

Full Paper**Detection and Management of Seed-borne Toxigenic *Fusarium verticillioides* by Plant Alkaloids****N Deepa¹, S Chandra Nayaka², AC Udaya Shankar², Vijay Krishna Kumar², SR Niranjana, HS Prakash and MP Raghavendra^{1*}**¹Postgraduate Department of Microbiology, Maharani's Science College for Women, JLB Road, Mysore-570 005, Karnataka, India.²Asian Seed Health Centre, Department of Studies in Biotechnology, University of Mysore, Mysore-570 005, Karnataka, India.

Corresponding author E-mail: mpraghavendra@gmail.com

Abstract

Seed samples of paddy, maize and sorghum were collected from different agro climatic regions of Karnataka. All the seed samples were subjected to standard blotter method for the isolation of *Fusarium* sp. that were morphologically identified, recorded. Most seed samples (34 of 36) were infected with *Fusarium verticillioides* and its incidence varied between 1 to 11%. The morphological identity of *F. verticillioides* was further confirmed using polymerase chain reaction. Two sets of primers, one for *F. verticillioides* species- specific and the other specific to fumonisin - producing *F. verticillioides* were employed. Aqueous extract, different solvent extracts and isolated constituents (alkaloid extract) of *Prosopis juliflora* (a weed plant) was tested for antifungal activity against toxigenic and non- toxigenic *F. verticillioides*. All the extracts recorded significant fungitoxicity against both the strains. The comparative evaluation of antifungal activity of the alkaloid extract from *P. juliflora* with chemical fungicides Blitox (copper oxychloride), Hexastop (thiophanate – methyl), Jatayu (chlorothalonil) and Bavistin (carbendazim) revealed that the alkaloid extract was highly effective at low concentration (300µg ml⁻¹) compared to chemical fungicides (2000µg ml⁻¹).

Key words: *Fusarium verticillioides*, *Prosopis juliflora*, antifungal activity**Citation:** Deepa N, Chandra Nayaka S, Udaya Shankar AC, Vijay Krishna Kumar, Niranjana SR, Prakash HS and Raghavendra MP. 2012. Detection and management of seed-borne toxigenic *Fusarium verticillioides* by plant alkaloids. *J Mycol Plant Pathol* 42 (1) : 161-166.