

Diversity of fusarium species associated with post-harvest fruit rot disease of tomato.

ABSTRACT

Fusarium species is one of the common pathogens of post-harvest disease to cause rot on tomato and other perishable vegetable fruits. The objectives of this study were to determine the diversity of Fusarium isolated species from post-harvest diseases of tomato fruit, to identify the causal organisms by using phenotype characteristics and to verify the pathogens of Fusarium fruit of tomato based on pathogenicity test. Carnation leaf-piece agar (CLA) and potato dextrose agar (PDA) media were used for phenotype-based identification of the Fusarium isolates with emphasis for characterizations of the shapes and sizes of the macroconidia and microconidia, colony features, growth rates, conidiogenous cells and chlamydospores. A total of 180 Fusarium isolates were obtained from 13 locations throughout Selangor. *Fusarium solani* was most abundantly isolated (34%) followed by *F. semitectum* (31%) and *F. oxysporum* (31%), *F. subglutinans* (3%) while the least was *F. equiseti* (1%). Twenty seven isolates were tested for pathogenicity test by injecting 1 mL of the conidial suspension onto healthy tomatoes. All the tested Fusarium isolates were pathogenic on tomato with different severity levels. The non-inoculated controls showed no symptoms of fruit rot. The most virulent was *F. oxysporum* isolate B711T with DSI 93.75%, while the least were isolates of *F. solani* (B647T) and *F. oxysporum* (B727T) with DSI 37.5%. Majority of the isolated Fusarium species can potentially produce mycotoxins as their secondary metabolites. The potential production of mycotoxins by pathogenic isolates of Fusarium species in contaminated tomato fruits could pose health hazards when consumed.

Keyword: Disease severity index; Fruit; Fusarium; Pathogen; Post-harvest; Tomato.