

Bacterial Leaf Spot of Chillies in Kerala State

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Chillies (*Capsicum annum* L), one of the common spices of our daily food occupy a prominent position in almost all kitchen gardens in our State. A severe leaf spot of chillies was observed in a kitchen garden at Trivandrum during the monsoon months of 1964. Microscopic examination revealed that the disease was of bacterial origin. The causal organism was isolated and brought into pure culture by the dilution plate method.

Bacterial leaf spot of chillies was first observed in India by Patel *et al.* (1950). Rangaswami (1962) reported that the disease is prevalent in some parts of Madras State. So far there is no record of this disease in Kerala State.

Symptoms

The bacterium produces a large number of small spots distributed all over the leaf lamina. The infection starts as minute water-soaked specks which gradually enlarge and become mostly circular in shape, with greyish parchment like centre and yellowish translucent margin. Fully developed spots measure 1-2 mm. in diameter. In severe cases, the spots coalesce to form irregular lesions. When the infection occurs along the leaf margin the lesions are generally elongated. Badly affected leaves become chlorotic and finally

drop off. Infections of the leaf petiole often causes premature leaf fall. Under highly humid conditions the infection spreads to the tender stems, producing yellowish brown elongated lesions. Later, these lesions become slightly raised, roughened and corky.

Pathogen

The bacterium is a short rod measuring 1.5 X 0.75 microns, Gram-negative, motile, non-spore forming and non-acid fast. It makes good growth on potato-dextrose agar and nutrient agar media. On potato dextrose agar in petri dishes the colonies are smooth, circular, glistening, raised and pale yellow in colour. On nutrient agar the growth is smooth, glistening, round, slightly convex and light lemon-yellow in colour. Nutrient broth became faintly coloured after six days growth of the organism. When cultured in litmus milk medium, moderate reduction of litmus was observed in about 8 days. The bacterium failed to reduce nitrate in nutrient broth.

Pathogenicity trial

Inoculations were done on *Capsicum annum*, *C. frutescens* L., *Coleus parviflorus* B., *Eucalyptus* sp., *Lycopersicon esculentum* M., *Piper nigrum* L., *P. betel* L., *Piperomia* sp., *Solanum melongena* L and *S. torvum* L plants. It was observed that the bacterium

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could cause leaf spots on both wounded and unwounded leaves of *C. annum*, *C. frutescens* and *L. esculentum*. Characteristic spots as those observed in nature were produced on the leaves of chillies within 5-6 days after inoculation. Water-soaked spots were visible on tomato leaves within 4 days after inoculation. The spots later on turned greyish with parchment-like centre and yellow halo. From the infected tissues the bacterium was reisolated and on comparison it was found to be identical with the original inoculum.

Identity of the pathogen

The symptoms produced by the organism on the host plant, its morphological, cultural and physiological characters and its pathogenicity to chillies and tomato leaves revealed that the organism is *Xanthomonas vesicatoria* (Doidge) Dowson as reported by Rangaswami (1962).

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