

EFFECT OF NITROGEN AND NAPHTHALENE ACETIC ACID ON GROWTH, YEILD AND NUTRIENT CONTENT OF STEVIA

Mohammed Ariful Islam*

Executive Summary

Due to increased number of diabetic patients and consumer concern, cultivation of natural sweetener like stevia in Bangladesh is gaining importance. The experiment was conducted at the Bangladesh Sugarcane Research Institute (BSRI) from July 2021 to June 2022 to study the effect of nitrogen and naphthalene acetic acid on growth, yield and nutrient content of stevia. The trail was laid out in Randomized Complete Block Design (RCBD) with three replications. The treatments (nitrogen) used were control, 105, 140, 175 210 kg ha⁻¹. The selected naphthalene acetic acids (NAA) are control, 50 ppm, 100 ppm and 150 ppm. Significant variations were observed on plant height, number of leaves plant⁻¹, and leaf area plant⁻¹ (cm²) number of primary and secondary branch plant⁻¹ in different level of nitrogen application. The highest plant height, number of leaves plant⁻¹, leaf area plant⁻¹ (cm²) number of primary and secondary branch plant⁻¹ was observed in 140 kg ha⁻¹ treatment and the lowest was observed in control treatment. Applying 100 ppm NAA was the significant effect in increasing and the lowest plant height, number of leaves plant⁻¹, leaf area plant⁻¹ (cm²) number of primary and secondary branch plant⁻¹ was observed in control (NAA) treatment. The highest plant height, number of leaves plant⁻¹, leaf area plant⁻¹ (cm²) number of primary and secondary branch plant⁻¹ heights was found in N₃H₃ treatment and the lowest was found in N₁H₁ at all growth stages. N, K, Mg, Zn content of stevia leaf was significantly affected by different levels of nitrogen and NAA. Significantly highest fresh weight plant⁻¹, fresh weight ha⁻¹, dry weight plant⁻¹, dry weight ha⁻¹ was observed in treatment and lowest was observed in N₁ treatment in stevia plant. The interaction effect of nitrogen and NAA in most of the combination should significantly the highest fresh weight plant⁻¹, fresh weight ha⁻¹, dry weight plant⁻¹, dry weight ha⁻¹, fresh leaf yield ha⁻¹ and dry leaf yield ha⁻¹ was observed in N₃H₃ treatment and lowest was observed in N₁H₁ treatment. The interaction effect of nitrogen and NAA in most of the combination should significantly the highest fresh weight plant⁻¹, fresh weight ha⁻¹, dry weight plant⁻¹, dry weight ha⁻¹, fresh leaf yield ha⁻¹ and dry leaf yield ha⁻¹ was observed in N₃H₃ and lowest was observed in N₁H₁ treatment. Thus, the application of nitrogen and naphthalene acetic acid had a positive impact on leaf yield components resulted in higher yield of study. From the result it can be recommended that nitrogen 140 kg ha⁻¹ and NAA 100 ppm is might be suitable for field cultivation of stevia production in Bangladesh.

*Professor, Dept. of Agricultural Chemistry, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh