



BOOK OF ABSTRACTS

II SIMPÓSIO NACIONAL DE VALORIZAÇÃO DO CARDO

Seminário de Encerramento do Projeto MedCynaraBioTeC
Uma abordagem combinada para a valorização
económica do cardo



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Cardoon vegetable tissues as a promising source of functional ingredients

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Cynara cardunculus L. var. *atilis* DC., commonly known as cardoon, belongs to the Asteraceae family. This species is included in the Mediterranean diet and has several industrial applications (e.g., food, paper pulp, energetic, pharmaceutical, and cosmetic industries)¹. Cardoon is a rich source of bioactive compounds and has low requirements in agronomic inputs, high biomass yields, and high adaptation to adverse conditions. Despite its multifaceted applications, tons of plant material are normally discarded and unexploited. This biowaste constitutes a rich source of valuable compounds, that can be explored as functional ingredients for diversified applications^{1,2}. Their exploitation and proper use could contribute to the economic valorization of the species and their producing countries, being also essential for circular economic stimulation and environmental impact reduction. Cardoon vegetable tissues (heads, blades, seeds, bracts, and petioles) were collected in Greece throughout different developmental stages (PGS 1 – 9). The polyphenolic profile was analyzed by HPLC-DAD-ESI/MS. Antioxidant potential was studied through two cell-based assays: TBARS and OxHLIA. The anti-inflammatory activity was evaluated through the extracts' capacity to inhibit the formation of nitric oxide. Finally, the antiproliferative potential was also studied. Overall, the best results were obtained for the leaves, which exhibited a higher variety and concentration of phenolic compounds, as well as more interesting bioactive properties compared to the rest of the studied tissues. Contrarily, the seeds exhibited a low variety of phenolic compounds, as well as less promising antitumor and anti-inflammatory activities. The growth cycle showed an influence on the bioactivities studied, with younger tissues exhibiting higher levels of phenolic compounds, and intermediate ones standing out for the studied bioactivities. Further studies regarding the relationships between the observed potential and the identified compounds should be developed, to establish a correlation between the bioactivities and the chemical composition. Cardoon vegetable tissues demonstrated to be a rich source of functional ingredients with promising applicability in diversified industrial applications.

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