



Effect of Plant Growth Regulators on Growth and Yield of Soybean (*Glycine max*)

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Abstract

An experiment was conducted to identify the effect of plant growth regulators (PGRs) under protected house conditions on growth and yield of soybean (Pb-01 variety) at University of Ruhuna. Planting spacing was managed according to the recommendations of Department of Agriculture, Sri Lanka. Four PGRs (T2=Sodium Nitrophenolate (0.4 ml/l), T3=Pacllobutrazol (250 mg/l), T4=Ethephon (0.65 ml/l), T5=Cycocel (0.875 ml/l) and T1=distilled water (control) were used as treatments. T1, T2, T4 and T5 were applied as foliar sprays and T3 was drenched to the soil 28 days after planting (DAP). Completely Randomized Design (CRD) with five replicates was used. As growth parameters, plant height (cm), number of leaves and number of shoots per plant were recorded before applying PGRs (BA), ten days after application (10-DAA) and at the harvesting stage (HS). Number of flowers and flower nodes per plant were recorded at the end of the flowering period as yield parameters. After harvesting, number of pods/plant, pod percentage/plant, number of seeds/plant and 100 seed weight were also recorded. Data were analyzed using ANOVA and means were separated by Dunnett's test at 5% probability level. Results revealed that, significantly lower plant height was observed in T3 (38.46 cm) (38.58 cm) and T4 (34.48 cm) (42.64 cm) at 10-DAA PGRs and HS while significantly lowest number of leaves/plant (3) and number of shoots/plant (1.4) were observed in T4 at 10-DAA PGRs. Significantly lowest and significantly highest number of flower nodes/plant were observed in T3 (21.7) and T4 (42.3) respectively. Empty pods were significantly higher in T3 (4.97) and T4 (8.23). One seeded pods were significantly higher in T3 (16.38) and T4 (15.07) and two seeded pods were significantly lower in T3 (25.77), T4 (22.03) and T5 (34.42) while three seeded pods were significantly lower in T3 (2.89). Significantly lower number of seeds was recorded in T2 (69.7), T3 (49.8) and T4 (59.0). Significantly higher hundred seed weight was observed in T2 (12.36), T3 (12.60) and T4 (12.22). Therefore, Sodium Nitrophenolate 0.4 ml/l (T2) applied as foliar spray 28 DAP is identified as the best PGR for improving growth and yield of soybean.

Keywords: *Growth, Growth Regulators, Soybean, Yield.*

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