# The effect of foliar application of salicylic acid and thiamine on some physiological and biochemical traits of tuberose (*Polianthes tuberosa* L.) in soil and soilless cultivation systems

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## Abstract

Polianthes is one of the most important cut flowers in Iran and the world, and increasing its quality and quantity is one of the most important issues. In this study, to evaluate the effects of foliar application of salicylic acid and thiamine in two cultivation systems on biochemical characteristics of tuberose, a factorial experiment, based on completely randomized design with 3 replications, was conducted in the greenhouse of Gorgan University of Agricultural Sciences and Natural Resources. Treatments consisted of salicylic acid (concentrations of 0, 50, 100, 150 and 200 mg/L) and thiamine (100 and 150 mg/L) in two soilless and soil culture systems. Results showed that the treatments had significant effects on biochemical characteristics. In this experiment, the highest amount of catalase enzyme was 1.69 µmol peroxide per minute per mg and 1.175 µmol/g fresh weight per minute peroxidase was related to 50 and 100 mg/L salicylic acid treatments, respectively, and the lowest amount was observed in control treatment (0.87 and 0.56) respectively. Therefore, it seems that salicylic acid and thiamine can increase the photosynthetic pigmentation and activities of antioxidant enzymes of tuberose flowers. Also, the highest amount of concrete (8.49%) was reported in 200 mg/L salicylic acid treatment and its lowest value (4.47%) was reported in control treatment. Based on the results of this research, the soilless system was in all physiological characteristics at a higher level than the soil system. So that the amount of chlorophyll a, b, total and reduced sugar in soilless substrate was 0.16, 0.41, 0.57 and 0.11 mg per gram of fresh weight, respectively. Concrete and protein content were 0.07% and 0.33%, respectively, which were the highest in comparison to the soil culture system.

**Keywords:** Growth regulator, Culture system, Cut flower, Physiological characteristics.

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