

## Plant Cell Culture to Produce Valuable Natural Products

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**Abstract :** The present work is aimed to use plant cell suspension cultures of *Crataegus monogyna* for biosynthesis of valuable natural products by using quercetin as an inexpensive precursor. Suspension cell cultures of *C. monogyna* were established by using Murashige and Skoog medium (MS) supplemented with 1 mg/L 2,4-dichlorophenoxyacetic acid and 1 mg/L kinetin. Cells were harvested from the cultures and extracted by using methanol and ethyl acetate; then the extracts were used for the identification of isoquercetin by HPLC and by mass spectrometry. The incubation of the cells with 0.24 mM quercetin for one week resulted in an 16 fold increase of isoquercetin biosynthesis; the growth rate of the cells increased by 20%. Moreover, the biosynthesis of isoquercetin was enhanced by 40% when we divided the added quercetin into three portions each one with concentration 0.12 mM supplied at 3 days intervals. In addition, we didn't find any positive effects of adding different concentrations the precursors phenylalanine (0.2 mM) and galactose to the cell cultures. In conclusion, the efficiency of the biotransformation of quercetin into isoquercetin depended on the concentration quercetin, its incubation time and the way of its administration. The results of the present work suggest that the biotechnological methods such as cell suspension cultures could be successfully used to obtain highly valuable natural product starting from inexpensive compound.

**Keywords :** biosynthesis, biotransformation, *Crataegus*, isoquercetin

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