LEUCOMISIN FROM Achillea cartilaginea

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We have studied the epigeal part of Achillea cartilaginea Ldb. syn. Ptarmica cartilaginea Ldb., family Compositae, collected in the flood plain of the western Davina (environs of the town of Vitebsk) during the flowering period, June, 1971. Extraction with hot water gave 0.6% of substances. Chromatography on a column of neutral Al_2O_3 (activity grade IV) and elution with ether gave a crystalline substance, $C_{15}H_{18}O_3$, mp 200-202°C (from ethanol), $[\alpha]_D^{20}$ + 54.1° (c 2.43; chloroform). Yield 0.06%. The UV spectrum has a strong absorption band at 256 nm (log ε 4.21), which is characteristic for a $>C=C-\overset{\overset{O}{\|}}{C}-C=C<$ grouping. The IR spectrum has absorption bands at (cm^{-1}) 1776 (carbonyl of a γ-lactone ring), 1687 (α,β-unsaturated ketone), 1638, 1617 (conjugated double bonds). The NMR spectrum shows the following proton signals, ppm: 1.19 – doublet at a secondary methyl group; 2.23 and 2.34 – singlets of methyl groups on double bonds; 3.55 – triplet of a lactone proton ($J_{4,10}=J_{4,5}=10$ Hz); 3.36 ($J_{4,10}=10$ Hz) – doublet of the C_{10} proton; and 6.09 ppm – multiplet of a vicinal proton.

The composition and constants of the substance and its NMR, IR, and UV spectra correspond to those of the sesquiterpene lactone leucomisin, first isolated from Artemisia leucodes Schrenk [1-3]. A mixture with an authentic sample of leucomisin gave no depression of the melting point.

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