

## **Abstract**

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**Title of diploma thesis:** Secondary metabolites of plant cultures *in vitro* I.

**Key words:** Suspension cultures, *Trifolium pratense*, phytoestrogens, flavonoids, isoflavonoids

Explant cultures are source of plant secondary metabolites. Nevertheless the production of secondary metabolites is usually low in explant cultures. This production can be increased by elicitation methods. Suitable elicitor is added into the cultivate medium and leads to gene expression and production of secondary metabolites.

The aim of this study was to observe the influence of sodium chloride on the production of flavonoids and isoflavonoids by the *Trifolium pratense* L. suspension culture (Tempus variety).

The culture was cultivated on Gamborg nutrient medium with addition of 2 mg.l<sup>-1</sup> 2,4-dichlorophenoxyacetic acid and 2 mg.l<sup>-1</sup> 6-benzylaminopurine. Cultivation proceeded in 25°C temperature and 16 hours light/8 hours dark period. Then determination of flavonoids in according to Czech Pharmacopoeia 2009 and the determination of isoflavonoids by HPLC method was performed.

The best elicitation effect on the production of flavonoids was 175 mmol.l<sup>-1</sup> of sodium chloride after a 3 and 7 days elicitation. Accumulation was enhanced about 67 % and 101 % in comparison with control culture. Elicitation had a positive effect on the production of isoflavonoids genistin and daidzein. Three days effect of sodium chloride was more effective on production of this isoflavonoids. 25 mmol.l<sup>-1</sup> was the most effective concentration of the sodium chloride.