

URSOLIC ACID FROM THE BERRIES OF *Oxycoccus*  
*quadripetalus*

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The berries of *Vaccinium macrocarpon* Ait. (American cranberry) cultivated in the USA contain ursolic and oleanolic acids [1]. There is no information on the triterpene composition of *Oxycoccus quadripetalus* Gilib., which is widespread in the territory of the USSR.

The present paper gives the results of the isolation of ursolic acid from the domestic species of cranberry. The dry comminuted cranberries were extracted successively with petroleum ether (bp 40-60° C) and chloroform-methanol (3:1). The ursolic acid was extracted repeatedly from the chloroform-methanol extracts with ether, after which the ethereal extracts were passed through a column of SKT activated carbon. The clarified ethereal solution was evaporated to dryness, and the residue was washed with petroleum ether (bp 70-100° C) and dried at 85° C for 24 h. This gave a white amorphous powder (yield 0.8-1.1%) showing positive Liebermann-Burchard and Sal'kovskii reactions and a positive reaction with 0.5% solution of vanillin in conc. sulfuric acid. On subsequent crystallization from ethanol, the substance was obtained in the form of white acicular crystals readily soluble in ether, acetone, and ethyl acetate.

The substance was identified as ursolic acid by chromatography in a thin layer of KSK silica gel (with 5% of gypsum) in the presence of a marker in the toluene-ethyl acetate-acetic acid (12:4:0.5) system ( $R_f$  0.61) [2], by IR spectrophotometry [ $1714\text{ cm}^{-1}$  ( $\text{C}=\text{O}$ ), 1392, 1383,  $1250\text{ cm}^{-1}$  (geminal  $\text{CH}_3$  groups)] [3], by UV spectrophotometry [ $\lambda_{\text{max}}$  310 nm ( $\log \epsilon$  4.11) in sulfuric acid,  $d$  1.835,  $c$  0.4] [4], and also by its melting point (280-282° C from ethanol) and a mixed melting point with an authentic sample.

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