

## First Record of Leaf Blight on *Mangifera indica* Seedlings Caused by *Cylindrocladium mangiferae* Sp. Nov.

<sup>1</sup>Sangeetha Chinnusamy, <sup>1</sup>Manjunath Hubballi and <sup>2</sup>Beena Saralemma

<sup>1</sup>Department of Plant Pathology, Centre for Plant Protection Studies  
Tamil Nadu Agricultural University, Coimbatore-641003, India

<sup>2</sup>Department of Plant Pathology, Kerala Agricultural University, Trissur, India

**Abstract:** A foliage disease of mango graft (*Mangifera indica*, Anacardiaceae) was noticed in ten different nurseries located in Thrissur. Symptoms including leaf blight and defoliation were observed on young seedlings (10-12 months old). The pathogen associated with the leaf blight symptom was isolated on potato dextrose agar (PDA) medium. Based on pathogenicity, morphology, cultural characters was identified as *Cylindrocladium mangiferae* sp. Nov. Further the identity was confirmed by “National Center of Fungal Taxonomy”, New Delhi (NCFT, No. 1772.07).

**Key words:** Leaf blight • Mango • *Cylindrocladium*

### INTRODUCTION

Mango (*Mangifera indica* L.) belonging to family Anacardiaceae is one of the important commercially grown fruit crops in India. A native of Asia and cultivated in India for the last 4000 years, its cultivation has gradually been extended to other tropical and subtropical countries of the world [1, 2]. India has the richest collection of mango cultivars and is the world's largest producer of mango [3]. Mango is not considered as a commercial crop of Kerala, but mango trees are inevitable components of homesteads of the state. The total estimated area under mango cultivation in this state is 75,911 ha with an annual production of 323,517 tonnes [4]. Commercial orchards of mango are being established in Palakkad district, where the climatic conditions are more suitable for this tree. The mango population consists of both seedling and grafted trees but the commercial orchards are of grafted trees only. The cultivated varieties include Alphonso, Bennet Alphonso, Bangalora, Banganapally, Neelum, Kalapady, Guddadat and Priyor. For the past two years severe foliar disease was observed in commercial nursery gardens in most cultivars. The present study was undertaken to characterize the pathogen associated with the leaf blight symptom.

**Symptoms:** The symptoms appeared first as small circular discolouration which later developed into small brown spots. Two or three spots were coalesced to form irregular blighted on the leaves. On severely affected leaves, several spots coalesced to form large necrotic lesions, ultimately leading to drying of the leaves. Leaf spots varied from 2 to 18 mm in diameter. Symptoms were observed only on leaves and not on any other parts of plants (Fig. 1).

**Isolation and Identification of Pathogen:** The pathogens were isolated by tissue segment method [5] on potato dextrose agar (PDA) medium. Infected mango leaves were cut into small pieces of 1.0–1.5 cm, surface sterilized with 0.1% mercuric chloride for 1 min and washed in sterile distilled water thrice and blotted dry with sterilized filter paper. Then the leaf bits were placed in Petri plates containing potato dextrose agar (PDA). The plates were incubated at  $28 \pm 2^\circ\text{C}$  for 4 days and observed for fungal growth. Fungus produced branched hyphae, reddish brown in colour (Fig. 2), 2.4 - 4.8  $\mu\text{m}$  wide and septate at an interval of 16.8 - 120  $\mu\text{m}$  in size. Conidiophores showed penicillate branching with sterile filament; primary, secondary and tertiary branches hyaline and non septate, phialides hyaline, conidia cylindrical, septate and hyaline

**Corresponding Author:** Sangeetha Chinnusamy, Department of Plant Pathology,  
Centre for Plant Protection Studies Tamil Nadu Agricultural University, Coimbatore-641003, India.



Fig. 1: Symptoms of leaf blight pathogen on mango seedlings



Fig. 2: Cultural characteristics of *Cylindrocladium mangiferae* sp. Nov



Fig. 3: Conidiophore of *Cylindrocladium mangiferae* sp. Nov

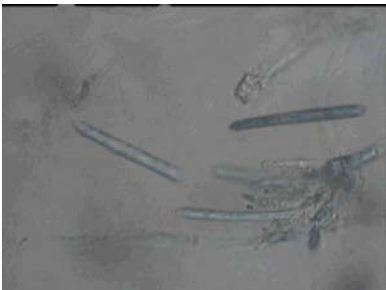


Fig. 4: Conidia of *Cylindrocladium mangiferae* sp. Nov

$36 \times 4.8\mu\text{m}$  in size (Fig. 3. and Fig. 4). Sterile filament ends in globular vesicle. The results agreed well with Beena *et al.* [6] who documented morphological characters of *Cylindrocladium camelliae* isolated from Collar rot and wilt of clove seedlings in Malampuzha, Kerala. Based on morphology and cultural characters the isolated fungus in the present work was identified as *Cylindrocladium mangiferae* sp. Nov and further, identification was supported by the report of “National Center of Fungal Taxonomy”, at New Delhi.

**Pathogenicity Test:** Pathogenicity tests were performed on ten mango seedlings by placing the mycelial discs of five mm size on leaves previously wounded with a sterile needle. Control plants were inoculated with plugs without mycelia. After inoculations, the plants were placed in a dew chamber maintained at  $25^{\circ}\text{C}$  for 72 h and later transferred to the green house. Inoculated seedlings were observed for symptom expression. The symptoms were observed on inoculated seedlings after 5 days of inoculation and control seedlings remained symptomless. Koch's postulates were fulfilled by consistently re-isolating pathogen from inoculated plants.

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