

Abstract

Charles University in Prague, Faculty of Pharmacy in Hradec Králové

Department of Pharmacognosy

Candidate: Mgr. Jitka Vaňková

Supervisor: PharmDr. Marie Kašparová, Ph.D.

Title of Rigorous Thesis:

Abiotic elicitation of suspension culture of *Trifolium pratense* L.

We investigated the effect of a 24-hour application of aluminum chloride elicitor alone (1 μmol , 10 μmol , 100 μmol) and in combination with calcium chloride (0,1 mmol, 1 mmol, 10 mmol) and verapamil (1 μmol , 10 μmol , 100 μmol) on the production of flavonoids and isoflavonoids in 4-year-old and newly derived suspension cultures of *Trifolium pratense* L. Cultures were cultivated on a medium according to Gamborg added 2,4-dichlorophenoxy acetic acid (2 $\text{mg}\cdot\text{l}^{-1}$) with 6-benzylaminopurine (2 $\text{mg}\cdot\text{l}^{-1}$) at 25 ° C and a light period of 16 hours light / 8 hours dark.

The maximal production of flavonoids (0.262% and 0.220%) resulted in two observed groups of cultures add the weakest concentration of aluminum chloride (1 μmol) and calcium ions (0.01 mmol). Subsequent addition of elicitation effect of verapamil as a calcium channel blocker has been demonstrated by reducing the production of metabolites observed in both cultures only after the strongest concentration of 100 μmol .

The newly derived suspension cultures of *Trifolium pratense* L. was also tracked production of isoflavonoids. The greatest effect of elicitation on the production genistin (0.14%) had a concentration 10 μmol of elicitor and 1 mmol of calcium chloride.