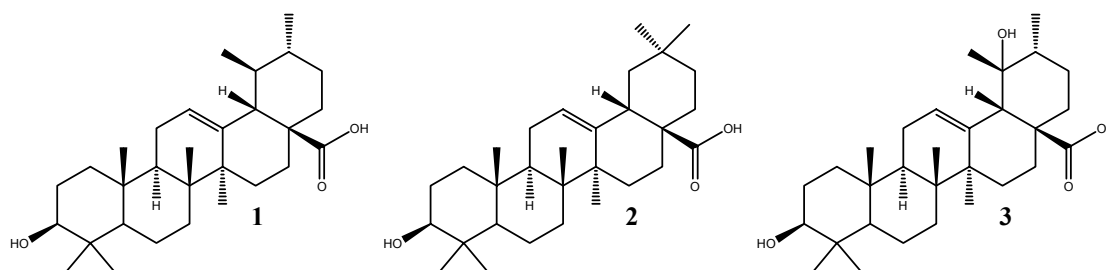


## Isolation of Ursolic Acid from the Accessible Plant Raw Material of Siberia

Sergey A. Popov, Lyubov P. Kozlova, Svetlana M. Obut,  
Olga P. Sheremet, Olga I. Salnikova, Leonid M. Pokrovsky

*Novosibirsk Institute of Organic Chemistry,  
Lavrentiev ave. 9, 630090, Novosibirsk, Russia  
e-mail: [spopov@nioch.nsc.ru](mailto:spopov@nioch.nsc.ru)*



The series of cultural and growing wild plants of Siberia have been studied as the raw material for ursolic acid (1) preparation. Isolation of ursolic acid in pilot-plant scale has been attempted. The possibility of ursolic acid isolation from the plant sources of different origin has been examined using accessible herbaceous plants, the wastes of food industry and the wastes of bioactive additives' production.

The types of raw material suitable for isolation of pure ursolic acid and the mixtures of triterpenoid acids as well have been determined. The best yields of pure ursolic acid (purity 90-99%) have been obtained employing the cranberry and red bilberry presscakes. The bilberry presscakes have been found to be relatively more abundant with oleanolic acid (2). At the same time the absolute content for both ursolic and oleanolic acids in bilberry is significantly lower. The concentration of triterpenoid acids in presscakes of growing wild bilberry and red bilberry and their relative content have been observed to be greatly dependant on the harvest season climate conditions. The relative ratios of triterpenoid acids in sea buckthorn and black chokeberry (in culture) have been found to be less sensitive to the climate conditions.

The fruits of rose family representatives sea-buckthorn and black chokeberry are also rich with triterpenoid acids, but isolation of pure ursolic acid is complicated due to the presence of structurally similar pomolic acid (3) and its derivatives. Nevertheless we have found the possibility to obtain the pure ursolic acid (90-95%) from the chokeberry extracts. The extracts of sea-buckthorn are the hardly separable mixtures of ursolic, oleanolic and pomolic acids, which are prospective as biologically active additives and ingredients for cosmetics.