

VERSICOLIN - A NEW COUMARIN FROM Haplophyllum versicolor

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The present paper gives the results of a study of the structure of a new coumarin isolated from the epigeal part of Haplophyllum versicolor Fisch. et C. A. Mey.

Versicolin (I) has the composition $C_{20}H_{24}O_3$, mp 105-107°C, M^+ 312.

The IR spectrum of (I) shows absorption bands characteristic for 7,8-disubstituted coumarins at 1720 cm^{-1} (α -pyrone C = O) and 1610, 1560, and 1500 cm^{-1} ($-CH=CH-$ bond in an aromatic ring). One of the substituents is a methoxy group, which occupies position 7, as was established on the basis of the results of the oxidation of (I) with chromium trioxide in glacial acetic acid. This formed ostholic acid (II), $C_{12}H_{10}O_5$, with mp 253-254°C [1]. Consequently, the second substituent, consisting of $C_{10}H_{17}$, is present in position 8.

The structure of ostholic acid was unambiguously determined by the PMR spectrum of (I) (Fig. 1), in which, together with the signals of the protons of a 7,8-disubstituted coumarin nucleus, there are the signals of the protons of three methyl groups at double bonds (singlets at 1.56, 1.64, and 1.82 ppm, 3 H each), of two olefinic protons (triplets at 5.05 and 5.12 ppm, $J = 6$ Hz, 1 H each), of one methylene group attached to an aromatic ring (doublet at 3.50 ppm, $J = 6$ Hz, 2 H) and of a $-CH_2-CH_2-$ fragment (singlet at 1.98 ppm, 4 H each). The facts given enable us to suggest for (I) the structure of 8-geranyl-7-methoxycoumarin.

The IR spectra were taken on a UR-20 spectrometer (in paraffin oil), the PMR spectra on a Varian HA-100 spectrometer (with HMDS as standard), and the mass spectra on a Hewlett-Packard 5980 chromat-mass spectrometer. The melting points were determined on a Kofler block.

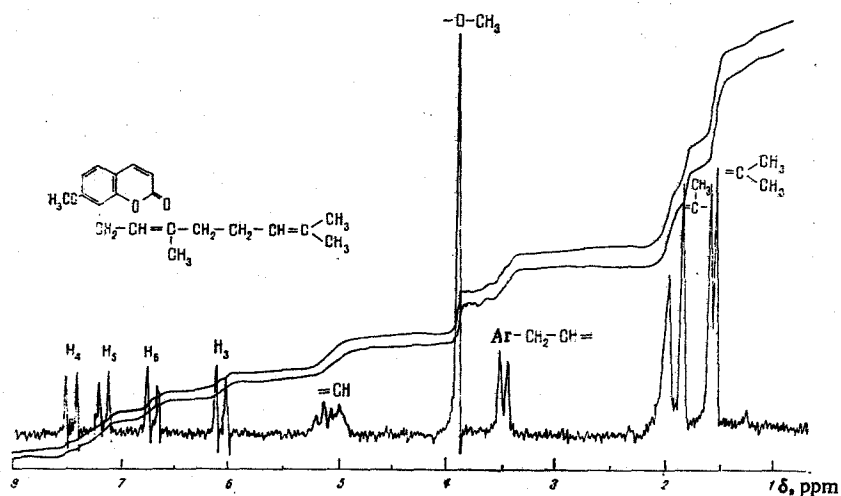


Fig. 1. PMR spectrum of versicolin in $CDCl_3$; 0 - HMDS.

LITERATURE CITED

1. A. Z. Abyshv et al., Khim. Prir. Soedin., 676 (1970).

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