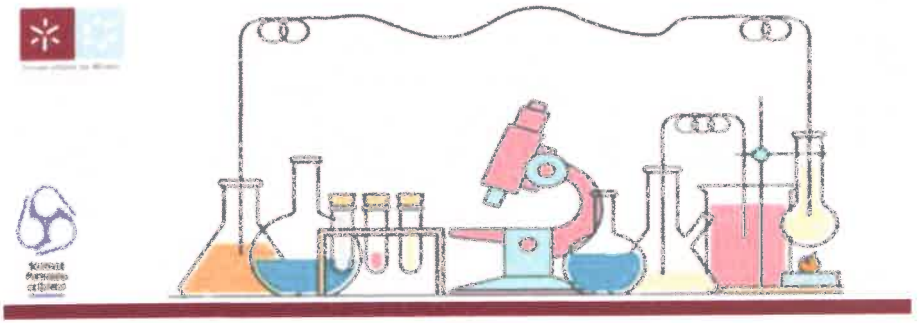

3rd Symposium on Medicinal Chemistry of University of Minho

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School of Science, Chemistry Department

University of Minho, Campus of Gualtar

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P01

Phenolic Profile, Tocopherols and Antioxidant Activity of Watercress

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Watercress (*Nasturtium officinale* R. Br.) is a cruciferous vegetable of the Brassicaceae family frequently classed as superfood. Several epidemiological studies have established a positive correlation between its consumption and a reduced risk of chronic diseases such as diabetes, cardiovascular diseases and cancer [1,2]. These health-promoting effects can be attributed to antioxidant nutrients (such as tocopherols) and non-nutrients (such as phenolic compounds), which may act synergistically and offer protection against oxidative stress and degenerative diseases. This study was carried out aiming to characterize the watercress profile in phenolic compounds and tocopherols and evaluate its antioxidant properties. Wild specimens of watercress were collected in a stream located in the municipality of Bragança, Portugal, and promptly analyzed. Phenolic compounds were analyzed by HPLC-DAD-ESI/MS and tocopherols by HPLC with a fluorescence detector [3,4]. Hydroalcoholic extracts were prepared by solid-liquid extraction and four *in vitro* assays were performed to evaluate the antioxidant capacity, which was assessed via DPPH free-radical scavenging activity, reducing power (ferricyanide/Prussian blue assay), β-carotene bleaching inhibition (β-carotene–linoleate model system), and thiobarbituric acid reactive substances (TBARS) formation inhibition in brain homogenates [3,4]. Watercress was particularly rich in flavonoids, mainly quercetin and isorhamnetin derivatives. Interesting amounts of hydroxycinnamic acids were also detected. α-Tocopherol was identified as the predominant isoform, followed by γ- and β-tocopherols. The low EC_{50} values for the TBARS formation and β-carotene bleaching inhibition revealed that the hydroalcoholic extracts have a high lipid peroxidation inhibition capacity. These results support the consumption of watercress as source of phytochemicals potentially capable of inhibiting free radical-mediated reactions and its classification as a superfood.

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