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Effect of *Trichoderma virens* on vegetative and reproductive growth of *Capsicum annuum* cv. MI2 (green chilli)

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Plant Growth Promoting Fungi (PGPF) facilitate a favorable interaction with plants in the rhizosphere through several biological processes. PGPF play a significant role in phyto-stimulation, phytoremediation and biofertilization. The use of PGPF as a biofertilizer has steadily increased in sustainable agriculture to reduce the use of chemical fertilizers. The objective of the present study is to investigate the effect of *Trichoderma virens* on vegetative and reproductive growth of *Capsicum annuum* cv. MI2 (green chilli). The trials were conducted in a greenhouse in the botanical garden, University of Kelaniya. Six weeks-old seedlings of *C. annuum* cv. MI2 were transplanted in solarized potting medium prepared by mixing topsoil and compost (3:1), filled into grow bags. Four treatments (10^3 , 10^5 , 10^7 conidia/ mL) including control (treated with Urea, Triple superphosphate and Muriate of Potash) were carried out along with five replications. Potting medium was inoculated with the conidial suspensions at the time of transplanting, followed by four inoculations until the time of uprooting. At the completion of 10 weeks after transplanting, the plants were uprooted, measured and represented as a percentage increment compared to the control; for the vegetative (shoot height, number of leaves, leaf area, average leaf length, girth of tap root, total leaf chlorophyll, fresh and dry weights of shoot and root mass) and reproductive parameters (number of buds, flowers and pods) of *C. annuum* cv. MI2. The plants treated with 10^7 conidia of *T. virens* per mL showed a significant increase in growth parameters of shoot height (18.55%), leaf number (79.78%), fresh weight of shoot (122.4%), fresh weight of root (14.17 %) and a significant increase in reproductive parameters of, number of buds (18.18%), and number of pods (143.75%) compared to the control was observed. Moreover, the plants treated with 10^5 conidia of *T. virens* per mL showed a significant enhancement in the growth parameters, leaf area (17.63%), total chlorophyll content (8.87%) and dry weight of root (54.16%) compared to the control. Present study clearly indicated that *C. annuum* cv. MI2 show better vegetative, as well as reproductive growth performance, when treated with conidial suspensions of *T. virens*. Therefore, *T. virens* can be suggested as a potential biofertilizer for *C. annuum* cv. MI2.

Keywords: Biofertilizer, *Capsicum annuum*, PGPF, *Trichoderma virens*.