CHEMICAL COMPOSITION AND ANTIOXIDANT ACTIVITY OF LAVANDER (*LAVANDULA ANGUSTIFOLIA*) ESSENTIAL OIL AND LIPOPHILIC EXTRACTS

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ABSTRACT

Lavender (*Lavandula angustifolia*) is a perennial herbaceous plant belonging to the *Lamiaceae* family and originates from the Mediterranean region. Lavender oil is well-known for its aromatic scent and is widely used in the cosmetic industry. In addition, it has anti-inflammatory, antimicrobial, and spasmolytic effects. The aim of this study was to determine the yield of lavender essential oil and obtained lipophilic extracts, antioxidant activity, and chemical composition. Lavender essential oil was isolated using hydrodistillation (HD) as a traditional method and microwave hydrodistillation (MWHD) as an innovative method of distillation. Unger's apparatus was used for both distillations, and the process lasted 2 hours. Soxhlet extraction (Sox) and supercritical fluid extraction (SFE) were used for isolating the lipophilic extracts. The chemical composition was determined using gas chromatography with mass spectrometry (GC-MS), while the antioxidant activity was tested in vitro by DPPH and ABTS assays. Physicochemical analyzes were used to determine the average diameter of particles and hygroscopic moisture of the examined plant species. Selected extraction and distillation techniques yield antioxidant-rich extracts and essential oils, which can be further used in the food, pharmaceutical and cosmetic industries.

Keywords: Hydrodistillation, microwave hydrodistillation, supercritical fluid extraction, Soxhlet extraction, antioxidant activity

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