

International Conference on

ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY

&

International Conference on

ECOLOGY AND ECOSYSTEMS

September 18-20, 2017 Toronto, Canada

Efficacy of microbial bio-controls agents to manage the soil-borne pathogens associated with chili (*Capsicum annum* L.) in Pakistan**Kiran Nawaz, Ahamad Ali Shahid, Muhammad Nasir Subhani, Sehrish Iftikhar and Waheed Anwar**
University of the Punjab, Pakistan

Soil-borne pathogens are responsible for a number of chili diseases, including root rot, blight, fruit rot and damping off is mainly controlled by using chemical fungicides, but chemical fungicides have got some adverse effect on the environment as well as human beings. Soil samples were collected from chili growing areas of the Punjab and pathogens were isolated on corn meal agar medium (CMA). Fungal pathogens such as *Phytophthora* and *Pythium* species were identified on a morphological basis by using taxonomic keys available in the literature. Selected fungal isolates showing typical morphological characteristics of *Phytophthora* and *Pythium* species were further verified by amplification of ITS region and TEF1- α gene. Keeping this in mind an experiment was conducted to test the efficacy of four bio-control agents (*Trichoderma viride*, *Trichoderma harzianum*, *Pseudomonas fluorescense*, and *Bacillus subtilis*) in controlling root rot of chili under field and in *in vitro* condition. These antifungal compounds were applied 3 times at 7 days interval after the first appearance of the disease in the field. Among the bio control agents *T. viride* was found highly effective in percent disease reduction (52.39%) of disease over control treatment. The root length (35 cm) and weight (26 g) was also highest in this treatment compared to control treatment. This was followed by treatment T2 i.e. where per cent incidence was (19.10%) respectively, with a 38.97% reduction of disease over control. It was followed by *T. harzianum* where percent incidence and was (22.90%) respectively, with a 26.30% reduction of disease over control. The efficacy of these bio-control agents under *in vitro* conditions was evaluated, *T. harzianum* and *T. viride* showed maximum inhibition of fungal radial growth. Therefore, these microbial bio-control agents can be used for managing the early blight of potato.

kirannawaz34@gmail.com

Notes: