

PHOMA MULTIROSTRATA ON CORIANDER IN PAKISTAN

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Abstract

Phoma multirostrata (Mathur et al.) Dorenb. et Boerema has been reported on coriander from Pakistan. In pathogenicity tests *P. multirostrata* caused footrot disease in coriander seedlings.

Introduction

During studies on the seed-borne fungi of spices, *P. multirostrata* was isolated from coriander seeds where up to 5% infection was observed on seed samples collected from various parts of Pakistan. There does not appear to be any previous report of this fungus on coriander in Pakistan. The pathogenicity of *P. multirostrata* on coriander seedlings is reported here.

Materials and Methods

Blotter test as recommended by International Seed Testing Association (Anon., 1966) was used for the isolation. The inoculum multiplied on sand: cornmeal, 20:1 mixture for 2 weeks under NUV at 20°C was used to infest sterilized sand @ 1:12 in pots in which one month old healthy coriander seedlings were transplanted. In another experiment, the coriander seeds were dipped in spore suspension of *P. multirostrata* and sown in sterilized sand. In another set, a spore suspension of *P. multirostrata* (100,000 spores/ml in 0.2% gelatin solution) was sprayed on one month old coriander plants, kept in a humid chamber for 48 hrs and then transferred to a greenhouse bench at 18°C.

Results and Discussion

P. multirostrata produced small, round, black pycnidia embedded in the seed and resembling pinheads (Fig.1). The pycnidia were readily overgrown by species of *Fusarium*, *Curvularia* and *Alternaria*. In severe infections, a thick, dirty black crust with a rough surface was found on the seed. The fungus was identified as *P. multirostrata* which was confirmed by Dr. E. Punithalingam of Commonwealth Mycological Institute, Kew, Surrey, England (Herb. IMI No.303686).

In pathogenicity tests the fungus produced slightly sunken, greyish, water-soaked minute spots on leaves, petioles and stem of coriander. These spots enlarged and coalesced into irregular dead areas that occasionally involved large portions of the

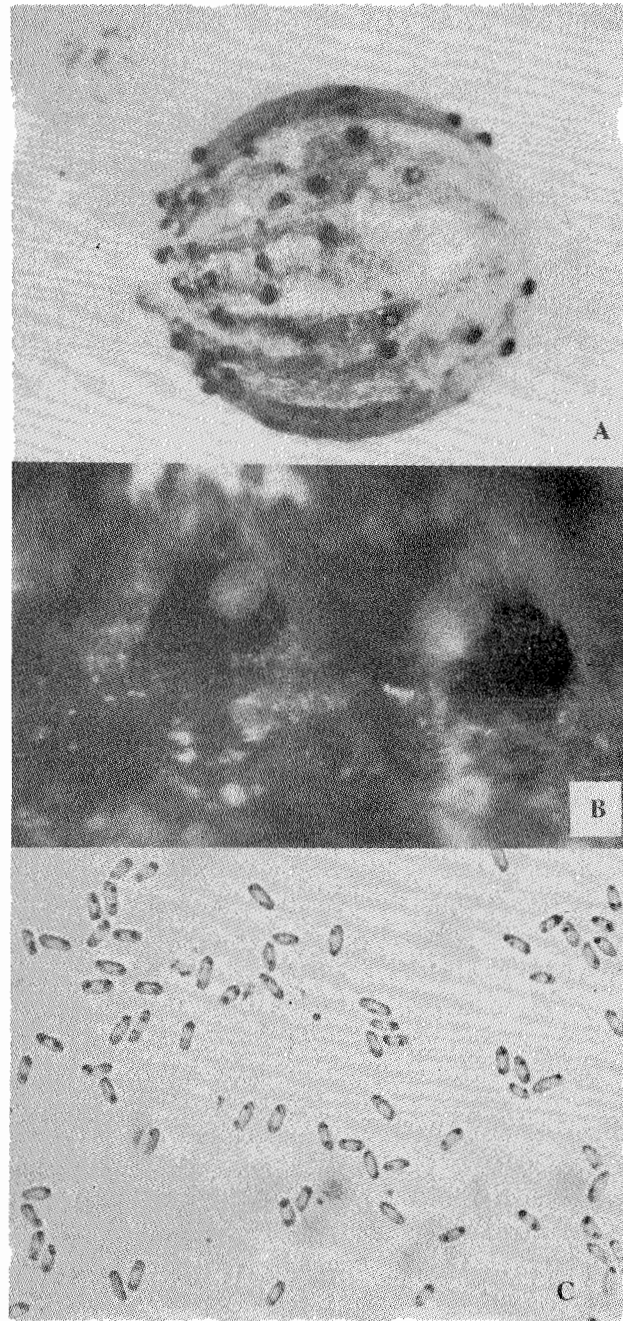


Fig.1. A. Pycnidia of *Phoma multirostrata* on the surface of coriander fruit (X 25). B. Pycnidia of *P. multi rostrata* (arrow) showing spore ooze (X 50) C. spores of *P. multirostrata* (X 750).



Fig.2. Infection of *Phoma multirostrata* on coriander showing necrotic roots (Left) compared with control plants (Right).

leaf. The spots were surrounded by a narrow, dark brown border. The lesions were covered with pycnidia that produced and liberated abundant spores. When seeds were dipped in spore suspension, up to 84.0% plants showed discoloration and decay of roots and foot region. When seedlings were transplanted in infested sand, 49.8% of plants showed infection. The infected tissues shred, break up and fall off (Fig.2). Infected lesions on the stem, lower leaves and petioles became apparent in traces which kept spreading to the inner whorls of the crown (Fig. 3). Within 6 weeks 45.0% of the plants became infected and the disease incidence increased showing one to several lesions on the stem and large coalesced lesions on leaves and petioles. This is the first report of *P. multirostrata* on coriander from Pakistan. *P. multirostrata* has been reported from *Lilium* sp. (Chandra & Tandon, 1965), *Mangifera indica*, *Chrysanthemum* (Dorenbosch & Howeler, 1968), *Cestrum nocturnum* and *Musa paradisiaca* (Rai & Rajak, 1986). The fungus is ubiquitous in Africa and South France (Dorenbosch & Howeler, 1968) but in temperate regions it is found only in green houses and is apparently a thermophilic species (Dorenbosch & Boerema, 1973).

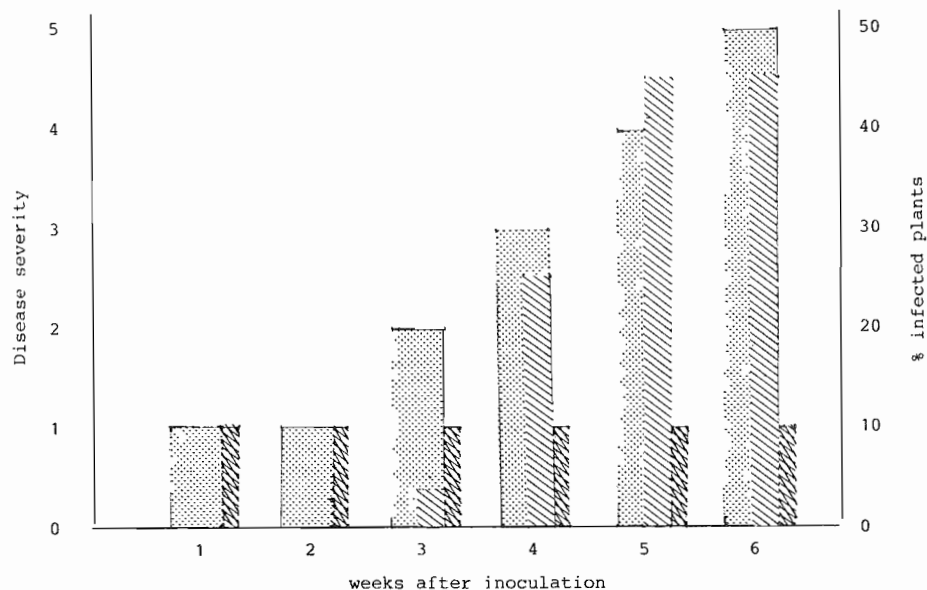


Fig.3. Foliar phase of the disease caused by *Phoma multirostrata* in coriander. Control, infected plants. Disease severity.

1. Symptomless plants,
2. Trace infection of stem and lower leaves,
3. One lesion on stem and few lesions on lower leaves and petioles,
4. Several lesions on stem and coalesced lesions on leaves and petioles,
5. Severe infection of leaves, petioles and stem.

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