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**Foliar spray of potassium silicate, aloe extract composite and their effect on growth and yielding capacity of roselle (*Hibiscus sabdariffa* L.) under water deficit stress conditions.**

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**Abstract**

Plants face various abiotic stresses such as drought and salinity during growing stages adversely affect their physiological and biological processes. The use of bioactive compounds could mitigate the detrimental effects of abiotic stresses. The experimental layout was a split split-plot system based on a randomized complete block design with three replications. The treatments included three levels of potassium silicate (0, 3, and 6 cm L<sup>-1</sup> or 0, 12, and 24 L<sup>-1</sup> of K<sub>2</sub>SiO<sub>3</sub> ha<sup>-1</sup>) combined with three levels of *Aloe saponaria* L. extract (Ae) 0, 0.5, and 1% under two levels of irrigation regimes (IR70 and IR100; representing irrigation at 70 and 100% of crop evapotranspiration). The obtained results revealed that control roselle plants were adversely affected by drought, which recorded the lowest growth and yield parameters. Meanwhile, the exogenous addition of Ae and KSi significantly improved the growth and yield of deficit and full irrigated roselle plants. The foliar application of Ae (1%) and KSi (3 or 6 cm L<sup>-1</sup>) under full irrigation led to a significant increase in growth and yield parameters of roselle. In

addition, considerable enhancements in yield quality of roselle plants under deficit irrigation were recorded.