3-METHOXY-4,5-METHYLENEDIOXYPROPIOPHENONE – A NEW COMPONENT OF THE ROOTS OF Ferula ugamica

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On investigating the roots of Ferula ugamica Korov, collected in the fruit-ripening period in the gorge of the river Angren, we found in it a substance with R_f 0.84 which gave a reaction with 2,4-dinitrophenylhydrazine and a faint yellow coloration with a 1% solution of vanillin in sulfuric acid [1] and did not react with diazotized sulfanilamide.

By column chromatography on KSK silica gel and elution with gasoline (bp 70-100°C) we isolated a compound with the composition $C_{11}H_{12}O_4$, mp 91-92°C, readily soluble in organic solvents and insoluble in water. UV spectrum: λ_{max} 225, 346, and 301 nm (log ε 4.16, 4.10, and 3.80). IR spectrum: ν_{max} 1680 cm^{-1} (Ar–CO–R), 1630, 1520, and 815 cm^{-1} (1,2,3,5-tetra-substituted benzene nucleus). In the NMR spectrum (100 MHz, $CDCl_3$, δ scale), one-proton doublets at 7.04 and 7.80 ppm (J 2 Hz) showed the presence of two meta-interacting aromatic protons, and singlets at 5.97 ppm (2 H) and 3.89 ppm (3 H) showed methylenedioxy and methoxy groups, respectively, in the same aromatic nucleus. A quartet at 2.80 ppm (J 7.5 Hz) and a triplet at 1.15 ppm (J 7.5 Hz) are due to the protons of methylene and methyl groups in the CH_3CH_2COAr fragment. On the basis of these facts, the substance isolated is 3-methoxy-4,5-methylenedioxypropiophenone. This conclusion is confirmed by the mass spectrum of the compound, in which there are peaks with m/e 179 and 152, corresponding to fragments formed as the result of α decomposition.

LITERATURE CITED

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