

SALEGIN — A NEW SESQUITERPENE LACTONE FROM Saussurea elegans

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We have continued a study of the total lactones of an ethanolic extract of the epigeal part of Saussurea elegans Ldb. [1, 2]. The combined eluates of the benzene-ether fraction were rechromatographed on a column of type KSK silica gel. The eluents used were benzene-ether (9:1 and 8:2).

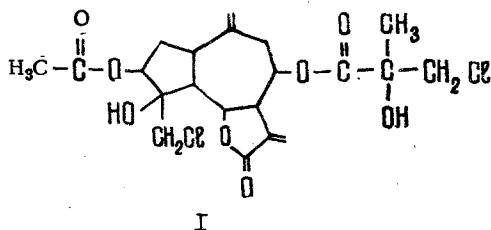
The fractions eluted by the benzene-ether (8:2) yielded a new sesquiterpene lactone with the composition  $C_{21}H_{26}Cl_2$ , mp 201-202°C (from ether),  $[\alpha]_D^{25} +91.3^\circ$  (c 0.92; ethanol), mol. wt. 476 (mass spectrometry), which we have called salegin (I).

The IR spectrum of (I) showed absorption bands in the following regions ( $cm^{-1}$ ): 3490 (OH), 1770 (C=O of a  $\gamma$ -lactone ring), 1740, 1280, 1240 (C=O of esters), 1660, 1645 (C=C), 740 and 750 (C-Cl).

The PMR spectrum of salegin taken in deuteropyridine (O - HMDS) showed the signals of the protons of an acyl group at C-17, singlet at 1.70 ppm (3 H); singlet at 1.92 ppm (3 H), methyl of an acetyl group at C-3; singlet at 3.96 ppm (2 H), chloromethyl group at C-18; doublets at 4.76 and 4.45 ppm (1 H each), chloromethyl at C-15; pair of doublets with their centers at 5.91 and 6.11 ppm (1 H each), exomethylene group conjugated with a lactone carbonyl; and singlets at 7.35 (1 H) and 7.94 (1 H), hydroxy groups. A group of signals was also seen with its center at 4.93 ppm (superposition of the signals of the protons of a lactone methylene group and of an exocyclic methylene group at C-10).

The acetylation of salegin with acetyl chloride led to a diacetyl derivative with the composition  $C_{25}H_{30}O_{10}Cl_2$ , mp 150-151°C, mol. wt. 560 (mass spectrometry), the IR spectrum of which lacked the absorption band of hydroxy groups. Consequently, compound (I) is a dihydroxylactone. Analysis of the PMR spectrum and the formation of chamazulene on the dehydrogenation of salegin over selenium showed that it was a sesquiterpene lactone of the guai-ane series.

On the basis of its composition and a comparison of the PMR spectrum of salegin with those described in the literature for sesquiterpene lactones of similar structure (chlorohyssopifolins A-E, linichlorin C, etc.) [3], for salegin we suggest the structure (I).



LITERATURE CITED

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2. I. D. Sham'yanov, A. Mallabaev, and G. P. Sidyakin, *Khim. Prir. Soedin.*, 442 (1978).
3. A. G. Gonzalez, J. Bermejo, et al., *Can. J. Chem.*, 56, 491 (1978).

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