ABSTRAKT

The main purpose of the theses was to find if the abiotic elicitor 2,4,6-trimethyl-N-(pyrazine-2-yl)benzenesulfonamide has any influence on the secondary metabolites production in callus and suspension cultures of *Hypericum perforatum* L. The cultivation was taking place in the Murashige a Skoog (MS) nutrient medium enriched by the growth regulator - alpha-naphthyl acetic acid at the concentration of 1 $mg.L^{-1}$.

The elicitor was added to the cultures at the three levels of concentration: $\mathbf{c_1}$= 100.0 mg/100 ml; $\mathbf{c_2}$= 10.0 mg/100 ml; $\mathbf{c_3}$= 1.00 mg/100 ml. The individual samples were taken after 6, 24, 48, 72 and 168 hours of the elicitor application. The control samples without the elicitor were taken after 6, 48 and 168 hours. The collected samples were dried and subsequently transformed into methanol extracts in order to determine secondary metabolites content (rutin, hyperoside and quercetin) by HPLC method. Release of these metabolites into nutrient media was also subject of this observation.

The elicitation has influenced production of the secondary metabolites, particularly in callus cultures, wherein several statistically significant values, characterizing increase in their production, were measured. The highest content of rutin (0.169 $mg.g^{-1}$ DW) was determined in callus culture after 168 hours when the elicitor was applied at the concentration of c_1= ($3.6057x\ 10^{-3}$ $mol.L^{-1}$). The higher content of hyperoside was found in callus culture after 6 hours when the elicitor was used at the concentration of c_2= ($3.6057x\ 10^{-4}$ $mol.L^{-1}$). In comparison with callus cultures, production of the secondary metabolites in suspension cultures was lower.

Suspension and callus cultures released rutin also into their own media. Quercetin was released only into one callus medium after 24 hours when the elicitor was applied at the concentration of c_1= ($3.6057x\ 10^{-3}$ $mol.L^{-1}$). The highest content of rutin (3.36 $\mu g.mL^{-1}$) was measured in suspension medium after 72 hours when the elicitor was used at the concentration of c_1= ($3.6057x\ 10^{-3}$ $mol.L^{-1}$).

Only in some cases, the elicitor 2,4,6-trimethyl-N-(pyrazine-2-yl)benzenesulfonamide influenced the production of the secondary metabolites in callus cultures of *Hypericum perforatum* L. significantly.