

Abstract

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Title of diploma thesis: Secondary metabolites of plant tissue culture of *Trifolium pratense* L.

Explant cultures are perspective sources of secondary metabolites. Nevertheless production of flavonoids and isoflavonoids by the suspension culture of *Trifolium pratense* L. is not high. Elicitation is one of the methods used to enhance the biosynthesis of secondary metabolites. Elicitation induces physiological changes, stimulates defensive or stress-induced reactions in plants and subsequently triggers the synthesis of secondary metabolites.

The objective of this study was to observe the influence of two elicitors – abscisic acid and ascorbic acid – on the production of flavonoids and isoflavonoids by the *Trifolium pratense* L. suspension culture (Sprint variety).

The culture was cultivated in Gamborg medium to which 2 mg.l⁻¹ of 2,4-dichlorophenoxyacetic acid and 2 mg.l⁻¹ of 6-benzylaminopurine were added, at the temperature of 25 °C and 16 hours light / 8 hours dark period.

The best elicitation effect of abscisic acid on the production of flavonoids and isoflavonoids was observed after a 6-hour application of the highest 500 µmol.l⁻¹ concentration. However its positive influence decreased with the duration of elicitation.

Ascorbic acid as an antioxidant showed the best stimulative effect after a 168-hour application of the lowest 5 µmol.l⁻¹ concentration. Both flavonoid and isoflavonoid increase was observed. In comparison with abscisic acid, its beneficial effect increased with the duration of elicitation.