



Nitric Oxide Increased the some Secondary Metabolites, Antioxidant Potential and Proliferation in *in vitro*-cultured Medicinal Plant Caper *Capparis spinosa*

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Nitric oxide as a signal molecule participates in several growth and developmental processes and regulates important physiological processes in plants [1]. In this work, sodium nitroprusside (SNP) was utilized as the donor of nitric oxide to investigate the effects of exogenous nitric oxide on growth, antioxidant activity and some secondary metabolite production of *in vitro*-cultured *Capparis spinosa* plants. The shoot explants were treated with different concentrations of SNP (0, 0.0625, 0.125 and 0.25 μ M). The experiment was conducted in a randomized complete design with 4 replications. After 2 months from the date of treatment, the treated specimens were examined. The results showed that nitric oxide was effective in stimulating new branches and biochemical traits, and in the treatment of 0.25 μ M, the most stimulation was observed in morphological and biochemical traits. There was a significant difference between the effect of different concentrations of nitric oxide on the amount of proliferation and the highest level of proliferation was achieved at 0.25 μ M of nitric oxide concentration. It was also observed that with increasing nitric oxide concentration, the content of biochemicals such as phenolic compounds, carotenoids, flavonoids, anthocyanins, chlorophyll content, rhamnose, glucose, mannose and protein and antioxidant potential increased significantly. Therefore, in order to achieve the desired proliferation of the caper and the contents of the some secondary metabolites, it is better to use concentration of 0.25 μ M nitric oxide. It seems that nitric oxide elicited caper tissue culture and increased the secondary metabolite production.

Keywords: Caper; Tissue culture, Secondary metabolite, Proliferation, Nitric oxide

Reference

[1] Amooaghaie, R.; Tabatabaei, F.; Ahadi, A. M. *Ecotoxicol. Environ. Safe.* **2015**, *113*, 259–270.