

MYRISTICIN FROM *Ferula equisetacea*

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On studying the roots of *Ferula equisetacea* K.-Pol., collected on June 11, 1971 in the valley of the river Varzob (Gissar range, Tadzhik SSR), we found in them traces of coumarins with R_f 0.02, 0.15, 0.24, and 0.43, and isolated a substance of noncoumarin nature with R_f 0.56 [TLC, SiO_2 , benzene-methanol (95:5)]. To isolate the latter, the dried comminuted raw material was extracted with acetone. The extracts were concentrated to small volume, diluted with water, and extracted with ether. The ethereal extract was dried with sodium sulfate and the ether was distilled off. The residue (3% of the weight of the dry raw material) was repeatedly chromatographed on columns of silica gel. The colorless liquid substance was isolated with R_f 0.56. Yield 0.74% (on the weight of the dry raw material). It is optically inactive with the composition $\text{C}_{11}\text{H}_{12}\text{O}_3$, bp 198°C , d_4^{20} 1.1401, n_D^{20} 1.5385.

The IR spectrum shows absorption bands at (cm^{-1}) 1640, 1625 and 1510 (stretching vibrations of an aromatic nucleus), and 840 and 810 (planar deformation vibrations of C-H for a tetrasubstituted aromatic nucleus). Characteristic frequencies at (cm^{-1}) 1460, 1435, 1135, 1090, 1050, 935 give grounds for assuming that this compound contains methylenedioxy and methoxy groups. In the UV spectrum maxima are observed [λ_{max} 278 and 283 nm ($\log \epsilon$ 4.14, 4.13)] characteristic of an aromatic parental chromophore and three-OAlk increments.

The NMR spectrum of the substance has signals at (ppm) 3.75 (3H; methoxy group), 5.87 (2H; methylenedioxy group), and 6.25 (2H; the protons of a benzene ring). The positions and multiplicities of the signals at (ppm) 3.17 (2H), 4.88 (2H), and 5.8 (1H) are characteristic for the $\text{Ar}-\text{CH}_2-\text{CH}=\text{CH}_2$ grouping (chemical shifts given in ppm relative to HMDS).

It follows from what has been said above that the substance isolated is myristicin. A confirmation of this is the formation of its derivatives: dibromomyristicin bromide with mp 130°C and isomyristicin with mp 44°C [1].

This is the first time that myristicin has been found in *Ferula* [2].

LITERATURE CITED

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