

Novel Studies on the Efficacy of Synthetic Fungicides Against Fusarium Wilt Of Tomato Under Tunnel Farming Condition

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Abstract

Tomato (*Lycopersicon esculentum* Mill.) is the most important solanaceous vegetable crop and is one of the most vital vegetables economically in the world including Pakistan. It is susceptible to various diseases in tunnel farming conditions which bring huge losses to its production, among them; fusarium wilt is the most destructive disease. This study was conducted to test the efficacy of synthetic fungicides viz. Metalaxyl+Mancozeb, Copper oxychloride, Benalaxyl+Mancozeb, Carbendazim and Mancozeb at different concentrations (2, 2.5, 3, 3.5, 4 g/litre water) through soil drench method against fusarium wilt of tomato caused by *Fusarium oxysporum* f. sp. *lycopersici* and also to observe the impacts of fungicides on plant height and yield under the tunnel farming condition. The result revealed that Copper oxychloride was significantly effective in all its doses to control the fusarium wilt of tomato as compared to control treatments, the most effective dose was 3 g/l where the disease severity was recorded 6.2% only, followed by Metalaxyl+Mancozeb (4g/l) in which the disease severity was recorded 9.6% as compared to control (76.6%), other fungicides also showed good results but Mancozeb alone was not effective, however it had synergistic effect and could be used as basis with the other product to control the fusarium wilt. Two of the fungicides proved to be the less effective fungicides having no significant effects on plant height and overall yield. The highest plant height was recorded 10.96 and 9.38 as compared to control 3.00 feet, whereas the highest yield per plant was recorded 3.97 and 3.67 kg in case of Copper oxychloride and Metalaxyl+Mancozeb respectively as compared to control 1.60 kg. It is concluded that Copper oxychloride was the most effective fungicide against the fusarium wilt disease among the five tested fungicides under tunnel farming conditions, so should be suggested to be used against this devastating disease.

Biography

ADNAN BALOCH is a Plant Pathologist at Directorate of Vegetable Seed Production Agriculture Research Institute, Quetta, Balochistan. He is also pursued M.Sc (Agri.) Hons Plant Pathology from Sindh Agriculture University, Tandojam, Pakistan. He

Conducted several awareness trainings for local farming communities regarding the control of different plant diseases. His Research Interests are Plant Pathology, Microbiology and Plant Molecular Diseases (Fungi, Bacteria, Virus, Nematodes).