SUMMARY

Explant Culture of *Trifolium pratense* L.

A principial precondition for successful elicitation used to increase the production of secondary metabolities is, among other, finding a suitable elicitor, its concentration and the optimal period of time of the action of the elicitor on the plant culture *in vitro*, which was the aim of the present thesis. The effect was examined of a 6, 24, 48 and 168 hour action of the solution of mercury dichloride (in four concentrations) on the production of flavonoids and isoflavonoids in the callus and suspension culture of *Trifolium pratense* L. cultivated on a Gamborg medium with an addition of 2 $mg.l^{-1}$ of 2,4-dichlorophenoxyacetic acid and 2 $mg.l^{-1}$ of 6-benzylaminopurine, at the temperature of 25°C and 16 hour light/8 hour dark period.

The maximal content of flavonoids found by a photometric determination according to Pharmacopoeia Bohemica 2005 was demonstrated in the callus culture (0,636 %) after 6 hour action of the elicitor of the 100 μmol concentration and in the suspension culture (0,492 %) after 168 hour action of the elicitor of the 10 μmol concentration. The maximal content of isoflavonoids found by a HPLC method was demonstrated in the suspension culture after 168 hour action of the elicitor of the 100 μmol concentration (0,03 % of daidzein) and after 168 hour action of the elicitor of the 10 μmol concentration (0,59 % of genistin).