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EFFECT OF SALICYLIC ACID ON GROWTH, YIELD AND ACTIVE SUBSTANCES OF CITRULLUS COLOCYNTHIS L

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Citrullus colocynthis L. is an important medicinal plant belonging to Cucurbitaceae family. All parts of the plant namely leaf, flower, root, fruit and seed contain active substances valuable for medicinal applications such as diabetes. In this study effect of foliar application of salicylic acid on growth, yield and quantity of active substances was investigated. Evaluated characteristics were including fresh and dry weight of foliage, plant length, fruit yield, as well as chlorophyll, Flavonoid, Phenol contents and antioxidant activities. Various concentrations of salicylic acid (0.3, 0.6, 1.2 mM) along with control (no treatment) were applied. Based upon statistical analysis ($P \leq 1\%$), the results showed that salicylic acid had significant influence on evaluated parameters. The best performance and highest values of investigated parameters was observed in the level of 0.3 mM salicylic acid. In this concentration, the highest fruit yield (24931 kg/ha compared to 15601 kg/ha in control), fresh weight (9972.2 kg/ha compared to 5152.8 kg/ha in control), Dry weight (2430.6 Kg/ha compared to 1236.1 Kg/ha in control), flavonoids (7.1769 mg/100gr FW compared to 4.0433 mg/100gr FW in control). The highest phenol content (18.113 mg/100gr FW compared to 10.723 mg/100gr FW in control) was recorded in 0.6 mM salicylic acid and the highest amount of chlorophyll (1.10692 mg/100gr FW compared to 0.77373 mg/100gr FW in control) achieved at the concentration of 1.2 mM salicylic acid. In conclusion, the most effective concentration of salicylic acid in terms of growth, yield and active substances was obtained in 0.3 mM and can be recommended for production of this medicinal plants.

Keywords: Active substances, Flavonoids, Foliar application, Medicinal plants, Yield