

**Book of Abstracts**

# **Trend in grain-based foods**

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Trends in grain-based foods

**Autor**

Lillian Barros - Mountain Research Center (CIMO), Portugal

**Co-Autor**

Bruno Melgar Castañeda - Mountain Research Center (CIMO), Portugal

Carlos Seiti Hurtado Shiraishi - Mountain Research Center (CIMO), Portugal

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## 1° Trends in grain-based foods

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- <sup>1</sup>Instituto Politécnico de Bragança, Portugal
- <sup>2</sup>Universidad de Valladolid, Spain
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# **Poster Communication**

## ***THYMUS MASTICHINA* L. AS A NATURAL ALTERNATIVE FOR FOOD PRESERVATION: STUDY OF BIOACTIVITIES AND PHENOLIC PROFILE**

Eleomar Pires Jr<sup>1,2</sup>, Eliana Pereira<sup>1</sup>, Carla Pereira<sup>1</sup>, Maria Inês Dias<sup>1</sup>, Ricardo Calhella<sup>1</sup>, Marina Kostić<sup>3</sup>, Marina Soković<sup>3</sup>, Isabel C.F.R Ferreira<sup>1</sup>, Miguel A. Prieto<sup>2</sup>, Cristina Caleja<sup>1\*</sup>, Lillian Barros<sup>1</sup>

<sup>1</sup>Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Bragança, Portugal <sup>2</sup>Nutrition and Bromatology Group, Faculty of Food Science and Technology, University of Vigo, Ourense, Spain <sup>3</sup>Institute for Biological Research "Siniša Stanković", University of Belgrade, Serbia

\*e-mail ccaleja@ipb.pt

Market challenges are a strong promoter to innovation in the food preservatives segment, especially regarding consumer resistance to the use of artificial additives [1]. Plants belonging to the genus *Thymus* are traditionally used as spices in folk medicine and are characterized as promising sources of natural additives [2,3]. Thus, the present work aimed to identify and quantify the phenolic compounds and evaluate the bioactive properties of *Thymus mastichina* L., to validate its application as a natural preservative ingredient to be applied in the bakery and pastry industry. The chemical composition of *Thymus mastichina* L. aqueous extract was analyzed by chromatographic methods (HPLC-DAD-ESI/MS), followed by the identification of its individual compounds by comparison to literature data and commercial standards. To prove its bioactive properties, different *in vitro* tests were carried out to test its antioxidant properties (oxidative hemolysis inhibition (OxHLIA), reducing power, and free radical scavenging capacity (DPPH)), antimicrobial activity (evaluated using a panel of six bacteria and six filamentous fungi), anti-inflammatory action (in rat macrophage cells, RAW 264. 7), and cytotoxicity (in human tumor cell lines: MCF-7, breast carcinoma; NCI-H460, lung cancer; AGS, gastric carcinoma; and in non-tumor cells, PLP2 and Vero, by the sulforhodamine B method). Regarding the individual phenolic compounds, 12 distinct compounds were identified, derived from flavonoids and phenolic acids, in which kaempferol-*O*-hexuronoside stood out as the major compound. The antioxidant activity was the biological activity that stood out, with the extract presenting low EC<sub>50</sub> values (0.048 ± 0.002 mg/mL, 0.035 ± 0.001 mg/mL, and 19.0 ± 0.6 µg/mL for DPPH, reducing power, and OxHLIA assays, respectively). In the cytotoxic assay, the extract showed higher efficiency for AGS cell line (59 ± 5 µg/mL), and for the antimicrobial activity, fungicidal (CMF) and bactericidal (CMB) potential was observed with a concentration range of 2 - 4 mg/mL. In general, based on the bioactive properties demonstrated by thyme extract, it can be considered as a natural ingredient with potential application in the food industry, attributing benefits to new food formulations, especially those developed in the bakery and pastry industry.

### References

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