



First report of *Fusarium moniliforme* causing fruit rot of tinda (*Praecitrullus fistulosus*) in India

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Praecitrullus fistulosus is a herbaceous annual plant in the Cucurbitaceae, native to India, and distributed widely in the tropics in the warmer temperate regions. It is also known as Indian baby pumpkin, Indian round gourd, apple gourd or tinda, mostly cultivated as a vegetable. In India, *P. fistulosus* is extensively grown for local and international export markets. From 2009 to 2010, severe fruit rot was observed on *P. fistulosus* in Hyderabad, Mahaboob Nagar and Ranga Reddy districts, Andhra Pradesh, India. All fields were in the late harvesting stage. The most commonly grown cultivars were Arka tinda and Punjab tinda. Disease incidence ranged from 50 to 70% of the fruit. Symptoms began as water soaked lesions that turned reddish-brown. The disease progressed to a soft rot with leakage and whole fruit collapse. Masses of white mycelia surrounded advanced lesions. Affected fruit were unmarketable. A fungus was isolated on potato dextrose agar (PDA) from conidia collected from the white mycelium on infected fruit. Colonies were fast growing, initially white, becoming lavender tinged, colourless to dark purple in reverse (Fig. 1). Hyphae were septate and hyaline. Conidiophores were short, simple or branched. Conidiogenous cells were monophialides. Macroconidia were sparse, very slightly sickle-shaped to almost straight, 3-5 septate, measuring 31-58 x 2.5-3.6 µm. Microconidia were abundant, single celled, oval to club-shaped, measuring 7-10 x 2-3 µm forming in long chains and false heads. Based on cultural and morphological characters, the fungus was identified as *Fusarium moniliforme* (Nelson *et al.*, 1983). The identification was later confirmed by the fungal identification service, Agharkar Research Institute, Pune, India and the culture deposited with Accession No. NFFCI-2506.

For pathogenicity tests, fruits were surface disinfected with 70% ethanol followed by three rinses with sterile distilled water, then 0.4-cm-diameter agar plugs of the isolates were inserted into wounds made with a sterile one cm-diameter borer. Sterile PDA plugs served as negative controls. After inoculation, fruits were placed in sealed, clear, plastic bags. The fruits were incubated at approximately 25°C and evaluated after seven days. Inoculated fruit developed brown, water soaked lesions that expanded from the initial wound site over a period of approximately 13 days after inoculation (Fig. 2). *F. moniliforme* was consistently re-isolated from affected tissue, fulfilling Koch's postulates.

The internal transcribed spacer (ITS) region of ribosomal DNA from the original isolate used for inoculation, and the re-isolated culture recovered

from fruits in the pathogenicity studies, were amplified with polymerase chain reaction (PCR) using primers ITS4 and ITS5 (White *et al.*, 1990). PCR amplicons of approximately 545 bp were obtained from both isolates and sequenced. Sequences of amplicons were identical and the sequence was submitted to GenBank (Accession No. AB649145). The DNA sequence was 99% identical to teleomorph *Gibberella fujikuroi* strains (DQ907616.1; AY188916.1; FJ605250.1). *Gibberella fujikuroi* is a species complex that contains at least six different biological species that have anamorphs in *F. moniliforme*, *F. proliferatum*, and *F. subglutinans* (Gherbawy *et al.*, 2002). *Fusarium moniliforme* has previously been reported on tinda seeds (Shakir *et al.*, 1994) and post harvest fruit rot of tinda caused by *Fusarium* sp. (Fatima *et al.*, 2009) in Pakistan. To our knowledge, this is the first report of *F. moniliforme* as causal agent of *P. fistulosus* fruit rot from India.

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Figure 1



Figure 2

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