

TRITERPENOIDS AND STEROIDS OF *Hyssopus seravshanicus*
AND *H. ferganensis*

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From petroleum-ether and benzene extracts of the epigeal and hypogeal parts of the above-mentioned hyssops we have isolated substances A, B, C, and D which, in the Salkowski and Lieberman-Burchard reactions were colored dark blue and violet. The fact that they belonged to the class of triterpenoids or steroids was established by means of the reaction proposed by Y. Hashimoto [1]. According to this reaction, on being heated with trichloroacetic acid steroids should change their original color in the range from 40 to 70°C, and triterpenoids in the range from 80 to 130°C.

Substance A (1 mg) was mixed with 0.2 g of trichloroacetic acid and the mixture was slowly heated in a micro test tube in a sulfuric acid bath. The original pink color of the mixture changed to violet-brown at 65-67°C. This showed that substance A belonged to the class of steroids. Substance B, C, and D belonged to the class of triterpenoids, since when they were heated with trichloroacetic acid they acquired a bright blue color: substance B at 120°C and substances C and D at 108°C.

From the partition coefficients in five systems, the coloration of the spots on chromatograms by antimony trichloride and phosphotungstic acid [2], the melting points of the pure substances and their acetates [3], the absence of depressions of the melting points of the substances when they were mixed with the corresponding standard samples, the planes of rotation of polarization [4], their ultraviolet spectra (the acids were subjected to spectrophotometry in the form of the methyl esters) [4], and their infrared spectra, the substances isolated were identified as sitosterol (A), betulin (B), oleanolic acid (C), and ursolic acid (D).

The amounts of sitosterol and triterpenoids present were determined by the dielcometric method [6, 7]. The predominating component in both plants was ursolic acid. Betulin was absent from the roots of the hyssops.

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