SESQUITERPENE LACTONES FROM Artemisia lagocephala, A. schrenkiana, AND Grossheimia ossica

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From the herb Artemisia lagocephala Bess. DC., collected during the budding phase in August, 1972, in the Far East by extraction with water [1] followed by chromatography of the gum isolated on silica gel (with elution by ether), we have obtained a crystalline substance with the composition $C_{15}H_{18}O_3$, mp 145-146°C (from a mixture of petroleum ether and diethyl ether) $[\alpha]_D^{20}$ +147° (c 0.915; chloroform), IR spectrum $\nu_{max}^{par.\ oil}$, cm^{-1}: 1780 (γ-lactone) 1680 (CO), 1640, and 1610 (C=C). UV spectrum, $\lambda_{max}^{C_2H_5OH}$ 255 nm (log ε 4.51). The NMR spectrum of the compound (in $CDCl_3$) has the following signals, ppm: singlet at 6.10 – vinyl proton; triplet at 3.75 – CH–O; two singlets at 2.40 and 2.20 – the protons of two vinyl methyl groups; and doublets at 1.10 ppm – the protons of a secondary methyl group.

A comparison of the results obtained with literature information permits the conclusion that the substance isolated is a sesquiterpene lactone – achillin, isolated previously from representatives of the genus Achillea [2-5].

From the epigeal part of Artemisia schrenkiana Ldb. Fl. Ross., collected in the Tuva ASSR in August, 1970, by the method described above we obtained two crystalline substances with the same compositions ($C_{15}H_{18}O_3$) mp 171-173°C and 216-218°C (from ether). The IR spectra of both substances had $\nu_{max}^{par.\ oil}$, cm^{-1} 1780 (γ lactone), 1660, 1640, and 1610 (double bonds conjugated with C=O).

On comparing the results obtained with literature information we came to the conclusion that the substances isolated are α- and β-santonins, respectively [6].

From the epigeal part of Grossheimia ossica (C. Koch) Sosn. et Takht., collected in the flowering phase in August, 1964, in Georgia, by aqueous extraction we isolated a colorless crystalline substance with the composition $C_{15}H_{18}O_4$, mp 201-203°C (from ethanol); IR spectrum cm^{-1}: 3480 (OH) 1740 (C=O), 1650 (C=C).

A mixture of the substance with grossheimin [7-9] showed no depression of the melting point, and their IR spectra were identical.

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