

***Genista tinctoria* L. *in vitro* – the affecting of secondary metabolites production**

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Summary

The aim of this work was the study of the effect of the abiotic elicitor ultrasound in different time intervals on the production of secondary metabolites – isoflavonoids in *Genista tinctoria* L. suspension cultures.

The culture was cultivated in the Schenk-Hildebrandt nutritive medium with adding of the growth regulators (2,4-dichlorfenoxyacetic acid 0,5 mg/l and kinetin 0,1 mg/l), temperature of 25 °C and luminous period 16-hours light/8-hours darkness. As the elicitor ultrasound (about power density 0,1 W/cm³ and fixed frequency 35 kHz) for a period of 1, 2, 3, 4 and 5 minutes was used. The samples were taken immediately and further then after 6, 12, 24, 48, 72 and 168 hours after ultrasound exposition. The quantity of isoflavonoids (genistin, daidzein, genistein, formononetin and biochanin A) was determined by the HPLC method.

The results of this work show that ultrasound as elicitor is able to increase genistin and daidzein production in *Genista tinctoria* L. suspension culture. The highest quantity of genistin (0,08 %) was detected during the ultrasound elicitation for a period of 3 minutes and taking out after 72 hours after ultrasound exposition and the same content was achieved during the elicitation for a period of 4 minutes and taking out after 12 hours after ultrasound exposition. The largest rise of daidzein production, about 400 % in relation to the control sample, was detected during the ultrasound elicitation for a period of 1 minute and taking out after 12 hours after exposition.

The ultrasound elicitation of *Genista tinctoria* L. suspension culture didn't have any effect for the production of other isoflavonoids (genistein, formononetin and biochanin A). The control sample nor the elicited sample of the suspension culture didn't produce these isoflavonoids.