Effect of endophytic fungi Piriformospora indica on some physiologic traits of strawberry under hydroponic culture conditions

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Abstract
Microbial endophytes, which are considered as the most important soil microorganisms, increase the yield of their host plants by creating changes in their genetic, physiological and ecological traits. Piriformospora indica fungus is a member of Sebacinales order, which increases plant biomass and resistance to living and non-living stresses. In this study, effect of different concentrations [0 (control), 80, 160, 250 and 330 spores/ml] of endophytic fungus P. indica on plant height, chlorophyll indicator and branching of strawberry, under hydroponic culture, was examined in a completely randomized design with 28 replications. P. indica was inoculated by injecting around roots of strawberry plants. Two months after fungal inoculation, plant height and chlorophyll content was measured by using coulisse and SPAD, respectively. Results showed that maximum chlorophyll content, branching and plant height belongs to 330 spores/ml treatment with 15%, 30% and 24.5% increase as compared to control, respectively. Also, there was no significant difference among 80, 160 and 250 spores/ml treatments, while 330 spores/ml treatment was significantly different from other treatments (P ≤0.01). Therefore, it can be concluded that high concentrations of fungus P. indica can affect the abovementioned traits and thus could have a positive effect on strawberry plant's growth and yield.

Keywords: Piriformospora indica, Strawberry, Hydroponic, Endophyte, Chlorophyll indicator, Plant height.