

عنوان مقاله:

Selenium elicitation and increase of secondary metabolites production by suspension-cultured *Astragalus verus* cells

محل انتشار:

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خلاصه مقاله:

Secondary metabolites with low molecular weight and high economic, pharmaceutical and industrial values play an important role in protecting plants against biotic and abiotic stresses. *Astragalus* is a medicinal herb, rich in secondary metabolites. Selenium (Se) is an essential element for humans, animals, many bacteria, and a beneficial element for plants. The plants response to selenium is depending on their species and the Se supply concentration. In the present study, calli were established from the seeds of *Astragalus verus* and suspension cultures were established from the calli. The cells were treated with different concentrations of sodium selenate (0, 0.5, 2.5, 12.5, and 62.5 μM) for 1 week at their logarithmic growth phase (based on growth curve). Cell growth and viability significantly decreased by selenium at concentrations higher 2.5 μM . In comparison with control group, significant increases in Absciscic acid and Salicylic acid were observed at higher Se concentrations, whereas methyl jasmonate significantly increased at lower Se supply. At 62.5 μM Se supply the contents of alkaloids, phlobaphene, steroidal and triterpenoid saponins, and tannin respectively increased by 5.1, 1.51, 1.62, 1.75, and 2.04 times of control. The results provides a practical method for remarkable stimulation of natural compounds of *Astragalus* by Se

کلمات کلیدی:

Astragalus verus, آلکالوئیدها, Alkaloids, *Astragalus verus*, Phytohormones, Phlobaphene, Saponin, Sodium selenate, فلوبافن, ساپونین, سلنات سدیم, هورمونهای گیاهی

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