

A Sustainable Integrated Project to Recover Bioactive Molecules from Fig Production Residue

¹Carlos Shirashi, ¹Custódio Lobo Roriz, ¹Marcio Carocho, ²Sara Domingos, ³Marta B. Evangelista, ⁴João Nunes, ⁵Maria Jorge Campos, ¹Sandrina Heleno and ¹Lillian Barros

¹*Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Portugal*

²*Sociedade Agrícola Quinta da Mó de Cima, S.A., Rua Julieta Ferrão, 12 Torre A 602, 1600 - 131 Lisboa, Portugal*

³*TAGUSVALLEY - Vale do Tejo Scientific Park, Rua José Dias Simão s/n, 2200-062, Alferrarede - Abrantes, Portugal, INOV.LINEA - Agrifood Business Unit from TAGUSVALLEY, TAGUSVALLEY Science and Technology Park, Rua José Dias Simão s/n, 2200-062, Abrantes - Alferrarede*

⁴*Centro Bio R&D Unit, Associação BLC3 - Campus de Tecnologia e Inovação, Rua Nossa Senhora da Conceição 2, Lagares da Beira 3405 - 155 Oliveira do Hospital, Portugal*

⁵*MARE - Marine and Environmental Sciences Centre, ESTM, Polytechnic of Leiria, 2520-641 Peniche, Portugal*

Abstract

The project focuses on the use of bioresidues (leaf and peels) produced during the production and processing of figs, to contribute to the development of new and healthy foods products, promoting sustainability and circular economy. The first step is the identification through high performance chromatographic techniques to identify potential preservative and bioactive molecules present in the bioresidues of the five fig species. These molecules will be recovered through microwave-assisted solvent extraction, ultrasound-assisted extraction, high hydrostatic pressure assisted extraction and pulsed electric fields assisted extraction to define the best extraction conditions. The molecules and extracts, after ruling of potential toxicity, will be used to preserve several food products, namely jams and other sweets fruit-based foods, thus investigating the stability over a shelf-life, in terms of chemical and physical parameters. Further research will be done on the prediction of stability of the shelf-life and improvement of healthiness by addition of functional and sugar reducing compounds. A sensory analysis of the final products will also be performed. Finally, optimization of the laboratorial processes will be made to allow a scale-up to a pilot level.

Keywords: circular economy, sustainability, preservatives, figs

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