STEROID SAPOGENINS OF Allium waldsteinii

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The combined steroid sapogenins (10.0 g) have been isolated from 1.4 kg of the dry previously defatted epigeal parts of Allium waldsteinii Don. (family Alliaceae) collected at Tianeti (Georgian SSR) in the flowering phenophase by direct hydrolysis in the raw material [1]. This material was then separated chromatographically on alumina. Elution with benzene gave 0.19 g of a monohydroxysapogenin (I), $C_{27}H_{42}O_3$, mp 204-205°C, $[\alpha]_D^{20}$ −116.8° (c 1.64; chloroform). By a comparison of IR spectra and by chromatography in a thin layer of silica gel, compound (I) was identified as diosgenin.

Elution of the column with benzene–methanol (98 : 2) gave 5.4 g of a dihydroxysapogenin (II), $C_{27}H_{44}O_4$, mp 238-241°C, $[\alpha]_D^{22}$ −72.8° (c 1.18; chloroform). The diacetate of the sapogenin (II) had mp 180-182°C, $[\alpha]_D^{20}$ −92.3° (c 1.80; chloroform). Oxidation of (II) with chromium trioxide in glacial acetic acid gave (25R)-5α-spirostan-3,6-dione [2] with mp 225-227°C, $[\alpha]_D^{20}$ −72.2° (c 1.66; chloroform). These results enable sapogenin (II) to be identified as β-chlorogenin [2, 3].

When the column was washed with benzene–methanol (95 : 5), a dihydroxysapogenin (III) and a trihydroxysapogenin (IV) were isolated; the structures of these substances are being established.

LITERATURE CITED

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