Abstract

Genista tinctoria, family *Fabaceae*, is a potent source of isoflavonoids (genistin, genistein, daidzein, formononetin, biochanin A) with a wide spectrum of potential medical impact. *Genista* also contains quinolizidin alkaloids (cytisin, anagyrin, lupanin, spartein, etc.), which are toxic.

The reason why *in vitro* cultures are used is an absence of toxic alkaloids production and higher yield of isoflavonoids in comparison with intact plant. For an increase of isoflavonoid production method of elicitation is beeing used. Isoflavonoids are studied for their phytoestrogenic effects, for which they could be used in treatment of postmenopausal symptoms and even in treatment of hormon-dependent tumours.

The elicitor ethephon in concentration of 7000 µM, 700 µM and 70 µM was used in this work. The effect of ethephon inhibitor ($AgNO_3$) in concentration of 120 µM was investigated too. Samples were examined after 24, 48, 72, 96 and 168 hours and then analysed by HPLC method. An effect of ethephon and its combination with $AgNO_3$ was observed in callus and suspension cultures. Release of isoflavonoides into culture media was studied too.

Daidzein production was the highest of all isoflavonoids in the callus culture after the treatment of ethephon in concentration of 700 µM after 96 hours (45,10 mg/g DW). The most significant inhibitory effect on isoflavonoids production was noticed daidzein production in the callus culture 72 hours after an aplication of ethephon in the concentration of 7000 µM. An inhibitory effect of $AgNO_3$ on the ethephon was the most expressed upon daidzein production in the callus culture after the treatment of ethephon in the concentration of 700 µM. The production of isoflavonoids in culture media of callus and suspension cultures was demonstrated.