

STEROID SAPOGENINS OF TRIBULUS TERRESTRIS

G. B. Iskenderov

Khimiya Prirodnykh Soedinenii, Vol. 6, No. 4, pp. 488-489, 1970

UDC 547.597+547.918

We have studied the steroid compounds of T. terrestris (puncturevine), family Zygophyllaceae, collected in the territory of the Azerbaidzhan republic. From the epigeal parts of the plant, by known methods [1-4], with subsequent separation of the total sapogenins by partition column chromatography on alumina, three individual substances were isolated, two of which were identified by their physicochemical constants, IR spectra, chromatographic behavior, and the preparation of the acetyl derivatives, as the known steroid sapogenins diosgenin and ruscogenin.

The third substance, $C_{27}H_{42}O_4$, had mp 198-200° C, $[\alpha]_D^{20} -120.8^\circ$ (c 0.83, chloroform). Its IR spectrum showed the absorption bands characteristic of a hydroxyl group (3300-3400 cm^{-1}) and of the series of steroid sapogenins having a spiroketal group (850, 906, 925, and 990 cm^{-1}). The intensity of the bands at 925 cm^{-1} shows that this substance possesses a neospirane structure and belongs to the 25-L series [2, 5].

From the intensities of the bands in the IR spectrum and its chromatographic behavior on paper in the system characteristic for dihydroxysapogenins [6], the sapogenin can be assigned to the dihydroxysapogenins, which is confirmed by the elementary compositions both of the substance itself and of its diacetate, $C_{31}H_{46}O_6$.

Thus, the third substance is a steroid sapogenin with a neospirane structure containing two hydroxyl groups.

REFERENCES

1. I. W. Rothrock, P. A. Hammes, and W. I. McAleer, *Ind. Eng. Chem.*, **49**, 186, 1957.
2. O. S. Madaeva, N. A. Serova, L. S. Chetverikova, Yu. N. Sheinker, and V. I. Kichenko, *Tr. VILAR*, no. 11, 229, 1959.
3. T. N. Kachukhashvili, *Med. prom. SSSR*, no. 3, 46, 1965.
4. G. B. Iskenderov, *Farmatsiya*, no. 1, 37, 1968.
5. M. E. Wall, C. R. Eddy, M. L. McClennan, and M. E. Klumpp, *Analyt. chem.*, **24**, 1337, 1952.
6. Ch. Sannié and H. Lapin, *Bull. Soc. chim. France*, 11-12, 1080, 1952.

6 April 1970

Narimanov Azerbaidzhan Medical Institute