

STEROID AND TRITERPENE GLYCOSIDES
OF *Crataegus pentagyna*

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UDC 547.597+547.918

From the fruit of *Crataegus pentagyna* collected in the Kutkashen region of Azerbaidzhan we have isolated a fraction of glycosides which proved to be a mixture of triterpene and steroid derivatives [1].

The glycosidic fraction contained two substances of glycosidic nature together with hydrocarbons. Acid hydrolysis of the combined glycosides gave β -sitosterol and oleanolic acid, and D-glucose, D-xylose, L-arabinose, and L-rhamnose were found in the hydrolyzate.

To eliminate the free carbohydrates, the combined glycosides [1] were extracted from an aqueous solution with n-butanol. When the butanolic solution was concentrated, a white amorphous mass deposited which was separated on a column of type KSK silica gel (50 × 4 cm) in the chloroform-methanol (9 : 1) system with a gradient change, and then with methanol, 30-ml fractions of the elutate being collected. Glycoside A was eluted with a mixture of chloroform and methanol and glycoside B with methanol.

Glycoside A, $C_{35}H_{60}O_6$, consisted of a white crystalline powder with mp 285-286°C (from methanol), $[\alpha]_D^{20} -39.5^\circ$ (c 0.25; pyridine). Hydrolysis of the glycoside with 10% sulfuric acid formed β -sitosterol and D-glucose. Literature data for β -sitosterol β -glucopyranoside - mp 300-302°C (from methanol), $[\alpha]_D^{20} -43^\circ$ (c 0.7; pyridine) [2]; mp 276-279°C (from methanol with the addition of chloroform), $[\alpha]_D^{20} -19^\circ$ (c 2.8; pyridine) [3].

Glycoside B with the empirical formula $C_{52}H_{86}O_{20}$ has mp 218-223°C (from methanol). $[\alpha]_D^{20} -28.1^\circ$ (c 2.1; methanol). The substance was hydrolyzed with 10% sulfuric acid, and the genin isolated in this way proved to be oleanolic acid. D-glucose, D-xylose, L-rhamnose, and L-arabinose were found in the hydrolyzate. Hydrolysis of the glycoside methylated with diazomethane formed methyl oleanolate. Glycoside B underwent no change when it was treated with alkali. Consequently, it is not an acyloside.

The elementary analysis and molecular weight of the glycoside found from the yield of genin on acid hydrolysis under analytical conditions and the results of a quantitative determination by paper chromatography [4] with subsequent photocolometry of the eluates of the spots of the monosaccharides showed that the monosaccharides were present in the glycoside molecule in a ratio of 1 : 1 : 1 : 1. Scabioside E has the same composition [5]. However, the absence from the molecule of glycoside B of an acyl glycosidic bond, and also a difference in the optical rotations, showed that these substances are not identical.

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N. Narimanov Azerbaidzhan State Medical Institute. Translated from Khimiya Prirodnikh Soedinenii, No. 1, pp. 103-104, January-February, 1974. Original article submitted May 23, 1973.

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