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CHEMICAL COMPOSITION OF ESSENTIAL OILS FROM DIFFERENT *MENTHA* SSP.

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GOAL OF THE STUDY

The aim of this study was to determine the chemical composition of six essential oils of three species of the genus *Mentha* in order to find an application in cosmetics and food products.

METHODOLOGY OF THE INVESTIGATION

The study was performed using six samples of essential oils from three different species of the *Mentha* genus. The chemical composition of which was determined by GC/MS analysis.

RESULTS AND DISCUSSION

Essential oils are mobile liquids with a characteristic odor. The chemical composition of the studied essential oils are presented in Table 1. The data showed that the amount of identified components (% of the composition) varied from 98.04 to 99.03%. The *M. piperita* essential oil samples had a similar composition. Comparing the chemical composition of the samples, it was evident that all three samples were high in menthol. In sample 3, regardless of the extended storage time, the amount of menthol is maintained, indicating an adequately performed storage process. The content of menthyl acetate was highest in samples 1, while it was comparable in samples 2 and 3. Sample 2 had an increased presence of menthone compared to the other two samples. The amount of menthofuran was higher in samples 2 and 3 than in sample 1, making it more suitable for inclusion in food.

Table 1. Main components in essential oils from *M. piperita*

Name	*M. piperita*		
	Sample 1	Sample 2	Sample 3
Eucalyptol	5.87 ± 0.50	5.80 ± 0.50	4.97 ± 0.45
Menthone	17.09 ± 0.16	22.00 ± 2.00	19.91 ± 1.90
iso-Menthone	4.53 ± 0.40	3.67 ± 0.30	4.90 ± 0.40
Menthofuran	2.06 ± 0.20	3.21 ± 0.30	3.13 ± 0.30
neo-Menthol	4.80 ± 0.40	3.43 ± 0.30	3.02 ± 0.30
Menthol	40.84 ± 0.40	34.90 ± 0.32	41.53 ± 4.00
Menthyl acetate	10.47 ± 1.00	6.78 ± 0.65	6.45 ± 0.62

In terms of the primary chemical constituents content, the essential oils (samples 1, 2 and 3) corresponded to the data from the literature for *M. piperita* essential oils. The *M. arvensis* essential oil samples had the following composition: **menthol (30.35%), menthone (20.50%), β-pinene (7.28%), α-terpineol (7.08%), α-pinene (6.35%), menthofuran (5.85%), iso-menthone (4.53%), neo-menthol (4.36%), and menthyl acetate (3.26%)** were among the major components in sample 4. In sample 5, the main components (over 3%) were: **menthol (36.33%), menthone (20.08%), menthofuran (9.18%), neo-menthol (4.69%), iso-menthone (4.53%), and α-pinene (3.12%).** The essential oils from samples 4 and 5 corresponded to the data from the literature for dementolized oils of the species *M. arvensis*. The main components (over 3%) in the *M. spicata* essential oil (sample 6) were: **carvone (58.22%) and limonene (19.54%).** The composition of sample 6 does not differ from the data in the literature for oils of the species *M. spicata*. The distribution of the identified components in essential oils from genus *Mentha* by groups of compounds is shown in Fig. 1.

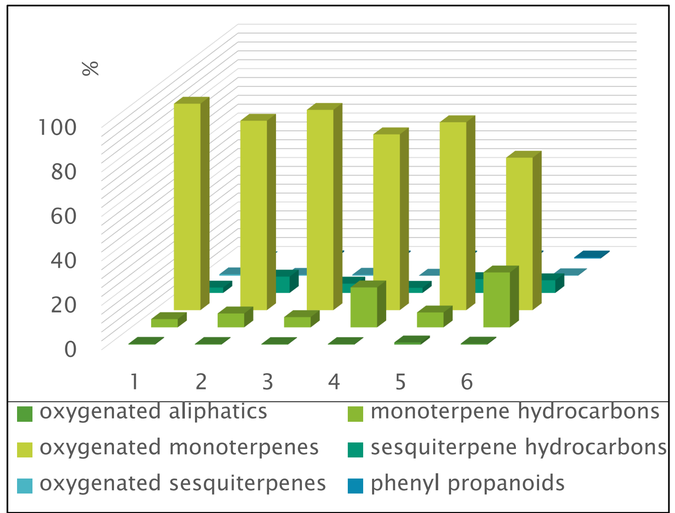
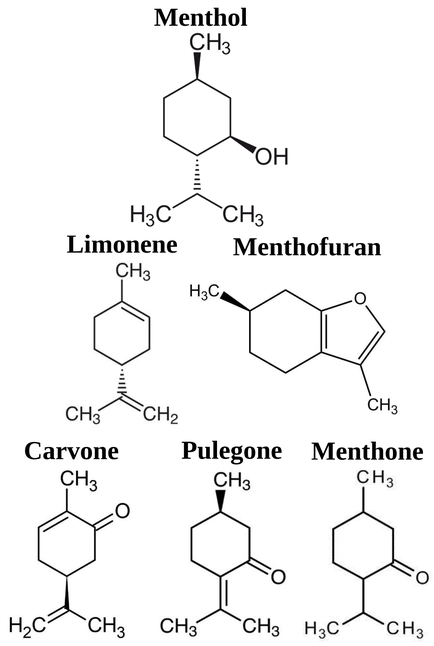


Fig. 1. Group of components in essential oils from different *Mentha* ssp.



CONCLUSIONS

The main components in the studied essential oil samples of three species of the genus *Mentha* have been identified. The essential oil of *M. piperita* was the most suitable for inclusion in food products due to the highest menthol (40.84%) and the lowest menthofuran (2.06%) contents. The two tested samples of *M. arvensis* essential oils were dementolized - with a low content of menthol (30.35-36.33%) and a higher amount of menthofuran (5.85-9.18%), which made them unsuitable for usage in food production. *M. spicata* esential oil was with a high carvone content (58.22%) and was found to be suitable for inclusion in cosmetic products.