

PP83. Essential oils of *Calamintha nepeta*, *Origanum vulgare* and *Thymus mastichina* from Alentejo (Portugal): a pharmacological approach

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Alentejo, in the south of Portugal, is rich in endemic aromatic plants, that are used as condiments and food additives by the local population. Aromatic plants and their essential oils (EOs) have an important role in the protection against oxidative stress, often associated with some diseases, such as atherosclerosis, neurodegenerative and autoimmune diseases, and cancer [1]. The aim of this study was to evaluate the antioxidant, antimicrobial and antiproliferative activities of EOs of autochthones *Calamintha nepeta* (L.) Savi (syn. *Clinopodium nepeta* (L.) Kuntze), *Origanum vulgare* L., and *Thymus mastichina* L. EOs were extracted from the aerial part of the plants by hydrodistillation and the chemical composition was analyzed by GC-FID and GC-MS [2]. Antioxidant potential of the oils was evaluated by three different assays: DPPH radical, β -carotene/linoleic acid and reducing power methods [2]. Antimicrobial activity of the oils was evaluated by a solid disk diffusion assay and minimal inhibitory concentrations (MIC) were determined by a microdilution broth method [2]. Toxicity of the EOs was screened by the brine shrimp lethality test (LC_{50}) and the oral lethal doses (DL_{50}) were determined for mice [2]. Cell viability was assessed by the MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay using MDA-MB231 breast cancer cells [3]. EOs were rich in oxygenated monoterpenes and *O. vulgare* EO contained the highest amount of monoterpene hydrocarbons, which have a significant antioxidant potential, i.e. a high ability to protect lipid substrates. EOs were shown to be highly toxic to *A. salina* but of low toxicity to mice. The antibacterial activities were observed against Gram-positive and Gram-negative bacteria. The oils also exhibited a high antiproliferative potential. In conclusion, the antioxidant, antimicrobial and antiproliferative properties of the essential oils of these flavouring herbs point out to their potential use as food supplements and/or in pharmaceutical formulations.

References:

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