

Application of jasmonic acid: effects on growth and phenolic constituents' production of roselle (*Hibiscus sabdariffa* var. ukm-2)

ABSTRACT

Plant growth regulators (PGRs) are widely reported to have key role related to plant growth and metabolite production. However, studies on the impact of PGRs especially jasmonic acid (JA) on phenolic constituents in Roselle has not been reported yet in any previous studies. The present study investigates the effect on plant growth and phenolic constituents' production in response to JA application with different concentrations of *H. sabdariffa* var. UKMR-2. JA solution was applied at 65 days after transplanting (DAT) according to their treatment designated; 0.5 mM (JA1), 1 mM (JA2) and Control (untreated). The growth performance was recorded and the assessments of phenolic constituents in the calyx water extract followed Folin-Ciocalteu assay, pH differential method and DPPH assay. The results showed that application of JA has significant influences on phenolic constituent production and antioxidant activity ($p < 0.05$). Between JA concentrations, increasing the JA concentration from 0.5 to 1 mM resulted in a decreasing value of total phenolics and total anthocyanins content. However, plant growth parameters showed that there is no significant effect with JA treatments ($p > 0.05$). Therefore, the result suggested that exposure to JA decreased the UKMR-2 plant growth and calyx yields, phenolic constituents' content and antioxidant activity compared to Control with the sequence: Control > JA1 > JA2.