TRITERPENE GLYCOSIDES OF Scabiosa soongorica.

V. β-SITOSTEROL β-D-GLUCOPYRANOSIDE AND SONGOROSIDE A

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We have previously [1, 2] reported a clinical study of five glycosides — songorosides C, G, I, M, and O — isolated from the roots of Scabiosa soongorica. Continuing the study of this plant, by precipitation with water from an ethanolic extract we have obtained a fraction of compounds with low polarity (yield 5% on the weight of the air-dry raw material). After its chromatography on a column of silica gel in the chloroform—methanol (10:1) system, two glycosides were isolated. Glycoside (I), mp 287-293°C (ethanol), $[\alpha]_D^{24}$ −45 ± 2° (c 0.94; pyridine) was identified by its chromatographic behavior, the results of acid hydrolysis, and IR, mass, and PMR spectra as β-sitosterol β-D-glucopyranoside.

Glycoside (II) had mp 226-230°C (ethanol), $[\alpha]_D^{20}$ +35 ± 3° (c 0.8; methanol). The acid hydrolysis of this compound gave a genin which was identified as oleanolic acid, mp 305-308°C (ethanol), $[\alpha]_D^{20}$ +79 ± 2° (c 1.7; methanol).

It was established by GLC [3]that glycoside (II) contained one D-xylose residue. The presence in the mass spectrum of the peak of the molecular ion with M^+ 588 also showed that compound (II) was a monoside. In the PMR spectrum of this substance (C_5D_5N, HMDS) there was a signal of the anomeric proton of the D-xylose residue at 4.70 ppm with a spin-spin coupling constant (SSCC) $^3J = 7.5$ Hz, showing the β-configuration of the glycosidic bond.

Thus, the glycoside (II) that we had isolated had the structure of oleanolic acid 3-O-β-D-xylopyranoside, i.e., it was songoroside A.

This compound has been mentioned previously in the literature as one of the intermediate products of the acid hydrolysis of patrinoside D. from Patrinia intermedia Roem et Schult [4] and of songorosides G and I from Scabiosa soongorica Schrenk [1]. It has also been obtained by partial synthesis [5]. This is the first time that songoroside A has been described as a native product.

LITERATURE CITED

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