

**THE EFFECT OF MANGOSTEEN PEEL EXTRACT
ON SOYBEAN (*glycine max* L.) GROWTH AND YIELD
IN DIFFERENT SALINITY LEVELS**

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ABSTRACT

Soybean production in Indonesia can be enhanced through the expansion of cultivated areas into marginal or suboptimal lands such as saline soils. However, salinity stress reduces productivity due to osmotic imbalance, nutrient deficiency, ion toxicity, and oxidative stress. Natural antioxidant sources, such as mangosteen peel extract, may alleviate these adverse effects. This study investigated the influence of mangosteen peel extract on soybean growth and yield under different salinity levels. A randomized block design with a factorial arrangement was employed, consisting of three salinity levels (0%, 0.5%, and 1% NaCl) and two extract concentrations (0% and 1%), with four replications. Growth parameters included leaf area, crop growth rate, relative growth rate, and relative leaf water content, while yield components comprised number of pods per plant, pod weight per plant, seed weight per plant, 100-seed weight, and electrical conductivity. Data were analyzed using analysis of variance followed by Duncan's multiple range test at the 5% significance level. The results revealed significant interactions between extract concentration and salinity level on pod weight per plant and 100-seed weight. Independently, mangosteen peel extract enhanced leaf area and crop growth rate at 10–20 days after sowing, but had no effect on net assimilation rate or relative leaf water content. Overall, application of 1% mangosteen peel extract improved soybean growth and yield compared with the untreated control.

Keywords: Mangosteen peel extract, Salinity stress, Soybean