




DIPARTIMENTO DI
AGRARIA




DIPARTIMENTO
DI ECCELLENZA
2018-2022



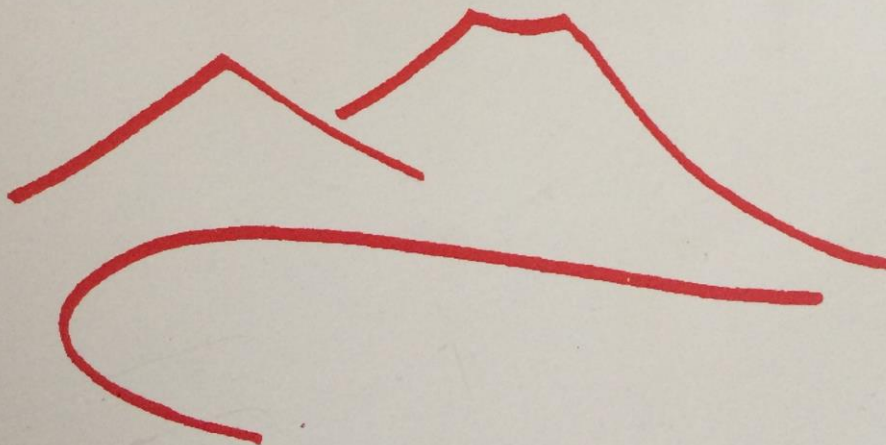
DIPARTIMENTO DI FISILOGIA
E FARMACOLOGIA VETERINARIA
SAPIENZA
UNIVERSITÀ DI ROMA

80 **SIF** **1939-2019**

SOCIETÀ ITALIANA DI FARMACOLOGIA

Gruppo di Lavoro
Farmacognosia, Fitoterapia e Nutraceutica

CONVEGNO MONOTEMATICO
Le Basi Farmacologiche dei Nutraceutici



Hotel Royal Continental, Via Partenope, 38
NAPOLI 29-30 marzo 2019

Programma e Abstract

Antimicrobial and Phytotoxic activity of essential oil of *Origanum vulgare* growing in Cilento

Della Pepa T¹, Elshafie H.S², Capasso R¹, De Feo V³, De Martino L³, Camele I², Gutierrez Pacheco MM⁴, Vazquez Armenta FJ⁴, Ayala Zavala JF⁴, Nazzaro F⁵, Caputo L³

1. Department of Agricultural and Food Science, University of Naples, via Università 100, 80055 Portici, NA; tp.dellapepa@studenti.unina.it, rafcapas@unina.it;
2. School of Agricultural, Forestry, Food and Environmental Sciences, University of Basilicata, Viale dell'Ateneo Lucano, 85100 Potenza; hazem.elshafie@unibas.it; ippolito.camele@unibas.it;
3. Department of Pharmacy, University of Salerno, via Giovanni Paolo II 132, 84084 Fisciano, SA; lcaputo@unisa.it; ldemartino@unisa.it; defeo@unisa.it;
4. Research Center for Food and Development (CIAD)Carretera G E Astiazarán Rosas, 46,Col. La Victoria, CP. 83304, Hermosillo, Sonora (Mexico) melissa.gutierrez@estudiantes.ciad.mx; javier.vazquez@estudiantes.ciad.mx; jayala@ciad.mx
5. Institute of Food Science, CNR-ISA, Via Roma 64,83100 Avellino, Italy; filomena.nazzaro@cnr.it

Recent studies demonstrated that aromatic plants are a good source of nutraceuticals with a positive impact in human and vegetal health. Moreover, there is a growing interest in use of essential oils as possible alternatives for traditional antibiotics, pesticides and herbicides. *Origanum vulgare* L. is an aromatic perennial herb, belonging to *Lamiaceae* family, with many health benefits. This study was carried out to characterize the chemical composition of *O. vulgare* essential oil (EO) and to evaluate *in vitro* its antimicrobial and phytotoxic activities. The antimicrobial activity was performed against some post-harvest phytopathogenic fungi (*Botrytis cinerea*, *Penicillium expansum*, *Aspergillus niger* and *Monilinia fructicola*) and some phytopathogenic bacteria (*Bacillus megaterium* and *Clavibacter michiganensis* (G+ve) and *Xanthomonas campestris*, *Pseudomonas fluorescens*, and *P. syringae* pv. *phaseolicola* (G-ve). In *O. vulgare* EO, 35 compounds were identified, accounting 97.8% of the total oil. The main constituent is carvacrol (77.8%), followed by *p*-cymene (5.3%) and γ -terpinene (4.9%). The phytotoxicity of the studied EO was evaluated against the germination and initial radicle elongation of *Raphanus sativus* L. (radish), *Lactuca sativa* L. (lettuce), *Lepidium sativum* L. (garden cress), *Solanum lycopersicum* L. (tomato). Results demonstrated that the studied EO has a promising *in vitro* antimicrobial activity against all tested phytopathogens at all tested concentrations. It showed an interesting effect - in terms of Minimal Inhibitory Concentration and Minimal Bactericidal Concentration- against *Listeria innocua* and *Listeria monocytogenes* indeed needing concentrations of 0.02 and 0.05 % (v/v) of the EO for both bacteria, respectively. Moreover, both germination and radical elongation of selected plants were sensitive to the studied EO.

Bacteria	MIC (% , v/v)	MBC (% , v/v)
<i>L. innocua</i>	0.02	0.05
<i>L. monocytogenes</i>	0.02	0.05