SESQUITERPENE LACTONES FROM ARTEMISIA HALOPHILA

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We have investigated the epigeal part of Artemisia halophila Krasch, gathered in September 1969 in the Syr'dar'ya region.

Extraction with hot water yielded 0.9% of extractive substances which were dissolved in benzene and chromatographed on alumina (activity grade IV) in a ratio of 1 : 10 by weight. On elution with a mixture of petroleum ether and benzene (7 : 3), a substance with the composition $C_{15}H_{18}O_3$, mp 169–170° C, was obtained. It was identified by its IR spectrum and a mixed melting point test as α-santonin (yield 0.18% on the raw material).

On further elution of the column with ether–benzene (1 : 1), a compound with the composition $C_{15}H_{22}O_4$, mp 227–228° C (from ether), mol wt 266 (mass spectrometry) was isolated.

The IR spectrum of this compound had absorption bands characteristic for a hydroxyl group and a γ-lactone. When this lactone was oxidized with CrO_3 in acetic acid, a ketone was obtained with mp 258–260° C. The IR spectrum of the latter had the absorption band of a hydroxyl group. Acetylation of the lactone gave an acetyl derivative, $C_{17}H_{24}O_5$, mp 220–221° C, whose IR spectrum exhibited the absorption band of a hydroxyl group. Consequently, the initial lactone contains two hydroxyl groups, one of which is secondary and the other tertiary. A study of the NMR spectrum of the acetyl derivative showed that the lactone has a structure similar to that of artemin. The results of a direct comparison of our lactone with a sample of artemin, kindly given to us by K. S. Rybalko, showed their identity [1]. The mibulactone which we previously isolated from Artemisia tenuisecta Nevski also proved to be artemin [2].

This is the first time that α-santonin and artemin have been isolated from Artemisia halophila.

REFERENCES

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