

Effect of growth regulators on growth enhancement of Mangosteen (*Garcinia mangostana*) seedlings

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Abstract

Mangosteen (*Garcinia mangostana*) belongs to family Clusiaceae considered as one of the highest demanded tropical fruits with a higher economical potential. In Sri Lanka, Mangosteen plants found as backyard plants or small cultivations in both mid and wet low-country areas. This plant has inherent slow growth habit with long juvenile period of 8-12 years to bear fruits and seedlings should be maintained at the nursery for 02 years or more. Therefore, it is important to investigate possible growth enhancement at the nursery stage to expedite early growth and development of mangosteen. For this purpose, an experiment was carried out at Fruit Research and Development Institute, Kananwila, Horana, Sri Lanka during October 2019 to February 2020. Nine treatments were formulated with sole and combined application of Gibberellic Acid (GA₃) and Cytokinin (6-Benzylaminopurine/6-BAP). Treatments were arranged in Randomized Completely Block Design (RCBD) with three replicates. Hormones were applied at weekly intervals for 12 weeks as foliar sprays. The growth measurements of stem height (cm), internodal length (cm), stem diameter (mm) and number of leaves were taken at two weeks' intervals. Results revealed that, combine application of Gibberellin 200 ppm + Cytokinin 100 ppm (T8) had the highest stem height (6.0 cm) and internodal length (2.13 cm). The same treatment also resulted in relatively high stem diameter (1.36 mm) and number of leaves (3.9) at the end of 12 weeks' period.

Keywords: Gibberellic Acid (GA₃), 6-Benzylaminopurine (6-BAP), Growth enhancement, Mangosteen seedlings

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