β-Carotene	61.0
Hydroxy-α-carotene	0.9
Luteoxanthin	10.3
Lutein epoxide	13.1
Violaxanthin	14.7

Consequently, the main component in the carotenoid complex of stinging nettle leaves is β-carotene. This is particularly valuable, since β-carotene possesses a greater biological activity than the other carotenoids.

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COMPONENT COMPOSITION OF THE ESSENTIAL OIL OF *Thymus karamarianucus*

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The genus *Thymus* (thyme), family Lamiaceae, contains valuable and diverse components [1-3]. At the present time, species of this genus are cultivated in many countries and are widely used in various branches of the medical, food, and perfumery industries [4-6].

The flora of Azerbaidzhan is distinguished by a diverse species composition and by great reserves of wild essential-oil-bearing thymes. In view of this, considerable interest is presented by an investigation of the chemical compositions of the essential oils (EOs) of the endemic thyme species *Th. karamarianucus* Klok et Shost. collected in the central mountain zones of the Geokchai region and introduced into the Botanical Garden and into the Zakataly Center of the Institute of Botany of the AzSSR Academy of Sciences.

The starting material consisted of semishrubs collected before the vegetation period on the dry slopes of heights on the environs of the village of Karamar'yan, Geokchai region. By selection, two forms were obtained (pink and white), the height of the shoots under the conditions of the crop amounted to 12-30 cm, and the amount of dry epigeal mass was from 6.4 to $23.5 \cdot 10^2$ kg with an essential oil content of 0.26-0.74% on the weight of the air-dry plant. The forms of the thymes mentioned were selected according to their content of essential oil and its composition with the aim of the subsequent introduction of those yielding the largest amount of essential oil. The essential oil of *Th. karamariancus* was obtained by steam distillation in a semiindustrial apparatus. The quantitative amount of essential oil was determined in the time of mass flowering in quintuplicate. The investigation showed that the yield of essential oil from the epigeal part of *Th. karamariancus*, wild and introduced forms, ranged from 0.15 to 0.74%. The essential oil content of the introduced plant was 1.6-2.6 times greater than that of the wild plants, depending on the height of above sea level and the conditions of growth (Table 1).

The essential oils consisted of yellow mobile liquids with a lemony smell and with astringent properties. The component composition of the essential oils was determined by the GLC method (Chrom-5). The main components were identified by the introduction of known compounds into a sample of the oil and from their relative retention times. The changes in

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TABLE 1.

Raw material collection site	EO content on air-dry wht. of plant, %	No. of components	Phys.-chem. constants	Main components of the EO, %
Environs of the village of Karamar'yam Geokchai region, hills, 200-250 m above sea level	0.15—0.25	13	n_D^{20} 1.4950, d_{20}^{0} 0.9168, A.No 1.96, E.No 27.85, E.No.a.A 218.75	α-Pinene – 6.04, linalol – 7.44, caryophyllene – 7.92, α-terpineol – 18.24, citral – 10.25, thymol – 9.10, carvacrol – 9.10.
Base in the Zakataly region, 500 m above sea level	0.26—0.40	14	n_D^{20} 1.4965, d_{20}^{20} 0.8975, ANo 1.85, E.No 30.65, E.No.a.A 112.65	Linalool – 5.39, caryophyllene – 5.14, α-terpineol – 14.93, citral – 28.62, geraniol – 2.66, thymol – 26.27, carvacrol – 10.03
Baku Botanical Garden, 100 m above sea level	0.38—0.74	15	n_D^{20} 1.49, d_{20}^{20} 0.9648, A.No 1.65, E.No 31.65, E.No.a.A 120.75	Limonene – 5.39, caryophyllene – 2.62, α-terpineol – 12.37, citral – 20.35, geraniol – 2.38, thymol – 26.27, carvacrol – 14.80.

Note. A. No. – acid number E. No. – ester number; E. No. a. A. – ester number after acetylation.

the chemical composition of the essential oils are shown in Table 1. The amounts of the main components are shown as calculated on the maximum accumulation of essential oils.

As can be seen from Table 1, in the case of the introduced plants the amounts of the main components – citral, thymol, and carvacrol were 5.7-18.37% greater than for the wild plants, while in the wild plants of the species the amount of α-terpineol was greater by 3.31-5.87%.

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