SOCIETA ITALIANA DI FITOCHIMICA E DELLE SCIENZE DELLE PIANTE MEDICINALI ALIMENTARI E DA PROFUMO

UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO
dipartimento di farmacia – scienze del farmaco

XVII CONGRESS OF THE ITALIAN SOCIETY OF PHYTOCHEMISTRY

JOINTLY WITH

3rd International Congress on Edible, Medicinal and Aromatic Plants (ICEMAP 2022)

BOOK of ABSTRACS

22-24 June 2022

Aula Magna "Aldo Cossu"
Università di Bari
P.zza Umberto, 1 – Bari

Local Organizing Committee

Maria Pia Argentieri

Santa Cirmi

Luca Piemontese

Scientific Committee

Maria Pia Argentieri – University of Bari

Stefania Benvenuti – University of Modena and Reggio Emilia

Anna Rita Bilia – University of Florence

Angela Bisio – University of Genova

Rosy Caniato – University of Padova

Nunziatina De Tommasi – University of Salerno

MariaCarla Marcotullio – University of Perugia

Luigi Menghini – University of Chieti

Giorgio Pintore – University of Sassari

Luisa Pistelli – University of Pisa

Federica Pollastro – University of Piemonte Orientale

Scientific Secretariat

Maria Pia Argentieri

Università degli Studi di Bari "Aldo Moro"

Dipartimento di Farmacia-Scienze del Farmaco

Via Orabona, 4 – Bari

mariapia.argentieri@uniba.it

BASIL AND EUCALYPTUS AS A SOURCE OF ESSENTIAL OILS WITH BIOACTIVE PROPERTIES

Eliana Pereira[a], Cristina Caleja[a], Rafael Mascoloti Sprea[a,b], Rui Abreu[a], Tânia C.S.P. Pires[a], Joana Amaral[a], Miguel Ángel Prieto Lage[b], Lillian Barros[a]

[a]*Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253Bragança, Portugal*
[b]*Nutrition and Bromatology Group, Department of Analytical and Food Chemistry, Faculty of Food Science and Technology, University of Vigo-Ourense Campus, E-32004 Ourense, Spain*
eliana@ipb.pt

Aromatic and medicinal plants have been used worldwide for culinary purposes aiming to modify, enhance or improve the flavour of foods. In addition, several aromatic plants are also recognized for their empiric use in folk medicine due to their beneficial health effects[1]. The secondary metabolites of aromatic plants could have diverse applications in industry, and several essential oils have a Generally Recognized as Safe (GRAS) status attributed by the Food and Drug Administration (FDA). Currently, these natural matrices have been characterized by having active antioxidant components in their composition that have a direct impact on food quality and have potential benefits on human health[2]. In addition, studies focusing on different aromatic plants have suggested the use of their essential oils and some constituents as promising alternatives for obtaining natural preservatives.

The present work reports a study on the bioactivity of essential oils obtained from two species of aromatic plants: *Ocimum basilicum* L. (basil) and *Eucalyptus globulus* Labill. (eucalyptus). The essential oil was obtained by hydrodistillation using a Clevenger apparatus and volatile compounds were analyzed by GC-MS equipped with DB-5MS fused-silica column. The antimicrobial activity was determined by broth microdilution assay against several Gram-positive and Gram-negative ATCC bacterial strains, and fungi. The bioactive potential was evaluated through several *in vitro* assays, namely antioxidant activity using two different assays: DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging activity and reducing power; cytotoxic activity using three tumour cell-lines: CaCo (colorectal adenocarcinoma), MCF-7 (breast adenocarcinoma) and NCI-H460 (non-small cell lung carcinoma) and a non-tumor cell line of monkey kidney (VERO), by applying the sulforhodamine B assay; anti-inflammatory activity was assessed using RAW 264.7 macrophage cells.

In general, the results revealed a auspicious antimicrobial potential of the essential oils against the tested strains, as well as a very promising antioxidant and anti-inflammatory activities. In addition, it was also possible to verify the absence of toxicity of both extracts. Therefore, essential oils extracted from the studied plants can be appealing alternatives to the currently used synthetic additives, with potential application in the food and pharmaceutical industries for their relevant bioactive properties.

References

[1] Spréa, R.M. et al. 2020. *Food & Function*, 11: 1292–1303.
[2] Skendi, A., Irakli, M. & Chatzopoulou, P. 2017. *J. Appl. Res. Med. Aromat. Plants*, 6: 62–69.