

Origanum vulgare as a Possible Modulator of Testicular Endocrine Function in Mice

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Abstract : This study was designed to assess the *in vitro* effects of *Origanum vulgare* L. (oregano) extract on the testicular steroidogenesis. We focused on identifying major biomolecules present in the oregano extract, as well as to investigate its *in vitro* impact on the secretion of cholesterol, testosterone, dehydroepiandrosterone and androstenedione by murine testicular fragments. The extract was subjected to high performance liquid chromatography (HPLC) which identified cyranosid, daidzein, thymol, rosmarinic and trans-caffeic acid among the predominant biochemical components of oregano. For the *in vitro* experiments, testicular fragments from 20 sexually mature Institute of Cancer Research (ICR) mice were incubated in the absence (control group) or presence of the oregano extract at selected concentrations (10, 100 and 1000 $\mu\text{g/mL}$) for 24 h. Cholesterol levels were quantified using photometry and the hormones were assessed by ELISA (Enzyme-Linked Immunosorbent Assay). Our data revealed that the release of cholesterol and androstenedione (but not dehydroepiandrosterone and testosterone) by the testicular fragments was significantly impacted by the oregano extract in a dose-dependent fashion. Supplementation of the extract resulted in a significant decline of cholesterol ($P < 0.05$ in case of 100 $\mu\text{g/mL}$; $P < 0.01$ with respect 100 $\mu\text{g/mL}$ extract), as well as androstenedione ($P < 0.01$ with respect to 100 and 1000 $\mu\text{g/mL}$ extract). Our results suggest that the biomolecules present in *Origanum vulgare* L. could exhibit a dose-dependent impact on the secretion of male steroids, playing a role in the regulation of testicular steroidogenesis.

Keywords : mice, *Origanum vulgare* L., steroidogenesis, testes

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