

## **Abstract**

*Salvia Leriifolia* Benth. (Lamiaceae) is an endangered medicinal plant with analgesic, anti-inflammatory, anti-diabetes and antioxidant properties. Many of the beneficial effects of *Salvia* spp. are attributed to the phenolic compounds. The use of elicitors such as chitosan in the tissue culture is one of the main methods for increasing the production of secondary metabolites. The aim of this study was to investigate the effect of different concentrations of chitosan (10, 50 and 100 mg/L) on micropropagation, secondary metabolites and antioxidant activity of *S. leriifolia* in *in vitro* condition. For this purpose, Apical buds of sterile seedlings were used as explant. Apical buds were cultivated in two MS culture medium contain hormones a: BAP2+IBA 0.5 mg/L b: BAP1+IBA 0.5 mg/L with different concentrations of chitosan. After 30 days, micropropagation and biochemical parameters were investigated. The content of phenol and flavonoids were measured by Folin-Ciocalteu and aluminum chloride, respectively. Antioxidant activity was measured by FRAP, DPPH methods and phenolic acids by HPLC method. The results showed that the highest stem length, stemming and leaf number were observed in both media under the influence of the concentration of 10 mg/L of chitosan. The highest levels of phenol and flavonoid were observed at the concentration of 50 mg/L of chitosan. The highest antioxidant activity was observed at the concentration of 50 mg/L of chitosan. The amount of phenolic acids, such as gallic acid, caffeic acid, benzoic acid and rosmarinic acid, was significantly increased by the different concentrations of chitosan, so that the highest amount was observed under the influence of 50 mg/L of chitosan. In general, by optimizing the chitosan concentration, it is possible to improve secondary metabolites production, including phenolic acids, and antioxidant properties of *S. leriifolia*.

**Keywords:** Chitosan, Phenolic compounds, Antioxidant Activity, *Salvia leriifolia* Benth.



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Effect of different concentrations of chitosan on micropropagation and some  
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