STEROID SAPOGENINS OF *Beschorneria bracteata*

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It has been found previously on the basis of qualitative results that the rhizomes of *Beschorneria bracteata* Jacobs, family Amarillidaceae contain steroid sapogenins [1, 2]. We have investigated the leaves of *B. bracteata* cultivated on the Black Sea coast of the Caucasus and have found a considerable amount of tigogenin in them. The yield of tigogenin obtained by the direct hydrolysis of the saponins in the raw material by the method of Rotrok et al. as modified by L. S. Chetverikova and O. S. Madaeva [3] amounted to 2%. Tigogenin has mp 200-202°C, $[\alpha]_D^{20}$ −69°, (c 1%; chloroform); melting point of the acetate 202-204°C, $[\alpha]_D^{20}$ −72° (c 1%). The results of the IR-spectral analysis of tigogenin acetate corresponded with information in the literature [4].

An additional amount of tigogenin and a fraction containing two other sapogenins were obtained by absorption chromatography on a column of alumina from the mother solution remaining after the separation of the tigogenin. One of the two unknown sapogenins was a dihydroxy sapogenin with mp 277-278°C, melting point of the diacetate 258-260°C, $[\alpha]_D^{20}$ −110° (c 1%; chloroform) and on TLC and PC in various systems it appeared at the level of tigogenin. However, analysis of its PMR and ^{13}C NMR spectra showed that the substance isolated differed from tigogenin. The second sapogenin melted at 270-272°C, $[\alpha]_D^{20}$ −45° (c 1%; chloroform). A mixture with authentic chlorogenin gave no depression of the melting point. The melting point of the diacetate was 151-152°C, $[\alpha]_D^{20}$ −39° (c 1%; chloroform). The IR spectrum of the diacetate of the genin was identical with that of the diacetate of chlorogenin [4].

Sapogenin from the leaves of moundlily yucca *Yucca gloriosa* is recognized as one of the types of industrial raw material for the synthesis of steroid hormonal drugs [5], and therefore we considered it desirable to investigate the possibility of using *B. bracteata* as an additional source of tigogenin. With this aim, we have performed experiments on the cleavage of tigogenin from this plant to form key intermediates in the synthesis of steroid hormonal drugs.

We used tigogenin with a purity of 89.4%. The cleavage of the spiroketal grouping of tigogenin gave the acetate of 3β-hydroxy-5α-pregn-16-en-20-one, the yield of which after purification amounted to 38.7% calculated on the tigogenin, the melting point of the pregnenolone acetate being 158-160°C, $[\alpha]_D^{20}$ +30.0° (c 1%; chloroform) [6].

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