

EFFECTS OF “GM/GR” BIOSTIMULANT ON GROWTH AND YIELD OF SALAD CUCUMBER

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This study investigated the efficacy of a proprietary biostimulant, “GM/GR”, which contains nano-nutrients suspended in a 99.637% sucrose carrier, on the growth and yield of salad cucumber. The biostimulant was designed to stimulate growth and enhance resistance to biotic and abiotic stress factors in salad cucumber. The greenhouse trial was conducted at the sub-campus in Mahalluppallama, Faculty of Agriculture, University of Peradeniya, under controlled conditions (29 °C day temperature, 27,000 lux light intensity, and 77% RH) over a 10-week period. A completely randomized design with three replicates (three plants per replicate) was implemented. The two treatments were control (T1) with recommended levels of Albert fertilizer and test (T2) with Albert fertilizer supplemented with GM/GR. A 0.067 g/L GM/GR solution was applied to T2 as 400 mL per plant three weeks after planting (WAP) and 800 mL per plant at six WAP. ANOVA and the Friedman test were used to analyse continuous and discrete data, respectively. Significantly higher ($p < 0.05$) values were observed in plant growth parameters such as stem diameter and leaf area per plant in T2 compared to the control. The total fruit yield per plant (1.7 kg) was not significantly different between treatments, and the difference was only 13.33% higher in T2 compared to T1. However, T2 recorded a relatively higher number of flowers, up to 6 WAP. No significant differences were observed between treatments in antioxidant concentrations, polyphenols, Vitamin C, total soluble solids, fruit dry weights, or leaf chlorophyll content, indicating that GM/GR does not alter the chemical composition of the plant. Overall, the findings suggest that combining GM/GR with recommended levels of Albert fertilizer can enhance growth and yield in salad cucumber without affecting fruit composition under greenhouse conditions.

Keywords: GM/GR biostimulant, Greenhouse cultivation, Salad cucumber yield