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## Abstracts Book



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TOXICOLOGICAL AND PHARMACOLOGICAL EVALUATION OF THE ESSENTIAL OIL AND AQUEOUS EXTRACT OF *LAVANDULA STOECHAS* L. SUBSP. *LUISIERI*S.A. Arantes<sup>1</sup>; M. F. Candeias<sup>1</sup>; M. Pereira<sup>2</sup>; O. Lopes<sup>3</sup>; M. Lima<sup>4</sup>; M. R. Martins<sup>1</sup>

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Lavenders belong to the family *Labiatae* and represent some of the most popular medicinal plants extensively used in aromatherapy [1]. In this study we selected *Lavandula stoechas* L. subsp. *luisieri* (Rozeira) Rozeira, commonly known as rosemary, endemic of Portugal and collected in Évora (Alentejo).

The aim of this study was to evaluate the acute toxicity and the analgesic and anti-inflammatory activities of the essential oil and aqueous extract from leaves of *L. luisieri*. The essential oil was obtained by hydrodistillation in *Clevenger* type apparatus and the resulting hydrolate was lyophilized. Chemical composition of essential oil was evaluated by GC–FID and extract was characterized by phytochemical tests and total phenolic and flavonoid quantification. Brine shrimp *in vitro* lethality was evaluated (LC<sub>50</sub>) [2]. Pharmacological screening and acute toxicity (LD<sub>50</sub>) were determined in *Swiss* mice, according to Up–and–Down OECD Procedure [3]. This approach was complemented with liver and kidney histopathological studies. Pharmacological properties, namely, analgesic and anti-inflammatory activities were evaluated in *Wistar* rats [4].

The essential oil showed toxicity to *A. saline* (LC<sub>50</sub> = 100 mg/mL), while hydrolate don't present toxicity (LC<sub>50</sub> >> 3500 mg/mL). The essential oil and hydrolate of *L. luisieri* showed very low toxicity in *Swiss* mice (LD<sub>50</sub> values >> 2000 mg/kg), with no clinical symptoms, however, a passive behavior was registered for the animals administered with 2000 mg/kg of essential oil. Histopathological studies showed some changes in the structure of hepatocytes and in the epithelial cells of renal tubules only for the highest doses of essential oil. The essential oil (100 mg/kg) and hydrolate (500 mg/kg) showed analgesic and anti-inflammatory activities. In previous studies performed in our laboratory, essential oil presented also important antioxidant and antimicrobial properties. Studies will continue with the toxicological evaluation of hepatic and renal function, by quantification of serum enzymes and metabolites and by the assessment of mechanisms involved in anti-inflammatory activities, in order to clarify the possible application of essential oil and aqueous extract as nutraceutical and/or phytotherapeutic agent.

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[2] Bastos, M. L. A., Lima, M. R. F., Conserva, L. M., Andrade, V. S., Rocha, E. M., and Lemos, R. P. (2009) Studies on the antimicrobial activity and brine shrimp toxicity of *Zeyheria tuberculosa* (Vell.) Bur. (*Bignoniaceae*) extracts and their main constituents, *Annals of Clinical Microbiology and Antimicrobials* 8, 1–6.

[3] OECD. (2008) Guideline for Testing of Chemicals: Acute Oral Toxicity – Up–and–Down Procedure, Environmental Health and Safety Monograph Series on Testing and Assessment n° 425.

[4] Vogel, H. G., and Vogel (2002) *Drug Discovery and Evaluation: Pharmacological Assays*, Springer–Verlag Berlin Heidelberg.