

عنوان مقاله:

Effect of chitosan on regeneration and secondary metabolite production of *Lilium regale*

محل انتشار:

مجله فیزیولوژی و پرورش گیاهان، دوره 11، شماره 2 (سال: 1400)

تعداد صفحات اصل مقاله: 14

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خلاصه مقاله:

Lilium spp. belong to the Liliaceae family. This plant contains a valuable secondary metabolite which can be increased by the stimuli treatment. The main goal of the present study was to evaluate the effects of chitosan as a stimulant on regeneration and production of secondary metabolites of *Lilium regale*. The experiment was carried out as a completely randomized design in the MS medium with 10 replications. Five different concentrations (0, 50, 100, 150, and 200 mg/L) of chitosan were used as treatments. Different morphological traits, leaf chlorophyll, and secondary metabolites were measured. Analysis of variance showed that chitosan significantly affected plant height, fresh weight, bulblet number, root number, chlorophyll a and b, total chlorophyll, phenols, flavonoids, and regeneration percentage. The highest and lowest fresh weight and root number were obtained from 200 ppm of chitosan and the control, respectively. The results also showed that the plant height and bulblet number in all concentrations of chitosan were higher than the control. The highest and lowest regeneration rate were obtained from the 200 ppm chitosan and the control, respectively. However, the highest amount of phenols, flavonoids, and chlorophyll was obtained from the 200 ppm chitosan. According to the results of the present study, chitosan at the rate of 200 ppm had a more positive effect on regeneration and production of secondary metabolites of *Lilium regale* compared to other concentrations.

کلمات کلیدی:

Chitosan, In vitro culture, Lily flowers, Regeneration, secondary metabolites

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