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P12 - CAFFEOYLQUINIC ACIDS AND SESQUITERPENE LACTONES ACCUMULATION IN *INULA BRITANNICA* IN VITRO

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Inula britannica L., Asteraceae, is a medicinal plant, known in Traditional Chinese and Kampo medicinal practices. It is applied for phlegm removal in pulmonary ailments, as a tonic and a warming agent. Research has shown the presence of sesquiterpene lactones and flavonoids in aerials of the plant, and provided evidence for the anticancer, anti-inflammatory and neuroprotective potential of different preparations of the plant.

The production of different caffeoylquinic acid (CQA) derivatives, as well as sesquiterpene lactones has been studied in a model system of shoot cultures of the plant. The combined effect of Murashige and Skoog (MS) vs. Gamborg (G5) vitamins with low (0.2 mg/l) and high (0.7 mg/l) concentrations of benzyl adenine (BA) applied alone or in combination with 0.1 mg/l naphthylacetic acid (NAA) were studied. The content of caffeoylquinic acids (CQA) was studied by means of HPLC analysis of the methanol extract and sesquiterpene lactones content was studied by means of GS/MS chromatography of the chloroform extract of the plant material.

Highest CQA production was achieved in MS supplemented media which were plant growth regulators (PGR)-free or where 0.2 mg/l BA was applied alone. In these treatments the slowest growth and lowest morphological changes were observed. Intensive biomass production and callus formation in 0.7 mg/l BA treatment led to the lowest production of these compounds. G5 vitamins were shown to be favorable regarding total sesquiterpene lactone production, as compared with MS ones; however the stimulation of biomass formation by PGR treatments led to lowering of the levels of sesquiterpene lactones regardless of the vitamin supplementation.

The relations between plant growth and morphogenesis and secondary metabolite production in the plant could be used as a tool to affect the biotechnological production of potential phytopharmaceuticals by optimization of its indigenous biosynthetic capacity without the application of genetic transformations.

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