

A SESQUITERPENE LACTONE FROM ARTEMISIA TRANSILIENSIS

V. A. Tarasov, Sh. Z. Kasymov, and G. P. Sidyakin

Khimiya Prirodnykh Soedinenii, Vol. 6, No. 4, p. 480, 1970

UDC 547.314+633.885

By extraction with hot water and subsequent treatment of the aqueous extracts with chloroform we have isolated a mixture of substances from the epigeal part of Artemisia transiliensis Poljak, collected by the botanist U. Rakhmankulov in July 1969 during the budding period. When ether was added to this mixture, a crystalline compound deposited with the composition $C_{15}H_{22}O_4$, mp 233–234° C (from ethanol), $[\alpha]_D^{20} +217.2^\circ$ (c 1.0, ethanol). In a thin layer of KSK silica gel in a benzene–methanol system (9:1) the substance gave a spot with R_f 0.38 (revealed with an alkaline solution of $KMnO_4$). IR spectrum, ν_{max} , cm^{-1} : 3555 and 3455 (OH), 1780 (γ -lactone), 1662 and 820 ($\text{>C} = \text{CH}_2$).

The lactone nature of the substance was confirmed by its solubility on heating in aqueous caustic soda. After acidification of the alkaline solution, the initial compound was recovered unchanged.

The lactone was acetylated with acetic anhydride in the presence of pyridine. This gave a derivative with the composition $C_{17}H_{24}O_5$, mp 200° C (from ethanol).

IR spectrum of the acetyl derivative, ν_{max} , cm^{-1} : 3480 (OH), 1780, 1720, and 1250 (γ -lactone and $-\text{OCOCH}_3$), 1650 and 815 ($\text{>C} = \text{CH}_2$). The presence of a hydroxyl group in the acetylation product indicates that it is probably tertiary.

When the lactone was hydrogenated in ethanol with a platinum catalyst (according to Adams), one mole of hydrogen was consumed. The dihydro derivative has the composition $C_{15}H_{24}O_4$, mp 238° C (from ethanol). The IR spectrum of the dihydro derivative, ν_{max} , cm^{-1} : 3480 (OH), 1780 (γ -lactone). The spectrum lacks the absorption band of an exocyclic methylene group.

The results obtained indicate that the isolated substance is a sesquiterpene lactone. Its study is continuing.

6 May 1970

Institute of the Chemistry of Plant Substances, AS UzSSR