PR Verma Award for Ph D Student -2017 Runner

Characterization of Tomato Spotted Wilt Virus Infecting Chrysanthemum and its Travel from Mother Stock Plants to Next Stem Cuttings Generation

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Abstract

Studies on transmission and influence of TSWV on growth and yield parameters through propagative stem cuttings in cut flower chrysanthemum up to 3rd generation were conducted. Spread of TSWV from one stem cutting generation (SCG) cultivar *cv.* Mum yellow to another was studied by symptomatology and Triple Antibody Sandwich Enzyme Linked Immunosorbent Assay (TAS-ELISA). Presence of the virus in mother plants (SCG_0) was initially confirmed by TAS-ELISA and RT- PCR for Nucleocapsid gene. The successive transmission was assessed for three generation by analyzing twenty plants in each generation. The rate of transmission from one SCG to another was 100 per cent in all the generations. All the SCG plants expressed tospoviral symptoms of stunted growth with chlorosis, necrotic spots on leaves, leaf and stem necrosis, flower petal necrosis. No significant difference was observed in symptom expression by different SCG plants. In TAS- ELISA out of 20 SCG plants, all the plants were positive and the A405 value ranged from 1.177 to 3.039. Among all the SCG plants, plant nos 3, 4 and 18 had higher virus titer in all the generations and those plants were very much reduced in growth and yield parameters than other infected SCG plants. Travel of TSWV from $SCG_0$to SCG_3 resulted in reduction in growth parameters were 51.8 and 36.4 per cent in length and diameter of shoot, respectively. Similarly, percent reduction in no. of flower buds/ plant, size of opened flower and fresh flower weight were 37.8, 32.5 and 38.3 per cent, respectively.

Key words: Stem cutting generation, transmission, TSWV

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