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PP105. Chemical variability, toxicity, and antibacterial activity against opportunistic pathogens of the essential oils from *Origanum vulgare* (*hirtum* x *viridulum*)

Cristina Martínez-Conesa[1]*, J. A. Sotomayor[1], P. Sánchez-Gómez[2], I. García[1], P. Romero[1], M. Quílez[1], M. J. Jordán[1]

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The genera *Citrobacter*, *Bacillus*, *Shigella*, and *Pseudomonas* include overt and opportunistic pathogens responsible for a wide range of infections that are the causes of sporadic septicemia, pneumonia, and digestive and urinary tract infections. The presence of high amounts of phenolic compounds in essential oils provides an insight into the likely effect of a specific chemotype against opportunistic pathogens. The main goal of the present work was to evaluate the bacterial growth inhibition by five *Origanum vulgare* L. (Lamiaceae) essential oil chemotypes. The most active chemotype was also tested for intestinal toxicity using an experimental animal model. The bacterial growth inhibition curves against *Pseudomonas aeruginosa* CECT 108, *Shigella sonnei* CECT 413, *Bacillus cereus* CECT 131, and *Citrobacter freundii* CECT 7464 were set up. The following parameters were assessed from the animal model experiments: villius height, Lieberkühn crypt depth, and intestinal mucosal thickness. A total of 15 individual plants (3 per chemotype) were used in this assay. The essential oils were extracted by hydrodistillation and the qualitative and quantitative compositions were analyzed using a gas chromatograph coupled to a mass spectrometer (GC-MS). The growth inhibition curves were constructed for the 48-h treatment and the tested essential-oil concentrations ranged from 40 to 1250 ppm for *S. sonnei*, *B. cereus*, and *C. freundii*, and from 625 to 20000 ppm for *P. aeruginosa*. The GC-MS results revealed that the tested chemotypes were composed of: 86% of carvacrol; 77% of carvacrol and 6% of thymol; 65% of carvacrol and 18% of thymol; 48% of carvacrol, 12% of γ-terpinene, and 6% of caryophyllene; 34% of carvacrol, 15% of γ-terpinene, 8% of *p*-cymene, and 7% of caryophyllene.

From results it can be concluded: that among the chemotypes studied, the ones having over 48% of carvacrol in the oil inhibited the growth of *S. sonnei* and *B. cereus* (312 ppm), and *C. freundii* (625 ppm). In the case of *P. aeruginosa*, only chemotypes with a high amount of carvacrol (86-76%) at the highest tested concentration (20000 ppm) were active. In addition, the maximal doses tested did not result in intestinal toxicity.

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[1]Natural Resources, Murcia Institute of Agri-Food Research and Development (IMIDA); [2]Vegetal Biology Department (Botany), University of Murcia, Murcia, Spain.
**Corresponding author.* Email: cristina.martinez4@carm.es