



### Antimicrobial activity of the essential oil of oregano (*Origanum vulgare* L.)

Catia A. Almeida<sup>1</sup>, Fátima R.V. Goulart<sup>1</sup>, Maria Bárbara F. Cardoso<sup>1</sup>, José Magno Q. Luz<sup>2</sup>,  
Arie F. Blank<sup>3</sup>, Daniela S. Alviano<sup>1</sup>, Celuta S. Alviano<sup>1</sup>

<sup>1</sup> Federal University of Rio de Janeiro - Rio de Janeiro, Brazil

<sup>2</sup> Federal University of Uberlândia – Minas Gerais, Brazil

<sup>3</sup> Federal University of Sergipe - Sergipe, Brazil

catiamancio@micro.ufrj.br

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*Origanum* species have been used for thousands of years as spices and in ethnomedicine. *Origanum vulgare* (L.) is a medicinal perennial plant. Many herbs are commonly used in home-type cure therapies, complementary medicine and modern medicine because of their perceived antioxidant, antimicrobial and anticancer properties (1). As they possess such biological activities, their potential must be revealed by scientific studies and it explained to the public, since these herbs are available in almost all public markets. The aim of this study was evaluate the antimicrobial activity of the essential oil (EO) from *O. vulgare*. The antimicrobial activity was tested against 8 bacterial; *Escherichia coli*, resistant and sensitive *Staphylococcus aureus*, two *Enterobacter* species, carbapenemase positive and negative *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, and ten fungi strains; *Candida albicans*, *Cryptococcus neoformans*, *Fonsecaea pedrosoi*, *Rhizopus oryzae*, *Trichophyton rubrum*, *T. tonsurans*, *T. mentagrophytes*, *Microsporum canis*, *M. gypseum* and *Epidermophyton floccosum*. The antimicrobial activity was evaluated as M7-A6 protocols, M27-A2 and M38-A2 for bacteria, yeast and filamentous fungi, respectively (2). The identification of EO was performed by GC/FID and GC/MS in an Agilent 6890N and an Agilent 5973N systems with HP-5MS fused silica capillary columns (30 m X 0.25 mm X 0.25 µm). Hydrogen was used as carrier gas for GC/FID and helium for GC/MS, both with a flow rate of 1.0 mL/minute. Oven temperature was raised from 60°C to 240°C at 3°C/min. Mass detector was operated in electronic ionization mode at 70eV. The results of chemical analysis showed twenty-five constituents, being carvacrol (59.05%), γ-terpinene (16.47%) and o-cymene 6.51% the major components. The EO exhibited antimicrobial activity against all microorganisms tested and the minimum inhibitory concentration (MIC) values ranged from 156 to 1250 µg/mL, and the best result was for *P. aeruginosa*. In conclusion, the EO from *O. vulgare* can be used as a potential natural antimicrobial agent to the bacteria above cited.

1. Koldas, S. et al. J. Sci. Food Agric., 2015, **95**, 786-798.

2. Clinical and Laboratory Standards Institute. M7-A6 (2003), M27-A2 (2002), M38-A2 (2008). Wayne, PA.

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