A Promising Tool for Bulb-Rot and Leaf Twisting Fungal Diseases in Red Onion (*Allium Cepa* L.) In Jaffna District

Vigitha Naguleswaran, Kandiah Pakeerathan and Gunasingam Mikunthan

Abstract
The queen of kitchen *Allium cepa* L. cultivation is catastrophic by devastating fungal pathogens in Jaffna, Sri Lanka. A field investigation was carried out to diagnose the fungal diseases of red onion and to provide possible alternative for hazardous fungicides. *Fusarium oxysporum* f. sp. *cepae* was isolated and characterized by cottony and irregular concentric shaped white colony, later turned to creamy non smooth and hyaline mycelium. Disease symptoms were identified as yellowing, curling and necrosis at the tip of leaf blades. With time, whole leaf blades showed symptoms and eventually wither and decay. *Colletotrichum gloeosporioides* produced greyish white to dark gray, circular cottony appearance and produce irregular concentric rings on PDA medium. Disease symptoms of leaf twister are identified as appearance of leaf curling, twisting, chlorosis and abnormal elongation of the pseudo stem. In the field experiment, *Trichoderma viride*, Neem leaf extract, Distillery spent wash were tested with untreated control. All the treatments were replicated four times under randomized complete block design The results of field trial revealed that, the bulb treatment together with foliar application of *Trichoderma viride*, performed very well in aspects, such as, bulb diameter (29.64 mm), circumference of bulb (76.06 mm), mean number of bulbs per bunch (6.95), yield (130.7 Mt/ha) with the negligible disease incidence (1.08 %) in relation to untreated control such as bulb diameter (26.24 mm), circumference (59.9 mm), mean number of bulbs per bunch (5.47), yield (79 Mt/ha) and percent of disease incidence (11.3 %). The results obtained in this study helps to manage the fungal diseases of red onion and best promising alternative to commercial sustainable agriculture.

Key words: Bio-control, *Trichoderma viridae*, Red onion, Leaf twisting, Bulb-rot