

# Correlation between vase life and biochemical parameters in ornamental sunflower (*Helianthus annuus* L.) affected by spraying chemical materials during the growth stages

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## Abstract

The study was conducted to investigate the correlation between vase life and biochemical parameters in sunflower. The experiment was arranged in a randomized complete block design with five replications. Plants were sprayed by 50/100 mg L<sup>-1</sup> salicylic acid, 50/100 mg L<sup>-1</sup> thiamine, 100/200 mg L<sup>-1</sup> ascorbic acid, and distilled water as control group at the eight-leaf stage. After one month, the spray treatments were repeated. The effects of preharvest spray treatment on vase life, protein, lipid peroxidation, peroxidase, polyphenol oxidase, and catalase were investigated. The result showed that thiamine by the most prolonged vase life was the most effective treatment at 50 mg L<sup>-1</sup> with 25 days. Its vase life was more than twice the vase life of the control treatment. Also, the application of both concentrations of salicylic acid, ascorbic acid, and thiamine increased the amount of protein content, catalase, and peroxidase activity, and decreased polyphenol oxidase activity and lipid peroxidation among petals and leaves. Besides, while the vase life exhibited a positive correlation with peroxidase, catalase, and protein activity, it showed a negative correlation with polyphenol oxidase and lipid peroxidation.