Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Stem Rot Caused by *Athelia rolfsii* on Curry Leaf Tree (*Murraya koenigii*) in Tripura, India

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Murraya koenigii, commonly known as curry leaf tree, is an important medicinal plant of India and is grown in tropical and subtropical regions. The leaves of the curry tree are used as an herb due to the presence of important active constituents bismahanine, murrayanine, murrayafoline-A, bikoquinone-A, murrayazolidine, and others (Jain et al. 2017). In mid-July 2019, stem rot disease symptoms were observed on curry leaf trees at the College of Agriculture, Lembucherra, Tripura (India). Disease symptoms consisted of rotting, wilting, and blighting with disease incidence ranging from 8 to 10%. Initially, infected plants gradually withered and white mycelia mats appeared on the surface of the lower stem at the soil line. Infected stem samples were collected and surface sterilized with 0.25% sodium hypochlorite for 1 min, washed three times with sterilized distilled water, and placed in Petri plates containing 2% water agar. After 3 days of incubation at 26°C, hyphae produced from plant bits were transferred into Petri plates containing potato dextrose agar. Ten isolates were collected from the disease samples. Pure cultures were obtained as abundant, aerial, white mycelia with round to irregular sclerotia, 0.8 to 1.5 mm in diameter. Sclerotia were initially white but later turned brown. The pathogen was identified as *Athelia rolfsii* based on morphology (Ayccock 1966). To confirm the identification, the genomic DNA was extracted from a mycelia mat of the isolates using a ZR fungal/

bacterial DNA miniprep kit (Irvine, CA) and the internal transcribed spacer (ITS) region of rDNA was amplified using the universal primers ITS1 and ITS4 (White et al. 1990). A 550-bp PCR product was sequenced and showed 99% similarity with an *A. rolfsii* isolate (GenBank accession no. MH854711). The generated sequence was submitted to GenBank (MT535585). After identification of the pathogen, a pot experiment was conducted to confirm pathogenicity. Earthen pots (29 cm. diam.) were filled with sterilized soil and kept in a greenhouse. Ten curry leaf plants (50 days old) grown from seed in a separate pot were inoculated with 15-day-old mycelia mats prepared in potato dextrose broth. The stem of each curry plant was artificially injured with a sterile blade and wrapped with moistened sterilized cotton containing the mycelial mat. Five curry leaf plants artificially injured and inoculated with sterilized distilled water were used as controls. The pots were individually covered with plastic bags and kept in the greenhouse at 26°C for approximately 15 days. The inoculated plants started showing symptoms of stem rot 6 days after inoculation and continued drying. The symptoms of stem rot on the inoculated plants were similar to those observed in the field. The fungus was reisolated from the inoculated plants and *A. rolfsii* identification was confirmed based on morphology. No symptoms were observed on the control plants. The obtained culture was deposited in the Indian Type Culture Collection, Division of Plant Pathology, ICAR - Indian Agricultural Research Institute, New Delhi, India (ITC-8666). To the best of our knowledge, this is the first report of stem rot disease of curry leaf plant caused by *A. rolfsii* in India and worldwide. Due to medicinal, flavor, and aroma properties, it is regularly used in India. Curry leaf plant is regularly used as a medical herb in India and therefore this disease poses a significant risk to production.

References:

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