II SIMPÓSIO INTERNACIONAL EM INVESTIGAÇÕES QUÍMICO-FARMACÊUTICAS

Itajaí-2019

Área: FMG 24

NATIVE AROMATIC PLANTS OF THE ATLANTIC FOREST: CHEMICAL-BIOLOGICAL STUDIES OF *Symphyopappus cuneatus* ESSENTIAL OIL

Camila Confortin*[1], Luiz Everson da Silva[1], Jenifer P. de Araujo[1], Wanderlei do Amaral[1].

[1]Universidade Federal do Paraná, *Programa de Pós-Graduação em Desenvolvimento Territorial Sustentável*, Paraná- Brasil. *camila24confortin@gmail.com.

INTRODUCTION

A wide range of medicinal and aromatic plants (MAPs) have been explored for their essential oils (EOs) in the past few decades.Studies previous have shown the potential of essential oils in the development of novel broad-spectrum key molecules against a broad range of drug-resistant pathogenic microbes. (Rodrigues, 2010). In continuation of a programme of systematic investigation of aromatic plants in different biomes of the Atlantic Forest, the material was collected under the authorization SISBIO number 49770-2 in Palmeira-PR, March 2019 and the antimicrobial activity against strains of food-borne pathogens Escherichia coli and Listeria monotytogenes was performed.

MATERIAL AND METHODS

A wide range of medicinal and aromatic The plant material was dried at 40 ^{o}C using an electric dryer with air circulation and submitted to hydrodistillation. The oil obtained in 0,60% yield based on dry material was then characterized by means of GC-FID (quantification and retention index) and GC-MS (computing library search) (Adams, 2017, Allured pub). The antibacterial assay was performed by diffusion method against food-borne pathogens *Escherichia coli* and *Listeria monotytogenes*.

RESULTS

Eleven compounds were identifiied in the essential oil. The most abundant constituent was the monoterpene Limonene (37.19%), followed by α-Pinene (15.61%) and Muurola-4(14).5-diene (14.01%).The antibacterial assay demonstrated that the two bacteria assayed were sensitive to essential oil with a halo mean of 16 mm for *E. coli* and 12 mm for *L. monocytogenes*. However, further studies are necessary to determine the optimal concentrations of *Symphyopappus cuenatus* to act as a natural antimicrobial, considering the factors that influence their composition, and the quantity and quality of active compounds. Previous studies have shown EO to be effective in combination with heat in the inactivation of *E. coli* and *Listeria monocytogenes*. In addition, combinations of (+)-limonene with heat or non-thermal technologies could likewise yield a similar synergistic effect in the inactivation of the target pathogens while preserving the organoleptic properties of the fresh food

CONCLUSIONS

In this work we have shown that plant species found in the Atlantic Forest Biome can be considered promising sources of bioactive compounds. In addition *Symphyopappus cuneatus* essential oil presented significant antibacterial activity against human pathogens.

REFERENCES

RODRIGUES,C.V.F. (2010) **Estudo da atividade antibacteriana de diversos óleos essenciais**. Dissertação(Mestrado)- Curso de Bioquímica, Departamento de Química, Universidade da Beira Interior, Portugal.

ADAMS, R. P. (2017). Identification of essential oil components by gas chromatography/mass spectrometry, ed. 4.1, Allured Pub. Corp.