

Leaf Spot and Dieback Disease of *Cinnamomum zeylanicum* Caused by *Colletotrichum gloeosporioides*

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ABSTRACT

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An outbreak of a leaf spot and dieback disease of *Cinnamomum zeylanicum* occurred in 1978 in Kerala, India. The causal agent isolated from infected leaves was identified as *Colletotrichum gloeosporioides*. This is the first record of this organism on *C. zeylanicum*.

The cinnamon-tree (*Cinnamomum zeylanicum*) is cultivated on a large scale in many parts of Kerala, India. The tree's bark is the source of the spice or condiment. In 1978, a leaf spot and dieback disease of *C. zeylanicum* was rather widespread in Kerala.

On young seedlings, small, irregular, deep-brown specks developed on the leaf lamina. The spots gradually enlarged and often coalesced, forming irregular patches and resulting in drying up of the leaf. Disease gradually extended to the stem, resulting in necrosis from the apex downward (Fig. 1). In advanced infection, up to 25% of seedlings in some nursery beds died.

On older seedlings and mature trees, symptoms varied. Initially, small specks scattered over the leaf lamina increased in size, forming necrotic blotches. These later turned papery white with red-brown margins. Under alternate wet and dry conditions, light- and dark-brown concentric zonations developed on the spots. These zonated spots were sharply demarcated from green healthy tissue by a well-defined dark-brown band, the most characteristic symptom of the disease (Fig. 2). On some leaves, shedding of the central

papery white necrotic tissue, with the narrow band of red-brown tissue remaining intact, produced a shot-hole effect (Fig. 3). The holes were 8-12 mm in diameter. The central necrotic tissue contained the black, raised acervuli of the organism.

MATERIALS AND METHODS

Diseased leaves of *C. zeylanicum* were collected from the field, washed thoroughly, and cut into small pieces. The pieces were surface-sterilized with 1:1,000 mercuric chloride solution for 2 min, then rewashed in three changes of sterile distilled water. The pieces were plated on potato-dextrose agar, incubated at room temperature, and purified by subculturing and single spore isolation.

In pathogenicity tests, 1-yr-old seedlings were spray-inoculated by atomizing plants with a spore suspension prepared from 7-day-old cultures. The suspension contained 5-8 conidia per field under

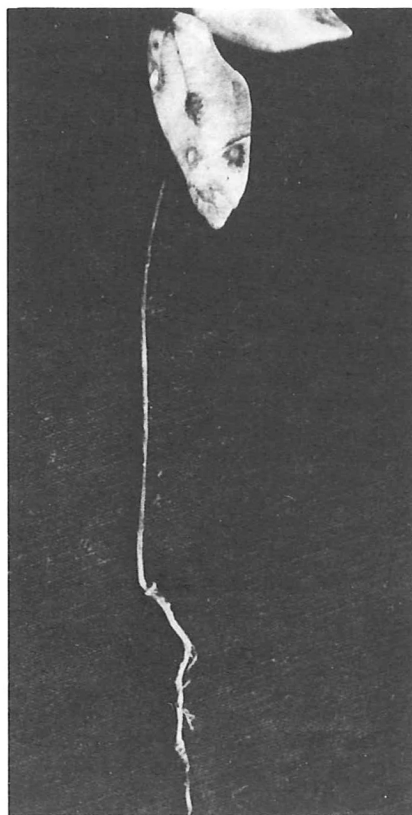


Fig. 1. Leaf spot and dieback of young *Cinnamomum zeylanicum* seedling caused by *Colletotrichum gloeosporioides*.

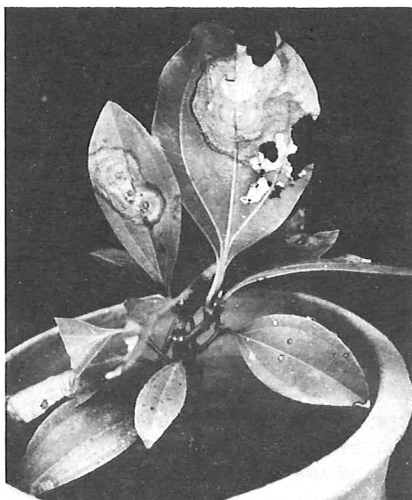


Fig. 2. The most characteristic symptom is a papery white blotch with concentric brown zonations demarcated from healthy tissue by a dark-brown band.

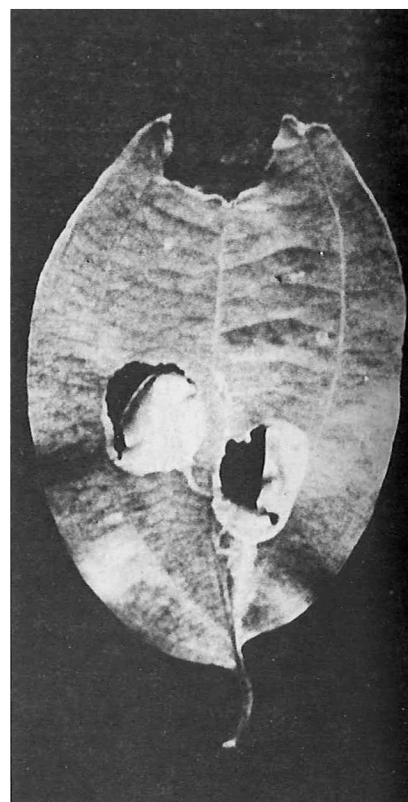


Fig. 3. Shedding of the papery white necrotic tissue produces a shot-hole effect.

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low-power magnification and was applied immediately after preparation. Control plants were sprayed with distilled water. Both inoculated and control plants were incubated in a moist chamber for 72 hr at 28 ± 3 C.

RESULTS AND DISCUSSION

Isolates from diseased leaves collected from the field and from inoculated leaves consistently yielded *Colletotrichum gloeosporioides* Penz. On inoculated

plants, symptoms developed in 3–5 days but were not characteristic of those observed with natural infection until 8–10 days. Reisolations from leaf spots yielded the same organism.

Gloeosporium allescherianum P. Henn. has been recorded on the leaves of cinnamon plants in Prague (1), and *C. gloeosporioides* has been reported on *C. tamala* in India (3). *C. gloeosporioides* is known to have a wide host range (2), but there is no previous record of the organism on *C. zeylanicum*.

ACKNOWLEDGMENTS

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