

International Conference on **Antimicrobial Agents and Chemotherapy** August 04-06, 2015 Valencia, Spain

The use of different phenolic compounds rich extracts obtained from cultivated thyme for antioxidant and antibacterial purposes

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Currently, oxidative stress related damages and opportunistic infections exert a direct implication on public health. Environmental factors and whole cellular metabolism comprises the first intervenient on the imbalance homeostasis. Additionally, stress and the overuse of chemical substances, namely antimicrobial drugs, improve this problem by two ways: Increasing free radicals generation and suppressing immune system functions. Thus, to improve health and well being other safer and effective alternatives are necessary. *Thymus vulgaris* L. (thyme) has been widely cultivated not only for nutritional but also medicinal purposes. Essential oils have been the main focus of research studies but its incorrect use might provide toxicity. In the present study, the antioxidant and antibacterial activities of thyme phenolic-compounds rich extracts, obtained by decoction, infusion and hydroalcoholic extraction were analyzed and compared. Furthermore, the extracts were characterized in terms of phenolic compounds by HPLC-DAD/ESI-MS. The extract obtained by decoction evidenced the most pronounced antioxidant (reducing power, free radicals scavenging activity and lipid peroxidation inhibition) and antibacterial (against gram-positive and gram-negative bacteria) potential, related to the its highest abundance of phenolic compounds, followed by the extracts obtained by infusion and hydroalcoholic extraction, respectively. Rosmarinic acid (in all the preparations), luteolin 7-O-glucoside (in the hydroalcoholic extract) and luteolin 7-O-glucuronide (in the infusion and decoction) were the most abundant phenolic acids and flavonoids found. The obtained data supports the idea that the compounds responsible for the antioxidant and antibacterial activities are water-soluble, conferring considerable health benefits to the studied plant that could be included as complement of daily food.

Biography

Natalia Martins is a PhD student from University of Minho since March 2013. She graduated in Dietetics and Nutrition from Polytechnic Institute of Braganca (including a period of extra-curricular training in Brazil), in Natural Medicine from School of Alternative and Complementary Medicines of Oporto, and also attended other short courses in Traditional Medicine. She has published 6 articles in ISI and Scopus indexed journals, and presented 12 abstracts in national and international conferences/congresses.

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