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**INVESTIGACIÓN
E INNOVACIÓN**

CHALLENGES AND OPPORTUNITIES FOR THE INNOVATION WITH PHENOLIC COMPOUNDS

**IBERPHENOL. IBERIAN CONGRESS ON
PHENOLIC COMPOUNDS**

BOOK OF ABSTRACTS

Ourense, 2nd October 2019

<http://iberphenol.webs.uvigo.es/>

Fotografía: Suzy Hazelwood (Pexels)

Universidade de Vigo

AAI: Grupo
de Investigacións
Agro-ambientais
e Agroalimentarias

CITACA: Clúster de Investigación
e Transferencia Agroalimentaria
do Campus da Auga

Facultade
de Ciencias

Vicerreitoría do
Campus de Ourense
Campus da Auga

Vicerreitoría de
Comunicación e Relacións
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ISBN: 978-84-8158-820-0

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Proposed section: Phenolic agro-industries

Proposed format: oral

Lamiaceae family plants: a rich source of phenolic compounds

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Herbal teas, particularly infusions with both medicinal and nutritional purposes, have a long history of traditional uses among different cultures and regions [1]. The family Lamiaceae is an important medicinal plant family that is widely used in traditional medicine as a cure for various disorders [2]. In order to characterize and study the bioactivities of individual plant species of that family, three different plant species were selected: *Melissa officinalis* L. (leaves), *Mentha spicata* L. (inflorescences), and *Prunella vulgaris* L. (leaves). Infusions were prepared from each plant species being further analyzed in terms of nutritional value, phenolic composition, and bioactive properties. The antioxidant activity was evaluated through two different *in vitro* assays: inhibition of lipid peroxidation in brain homogenates by thiobarbituric acid reactive substances (TBARS) and oxidative hemolysis inhibition assay (OxHLIA). The cytotoxic activity was assayed using MCF-7 (breast adenocarcinoma), NCI-H460 (non-small cell lung carcinoma), HeLa (cervical carcinoma) and HepG2 (hepatocellular carcinoma) human tumor cell lines, and also in a non-tumour cell line (porcine liver primary cells, PLP2). The phenolic profile was accessed through and UPLC-DAD-ESI/MS system. *M. officinalis* presented a high percentage of carbohydrate with sucrose being the predominant free sugar and no macronutrients were found in *P. vulgaris* infusion. Regarding phenolic compounds' composition, the major detected compound in the three infusions was rosmarinic acid. Regarding the bioactive properties, *P. vulgaris* and *M. officinalis* presented the best results for TBARS and OxHLIA assays, respectively. *M. spicata* showed the best anti-inflammatory activity and cytotoxic properties, with lowest GI₅₀ values for all the tumour cell lines tested. None of the infusions revealed hepatotoxicity for non-tumour cells (PLP2). In general, *M. spicata* also presented the strongest antimicrobial activity. Thus, the complete characterization of these individual species confirms that they are excellent sources of bioactive molecules, especially phenolic acids.

Keywords: Lamiaceae; Infusion; Phenolic acids; Bioactivities.

References:

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