



Secondary Metabolites of Medicinal Plants and Their Use in Pharmacology

Secondary Metabolite Content in Roots and Callus of *Paeonia Anomala* L.

A.A. ZARIPOVA *

Botanical Garden-Institute Ufa Research Center RAS, Russia, Bashkortostan, 450080, Ufa, Mendeleeva St., 195/3, Department of Plants Biotechnology, tel., e-mail:

Key words: peony, *Paeonia anomala*, monoterpene glycosides and phenolic compounds

Taking into account the fact that in the process of introduction in vitro culture the change of secondary metabolite content may take place we compared the chemical composition of plant material of wild-growing plants of *Paeonia anomala* introduced and produced using the methods of clonal micropropagation, callus tissue.

The content of phenolic compounds, that is catechins and gallatos was compared. Paeoniflorin content was estimated by direct spectrophotometry of methanol extracts ($\lambda = 231,7$ nm, ϵ 1% 1 sm = 265.4). Integral characteristic of the obtained extracts was received by comparison of absorption spectra using spectrophotometer SP - 121 within wave diapason 300 - 460 nm.

Light absorption curves of methanol extracts had two distinct peaks at $\lambda = 232$ nm and $\lambda = 275$ nm typical of paeoniflorin. Paeoniflorin content was 80 % higher in young peony roots than in control plant. This glycoside content in callus culture was 44 % higher than in wild-growing plant roots and 26 % lower than in plantlet roots.

The use of ethanol as extragent showed a higher content of extracted substances in callus tissue. The comparison of the obtained spectra in the region corresponding to phenolic compound absorption shows the highest phenolic compound content in callus tissue and young plant roots. Judging by light absorption maximum it may be phenolic acids. The lowest phenolic compound content was determined in adult wild-growing plant roots, where a high phlobaphene content was visually observed.

The conducted research confirms the fact that callus culture of *Paeonia anomala* L. is a perspective producer of monoterpene glycosides and phenolic compounds. Extracts from plantlets and callus culture exceed in biological active substance content rootstock extracts of open air plants.

* Corresponding Author Phone: (347) 228-13-55, 252-60-33 E-mail: zaripova.al@mail.ru

This study was presented at 2nd International Symposium Secondary Metabolites Chemistry, Biology and Biotechnology, 19-23 May 2014, Moscow