## ORIGANUM VULGARE L.: CHEMICAL PROFILE OF THE EXTRACTED VOLATILE COMPOUNDS AND ANTIOXIDANT AND ANTI-INFLAMMATORY ACTIVITY OF HYDROLAT

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Hydrolates or floral waters are the outcomes of the hydrodistillation of aromatic plants. The production of hydrolates is simple and affordable because they are byproducts of the essential oil. The composition and biological activities of hydrolates may differ from those of the corresponding essential oils. The main objective of the study was to assess the chemical profile of the volatiles extracted from the hydrolate obtained from the aerial part of Origanum vulgare L., but also to evaluate the anti-inflammatory and antioxidant activity of the hydrolate obtained from the aerial part of Origanum vulgare. Qualitative and quantitative analyses of the extracted volatiles, performed using gas chromatography/mass spectrometry (GC/MS) and gas chromatography/flame ionization detection (GC/FID), showed that the main components were terpinen-4-ol (36%) and 1octen-3-ol (33.6%). At all concentrations tested, the hydrolate scavenged 1,1-diphenyl-2 picrylhydrazyl (DPPH) radicals in a way that depended on concentration and showed antioxidant activity in the  $\beta$ -carotene/linolenic acid assay. The total antioxidant capacity of oregano hydrolat was calculated using Ferric Reducing Antioxidant Power Assay (FRAP assay), which resulted in a FRAP value of 0.361  $\pm$  0.015 µmol Fe<sup>2+</sup>/ml. In addition to antioxidant activity, satisfactory anti-inflammatory activity was also observed with the percentage inhibition of BSA denaturation of 71.2 ± 0.006%. Demonstrated antioxidant and anti-inflammatory properties of O. vulgare hydrolate may be crucial to its future and use in many industrial fields.

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*Key words:* gas chromatography/mass spectrometry, gas chromatography/flame ionization detection, oregano, hydrosol, terpinen-4-ol, 1-octen-3-ol