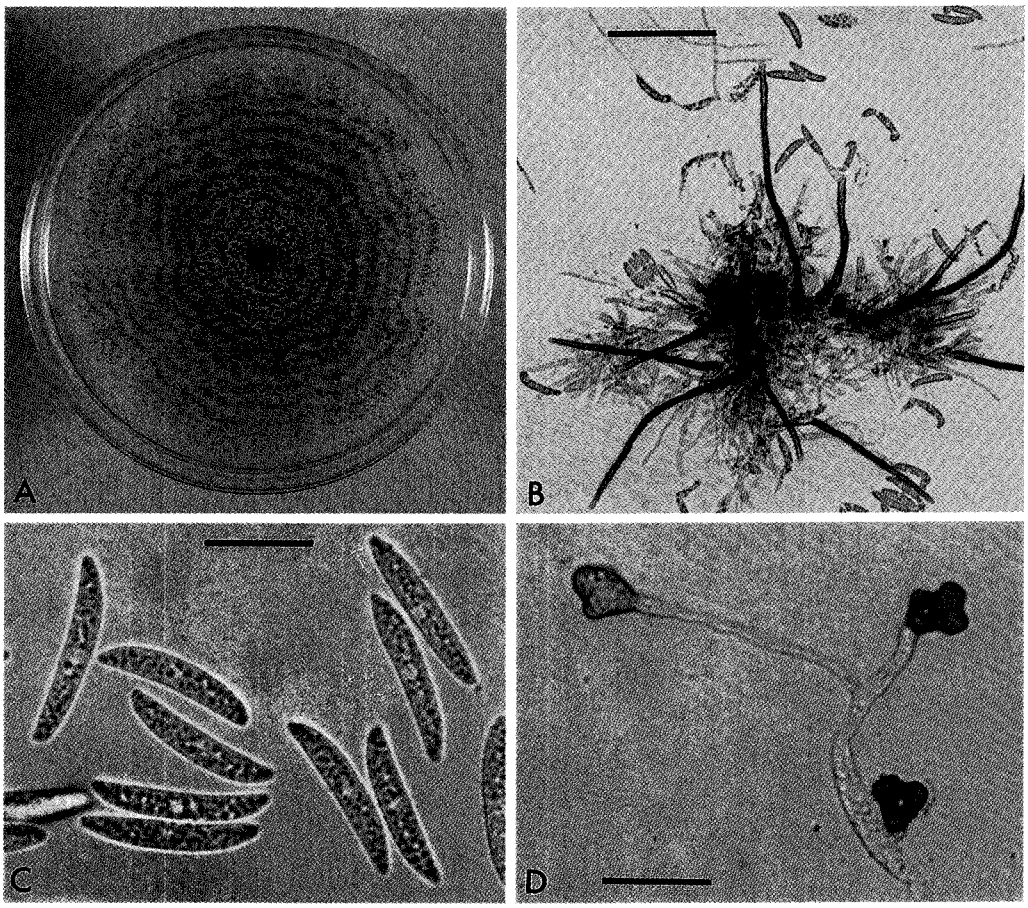

Fig. 2. Morphological and cultural features of *Colletotrichum trichellum* isolated from leaves of English ivy. A, a colony on PDA after 15 days of incubation at 26°C under alternating cycles of 12 hr NUV light and 12 hr darkness; B, setae and conidia produced in PDA culture (scale bar = 60 μm); C, conidia (scale bar = 15 μm); D, appressoria (scale bar = 15 μm).

sparse aerial mycelium and grayish yellow to dark yellow conidial masses shown as concentric circles (Fig. 2, A). Setae produced in PDA culture were dark brown to black, 1~6 septate and measured 45~235×4.0~5.5 μm (Fig. 2, B). Conidia were hyaline, aseptate, falcate, slightly curved, fusiform, abruptly tapered to each end and measured 19~25×4~5 μm (Fig. 2, C). Appressoria were brown to dark brown, lobed or crenate and measured 6~14×5~10 μm (Fig. 2, D). The morphological and cultural characteristics of the isolates were similar to the descriptions of previous workers (Arx, 1970; Sutton, 1962; Sutton, 1980; Sutton, 1992).

Three isolates of the fungus, C00-77, C00-81 and C00-85 were used for pathogenicity tests to healthy plants of English ivy using conidial suspensions ($2\sim3\times10^6$ conidia/ml). All the isolates induced anthracnose symptoms on the host leaves like those observed in fields. The fungus was reisolated from lesions on the leaves of the plants inoculated. It has been reported that *C. trichellum* causes anthracnose on a few species of *Hedera* (Farr *et al.*, 1989; Kobayashi and Sasaki, 1975; Sutton, 1980) and *Clivia miniata* Regel. (Mirabolfathy, 1989), suggesting that the fungus has relatively narrow host range. This is the first record of the fungus causing anthracnose of English ivy in Korea.

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