

TRITERPENE GLYCOSIDES OF HEDERA CAUCASIGENA

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We have investigated the leaves of Hedera caucasigena Pojark (Caucasian ivy), family Araliaceae growing in the region of Tbilisi for their content of triterpene glycosides.

The triterpene saponins were isolated from a methanolic extract of the raw material. The combined isolated substances were found by TLC on silica gel in various systems of solvents [1] to contain four triterpene glycosides, which we have called in order of increasing polarity "hederacaucasides" A, B, C, and D.

By adsorption chromatography on silica gel of the products of the complete acid hydrolysis of all the glycosides, we obtained two genins. One of them [mp 305–307° C, $[\alpha]_D^{20} +79.8^\circ$ (c 0.96, chloroform)] appeared on the chromatogram at the level of authentic oleanolic acid. The IR spectrum of the substance also showed that it is oleanolic acid. The second, more polar, genin [mp 327–328° C, $[\alpha]_D^{20} +77.9^\circ$ (c 0.82, pyridine)], according to its chromatographic behavior with a marker and its IR spectrum was identified as hederagenin. The corresponding derivatives of the isolated aglycones, the acetate and the methyl ether, also had the same constants as the acetates and methyl ethers of oleanolic acid and hederagenin.

The combined triterpene glycosides were separated by column chromatography on silica gel in a butan-1-ol-ethanol-25% ammonia (10 : 2 : 5) system. Two individual glycosides were isolated: hederacaucaside B with mp 200–205° C, $[\alpha]_D^{21} +9^\circ$ (c 0.9, methanol) and hederacaucaside D with mp 205–215° C, $[\alpha]_D^{25} +21.9^\circ$ (c 1.84, methanol).

Acid hydrolysis of hederacaucaside B gave oleanolic acid, D-glucose, and L-rhamnose. The aglycone of hederacaucaside D was identified as hederagenin. D-Glucose, L-arabinose, and L-rhamnose were detected in the sugar fraction.

REFERENCE

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