# THE COMPOSITION OF THE TERPENOIDS OF *Mentha arvensis*

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Vietnam disposes of great natural resources of wild mint, the chemical composition and useful properties of which have been studied inadequately. We have investigated *Mentha arvensis* L. (field mint) of the flora of Northern Vietnam. Since 1980 it has been grown under the conditions of Moldavia and has been used to obtain highly productive hybrids.

The essential oil was obtained by the steam distillation method from dry leaves with inflorescences. Its yield in 1980 was 1.82%, and in the following two years about 3%, on the absolutely dry weight. The oil which we studied, of the 1982 crop, consisted of a slightly yellowish liquid with a weak smell of mint and the following physicochemical indices: $d_{20}^{20}$ 0.9812; $n_D^{20}$ 1.4810; $[\alpha]_D^{20}$ +37; $E_{1/2}$ (0.2 M LiCl) −1.34 V and −1.82 V, $\lambda_{max}^{C_2H_5OH}$ 260 nm; ketones content 50% by the sulfite method and 34% by the hydroxylamine method [1].

The composition of the terpenoids was studied by gas-liquid chromatography on a Tsvet-152 chromatograph with a flame-ionization detector using helium as the carrier gas at a rate of flow of 45 ml/min with a 2 m × 0.25 cm column containing as the stationary phase 5% XE-60 on Chromaton N-AW-HMDS, the evaporator temperature being 230°C. The working conditions were programmed. The rate of rise in temperature was 3°C/min.

The components were identified by comparison with markers from their retention times. Some of them were isolated by repeated column and preparative thin-layer chromatography with silica gel with subsequent identification from their reduction potentials at the dropping mercury electrode (SCE, $E_{1/2}$ in 0.2 M LiCl), and from their absorption maxima in their UV spectra (in ethanol), and their IR spectra [1-4].

In the essential oil of the field mint of the Vietnamese flora we detected 23 components. Of these we identified (%): α-pinene, 0.41; β-pinene, 0.72; myrcene, 0.47; limonene, 4.5; p-cymene, 0.09; octan-3-ol, 3.2; menthone, 5.8; (−)-menthol, 10.1 (mp 42-43°C); menthyl acetate 1.6; (+)-pulegone, 24.9 ($E_{1/2}$ −1.80 V; $\lambda_{max}$ 252 nm); (+)-piperitone, 0.9, ($E_{1/2}$ − 1.84 V; $\lambda_{max}$ 235 nm); piperitone, 4 ($\lambda_{max}$ 246 nm); piperitone oxide, 16 ($E_{1/2}$ − 1.44 V); piperitenone oxide, 21.5 ($E_{1/2}$ − 1.34 V; $\lambda_{max}$ 262 nm).

The components mentioned made up 90.2% of the total; the others could not be identified. The ketone oxides detected in the essential oil are uncharacteristic for the species *Mentha arvensis* L. [5, 6]. The individual studied apparently has a hybrid origin, as was also shown by its sterility.

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