

ORIENTIN - A NEW SESQUITERPENE LACTONE  
FROM *Siegesbeckia orientalis*

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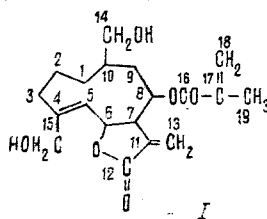
From the herb *Siegesbeckia orientalis* L., family Asteraceae Dum., collected in July in Krasnodar territory, by aqueous extraction followed by chromatography we have isolated a new sesquiterpene lactone, orientin, with the composition  $C_{19}H_{26}O_6$ , a vitreous product with  $R_f$  0.70 in the benzene-methanol (2:3) system;  $[\alpha]_D^{20} -130.2^\circ$  (c 0.9; ethanol). IR spectrum,  $cm^{-1}$ :  $\nu_{\text{max}}^{CHCl_3}$  3610, 3490-3420 (OH), 1763 ( $\gamma$ -lactone), 1712 (OCO), 1665 and 1638 (C=C); UV spectrum:  $\lambda_{\text{max}}^{C_2H_5OH}$  201 nm,  $\epsilon$  18,608.

In the NMR spectrum of orientin (in  $CDCl_3$ ) there are the following signals: singlet at 1.85 ppm-3  $H_{19}$ ; doublet at 3.39 ppm ( $J = 5.0$  Hz)-2  $H_{14}$ ; singlet at 4.08 ppm-2  $H_{15}$ ; doublet at 4.9 ppm ( $J = 5.0$  Hz)- $H_5$ ; broadened triplet at 5.32 ppm- $H_6$ ; multiplet at 5.64 ppm (superimposition of the signal)- $H_8$ ; four weakly resolved doublets at 5.53, 6.01, 5.69, and 6.26 ppm-2  $H_{13}$  and  $H_{18}$ .

The hydrogenation of orientin over Pt (or  $PtO_2$ ) in ethanol have a tetrahydro derivative in the form of a vitreous substance with the composition  $C_{19}H_{30}O_6$  having  $R_f$  0.77 in the benzene-methanol (2:3) system. IR spectrum,  $cm^{-1}$ :  $\nu_{\text{max}}^{CHCl_3}$  3615, 3490-3400 (OH), 1760 ( $\gamma$ -lactone), 1715 (OCO), 1635 (C=C).

In the NMR spectrum of the tetrahydro derivative, as compared with the initial substance, there are no signals of the protons of a methyl group on a double bond or of the protons of vinyl groups, but there are signals of the protons of three methyl groups in the 0.98-1.18 ppm region, while the positions and structures of the other signals have not changed.

On the basis of the composition of the substance and the results of a comparison of the NMR spectra of orientin and sesquiterpene lactones of similar structure described in the literature (saupirin, onopordopicrin, etc.) [1, 2], structure (I) is proposed as the most probable for orientin.



LITERATURE CITED

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2. B. Drozd, M. Holub, Z. Samek, V. Herout, and F. Sorm, *Collection Czech. Commun.*, **33**, No. 6, 1730 (1968).

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