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IMPACTS OF COMPOST TEA RATES ON YIELD, MACRO AND MICRO
NUTRIENTS, UPTAKE IN MEDICINAL PLANT NAEIN-E HAVANDI
(*ANDROGRAPHIS PANICULATA*)

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Naein-e Havandi (*Andrographis paniculata*) is a medicinal herb in the family Acanthaceae. The leaves of the mature plant contain abundant diterpenoids of medicinal properties [1]. Plants' species require macro and micro nutrients to complete the growth cycles such as photosynthesis, enzymes' activities and secondary metabolite production. This study was conducted to investigate the macro and micro nutrients uptake of naein-e havandi as affected by compost tea rates to determine the optimum level of fertilizer rates required for optimum growth and quality of naein-e havandi. The plant was propagated using seed and planting in a polybag. After four weeks, the plant was transplanted into polybag. Compost tea was used at rates of (0, 25, 50, 75 and 100 %). Treatments were arranged in Randomized Completely Block Design with three replicates. Before flowering stage, the plants were harvested. The results revealed that rates of compost tea significantly affected growth indices, Mg⁺² and Ca⁺² nutrients uptake, while there were no significant difference on other macro and micro nutrients uptake. Compost tea rates caused an increase in growth indices, N, P and K uptake, while a reduction in micro nutrient uptake was happened at the same conditions. Soil amendment with compost tea gave a favorable effect on yield and improved soil pH and CEC. The total dry weight (TDW) was highly significantly differences among the treatments. The greatest TDW (26.15 g) and macro nutrients uptake were observed at the 75% rate of compost tea. These results suggested that *A. paniculata* could reach high biomass and macro and micro nutrients uptake with 75% rate of compost tea. However, in general compost tea had a good potential to improve soil pH and increase yield, macro and micro nutrients uptake. In agreement with the reports of Gayler [2] and Yasmeen et al. [3], the findings of this study indicated that increasing nutrients, especially N, P, K and yield increased. Interestingly, TDW was highly correlated to Mg⁺² and Ca⁺² uptake, while the lowest correlation was observed between TDW and micro nutrients uptake. Compost tea rates caused changes in macro and micro nutrients' uptake, which may lead to an increase in photosynthesis capacity and respiration.

References

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