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ANHYDROAUSTRICIN FROM Artemisia leucodes

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By chromatographing on alumina the total lactones [1] obtained from the epigeal part of Artemisia leucodes Schrenk in the budding stage, we have isolated leucomisin, austricin, parishin C, parishin B, and a lactone with the composition $C_{15}H_{16}O_3$ (I), M^+ 244 mp 206-208°C (from ethanol), $[\alpha]_D^{20} + 180^\circ$ (c 0.43; methanol), R_f 0.43 (on Silufol, benzene-acetone (9:1)).

The IR spectrum of (I) shows absorption bands at (cm⁻¹) 1775 (carbonyl of a γ -lactone ring), 1680 (α , β -unsaturated cyclopentanone), and 1625 and 1600 (double bonds).

The UV spectrum shows the presence of three maxima at λ 245, 258, and 300 nm (log ϵ 4.29, 4.28, and 3.60), which are characteristic for a conjugated system.

In the PMR spectrum of (I) (taken in deuterochloroform on a JNM-4H-100/100 MHz instrument), a doublet at 1.27 ppm is the signal of the protons of a secondary methyl group attached to a lactone ring, singlets at 2.07 and 2.38 ppm are the signals of the protons of the two methyl groups at a double bond, and a doublet at 5.74 and a singlet at 5.99 ppm are those of two olefinic protons at C_6 and C_2 . A one-proton sextet with its center at 4.4 ppm ($I_1 = 5$, $I_2 = I_3 = 10$ Hz) belongs to a lactone proton. The nature of the splitting of the signal of the lactone proton shows the position of the lactone ring at C_7 - C_8 , and the spin-spin coupling constant shows its trans linkage.

The characteristic of (I) coincide with those of anhydroaustricin [2, 3]. The dehydration of austricin gave anhydroaustricin, which was shown to be identical with (I) by a mixed melting point test and a comparison of IR, UV, and PMR spectra.

This is the first time that the natural lactone anhydroaustricin has been detected in a plant.

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