

IMPACT OF INDOLE BUTYRIC ACID (IBA) AND GIBBERELIC ACID (GA₃) ON MUNG BEAN (*Vigna radiata* (L.) Wilczek) UNDER MOISTURE STRESS

W.S.N. Gamage¹, D.A. Shirani², W.M.R.S.K. Warnasooriya¹, P.N.M.S. Piyarathne¹ and S.S.W. Samarasekara²

¹Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.

²Grain Legume and Oil crops Research and Development Center, Angunakolapelessa, Sri Lanka.

Growth, yield, and hard seededness of mung bean are adversely affected by moisture stress. Plant growth regulators (PGRs) are capable of alleviating the moisture stress. A pot experiment was conducted at Grain Legume and Oil Crops Research and Development Centre, Angunakolapelessa during Maha, 2023 to investigate the effect of exogenous application of Indole Butyric Acid (IBA) and Gibberellic Acid (GA₃) on growth, yield and hard seededness of mung bean under moisture stress. Three GA₃ concentrations (0, 100, 200 ppm) were tested along with three levels of IBA (0, 50, 100 ppm) in a two-factor factorial experiment laid out in a Completely Randomized Design with four replicates under rainout shelter. Plants were maintained at 50% of field capacity to simulate moisture stress and PGRs were applied at 30 and 40 days after planting. Growth and yield parameters were recorded weekly. Statistical analysis was performed using R studio software using Tukey test. Combinations of IBA and GA₃ significantly ($p \leq 0.05$) increased the pod length, seeds per pod and seed weight per pod compared to control under moisture stress. Foliar application of IBA at 50 ppm recorded the highest number of pods per plant, number of filled pods per plant, seed yield per plant and the number of seeds per pod. Treatment with 200 ppm GA₃ alone recorded the greater canopy width and the number of leaves per plant. Hard seed count was significantly reduced by the treatment combination of 50 ppm IBA+100 ppm GA₃. The study revealed that exogenous application of 200 ppm GA₃ and 50 ppm IBA respectively has stimulated the growth and yield attributes of mung bean. In conclusion, exogenous application of PGRs can boost the growth and yield of mung bean under moisture stress. Repeating the research in an open field condition during Yala season is suggested prior to recommendation.

Keywords: Growth, Hard seededness, Plant growth regulators, Yield