

## DIOSGENIN FROM ALLIUM ALBIDUM

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By preliminary analyses, we established the presence of steroid sapogenins in Allium albidum Fisch. (family Liliaceae) growing in the Georgian SSR. These were isolated by the direct hydrolysis of the saponins without previous extraction from the raw material [1, 2]. The sapogenins were extracted from the hydrolysate with petroleum ether and petroleum ether-ethanol (95 : 5). The mixture of unpurified sapogenins was separated by adsorption chromatography on alumina. In addition to paper-chromatographic analysis, the method of thin-layer paper chromatography proposed by us employing talc as the adsorbent and a benzene-ether (7 : 3) system of solvents was used. The sapogenins were detected by means of Mattheus' reagent [3, 4].

When the combined sapogenins were separated on alumina, the petroleum ether and benzene eluates yielded a monohydroxysapogenin with mp 198–200° C,  $[\alpha]_D^{20} -124.6^\circ$  (c 1.00, chloroform), which appeared on paper and thin-layer chromatography at the level of diosgenin; a mixture with authentic diosgenin gave no depression of the melting point. The substance precipitated from methanol and acetone in the form of crystals characteristic for diosgenin. The melting point of the acetate of the isolated compound was 197–199° C,  $[\alpha]_D^{20} -128.1^\circ$  (c 1.00, chloroform). The IR spectra of the substance and the acetate confirm the complete identity of the isolated sapogenin and diosgenin. The yield of diosgenin from the raw material was 0.29%. This is the first time that diosgenin has been shown to be present in Allium.

Subsequent elution of the column with benzene-chloroform gave a dihydroxysapogenin (yield 0.15% calculated on the raw material) with mp 201–204° C,  $[\alpha]_D^{20} -135.0^\circ$  (c 1.00, chloroform). It gave the reaction for a double bond. The melting point of the diacetate of the sapogenin was 198–201° C,  $[\alpha]_D^{20} -96.9^\circ$  (c 1.00, chloroform). From its IR spectrum (860, 900, 920, and 980  $\text{cm}^{-1}$ ) the isolated dihydroxysapogenin and its acetate have a steroid structure. However, the physicochemical constants of the substance do not correspond to any sapogenins described in the literature.

## REFERENCES

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