FACTA UNIVERSITATIS
Series: **Physics, Chemistry and Technology** Vol. 16, N° 1, Special Issue, 2018, p. 104
49th International Symposium on Essential Oils (ISEO2018) • Book of Abstracts

49th ISEO

PP40. The analyses of commercial tea tree oils

Jelena Radović[1], Ivana Perišić[1], Tatjana Kundaković[1]*

Keywords: *Melaleuca alternifolia*, essential oil, terpinen-4-ol

Tea tree oil, the essential oil derived mainly from the Australian native plant *Melaleuca alternifolia* L. (Myrtaceae) is widely used as the active ingredient in many topical formulations for its antimicrobial activity, acting against viruses, bacteria, and fungi. Clinical studies have shown that this essential oil is very effective in various skin conditions, including acne, but also as an antiseptic in dentistry [1,2]. Since tea tree oil is commonly used, the aim of this study was to investigate the composition and quality of the three bestselling commercial tea tree oils in the Republic of Serbia, using GC and GC-MS analyses. All three oils had an almost identical composition. Among 42 quantified volatile substances, the most abundant in all samples were the oxygenated monoterpenes (46%), monoterpene hydrocarbons (45%), sesquiterpene hydrocarbons (6%), and oxygenated sesquiterpenes (1.5%). The major constituents are terpinen-4-ol (39.2%), γ-terpinene (17.6%), α-terpinene (7.4%), *p*-cymene (6.4%), limonene (4.3%), 1,8-cineol (3.7%), terpinolene (3.5%), α-pinene (3.2%), α-terpineol (2.8%), aromadendrene (0.9%), and sabinene (0.2%). The contents of all major components were within the range required by Ph. Eur. 9.0. In addition, all samples were tested for their quality based on measuring specific physical-chemical parameters (relative density, refractive index, and optical rotation) using suitable methods according to Ph. Eur. 9.0. Thus, it can be concluded that the tested samples of tea tree oil available on our market are of adequate pharmacopoeial quality.

References:
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Acknowledgments: This work was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia under Grant No. 173021.

[1]Department of Pharmacognosy, Faculty of Pharmacy, University of Belgrade, Vojvode Stepe 450, 11000 Belgrade, Serbia.
**Corresponding author*: tatjana.kundakovic@pharmacy.bg.ac.rs