

KAMOLONE FROM THE ROOTS OF

Ferula kopetdaghensis

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Continuing a study of the coumarins of the above-named plant, from the ethereal fraction after the elimination of the galbanic acid [1] we have isolated another lactone, with the composition $C_{24}H_{32}O_4$, M^+ 382, mp 189-190°C (methanol), $[\alpha]_D^{25} + 63^\circ$ (c 1.0; chloroform), R_f 0.21 [petroleum ether-ethyl acetate (5:1) system]. From its chemical composition and UV spectrum [244, 255, and 327 nm ($\log \epsilon$ 3.64, 3.38, and 4.29, respectively)] it belongs to the 7-hydroxycoumarin derivatives. Its IR spectrum contains absorption bands at (cm^{-1}): 1733 (carbonyl of an α -pyrone), 1617, 1562 (aromatic nucleus), 2990, 2965, 2940, and 1380-1360 (C-methyl groups), and 1713 (carbonyl group of a saturated ketone). Acid hydrolysis of the lactone gave umbelliferone $C_9H_6O_3$ with mp 229-231°C (from water), which was identified by the absence of a depression of the melting point in a mixture with 7-hydroxycoumarin.

Consequently, the coumarin isolated is an ether of umbelliferone and a sesquiterpene ketone with the composition $C_{15}H_{26}O_2$. The presence of an oxo group in it was confirmed by the formation of a 2,4-dinitrophenylhydrazone with mp 247-248°C. From the compositions and melting points of the substance and its phenylhydrazone, and also from its IR and PMR spectra, it was identified as kamolone, isolated previously from *Ferula penninervis* Rgl. et Schmalh. [2, 3]. Thus, *Ferula kopetdaghensis* is the second plant in which kamolone has been detected.

LITERATURE CITED

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