

STUDY OF THE ESSENTIAL OIL OF *Achillea asiatica*

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The essential oil of *Achillea asiatica* Serg. was obtained from the air-dried inflorescences, leaves, and epigeal part in the phases of budding, mass flowering, and the beginning of fruit-bearing. The samples of the essential oil obtained consisted of intensely blue mobile liquids as a result of the fact that they contain a considerable amount of azulenes (25-100 mg %).

The monoterpene fractions of these samples were analyzed by the GLC method on a KhL-4 instrument. Helium was used as the carrier gas. The rate of flow of gas was 50 ml/min [column 4.2 m long; stationary phase 15% of polyethylene glycol 20,000; solid support Chromosorb W (80-100 mesh); column temperature 110°C; detector current 130 mA]. The components were identified by the introduction of "markers" into the sample and from their retention times relative to p-cymene. The quantitative proportions of the components were determined by the method of internal normalization with the multiplication of the retention time of each component by the height of the corresponding peak.

The qualitative composition of the monoterpene fraction of the essential oil of *Achillea asiatica* in all stages of its development, both in the epigeal part, as a whole (herbage), and in its separate organs (inflorescences, leaves) consisted of nine components, seven of which were identified as α -pinene, β -pinene, camphene, limonene, Δ^3 -carene, cineol, and p-cymene.

As the figures in Table 1 show, the quantitative proportions of the components changed inconsiderably during the process of development of the plant. In the stages of full flowering and incipient fruit-bearing limonene was absent from the essential oil.

TABLE 1. Dynamics of the Accumulation of Monoterpene Hydrocarbons of the Essential Oil of *Achillea asiatica*

Peak No.	Component	Budding phase		Mass-flowering phase		Incipient fruit-bearing phase	
		inflorescences	leaves	inflorescences	leaves	inflorescence	leaves
1	α -Pinene	7,18*	5,91	5,67	4,81	5,86	4,83
2	Camphene	1,90	5,10	1,21	4,88	1,69	4,98
3	β -Pinene	36,80	14,99	36,82	27,51	31,34	15,71
4	Δ^3 -Carene	11,90	10,73	8,77	12,35	11,67	12,42
5	Unidentified	7,47	8,41	6,79	8,66	13,29	12,16
6	Limonene	6,98	11,30	—	8,78	—	12,60
7	Cineol	9,02	11,62	19,70	13,71	17,96	13,02
8	Unidentified	11,63	20,38	12,54	12,55	13,46	14,21
9	p-Cymene	5,56	10,34	5,52	6,90	4,32	10,03

*Amount of the components, % of the monoterpene fraction.

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