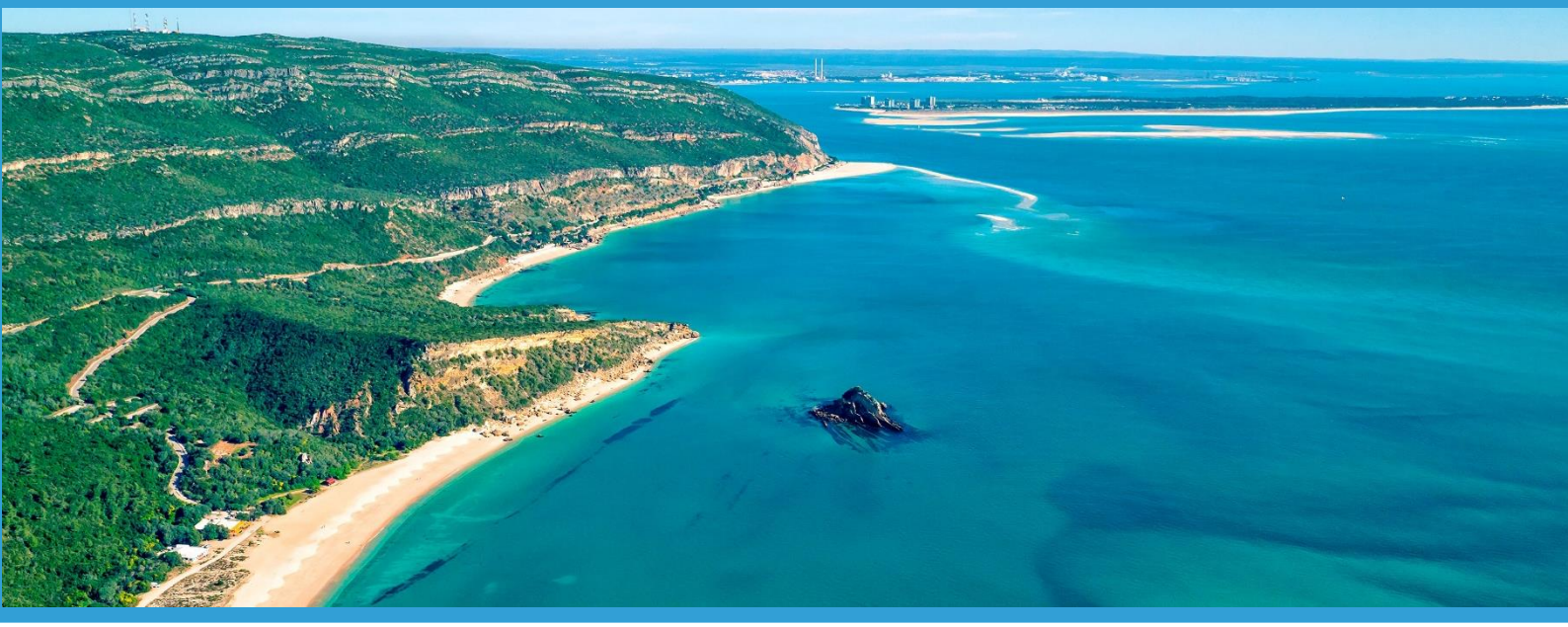
6th PYCHEM

Portuguese Young Chemists Meeting



Book of Abstracts

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Book of Abstracts of the 6th Portuguese Young Chemists Meeting

Cardoon (*Cynara cardunculus* L.) flowers as sources of phenolic compounds with high biological potential

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Cardoon *(Cynara cardunculus* L.) belongs to Asteraceae Dumortier family and its flower aqueous extracts have been used for centuries as coagulants in the production of traditional ewes' milk cheeses, obtaining specific characteristics of textures and flavour [1]. The use of cardoon flowers (*Cynara* spp.) as a coagulant is obligatory for many Portuguese and Spanish cheeses due to their high content of aspartic proteases and high milk-clotting activity [1,2]. Cardoon flowers from specific genetic resources distributed in *Serra da Estrela* region have been studied and approved for the application as cheese coagulant in order to obtain cheeses with higher quality and confirming the authenticity of cheeses, simultaneously [3], with consequently increase of the bioactive properties of these products. Therefore, it is very important to know the phenolic composition and the bioactive properties of *C. cardunculus*. Three different cardoon genotypes from *Serra da Estrela* region were used to prepare hydromethanolic extracts that were further characterized in terms of phenolic compounds and bioactivities. Genotype, components of the flowers and harvesting time proved to have a great influence in the content of phenolic compounds (the major compounds found were apigenin and caffeoylquinic acid derivatives). For the antioxidant activity, the stigma and the fibrous white inner presented the lowest EC_{50} values. Regarding antibacterial assays, all the samples presented activity against Gram-positive bacteria, mainly *Listeria monocytogenes*. The presence of phenolic acids and non-anthocyanin flavonoids showed high correlations with antioxidant/antibacterial activities. Besides its proteolytic action for milk clotting process, cardoon inflorescences show the potential to be sources of bioactive compounds in PDO cheeses. To obtain simultaneously proteolytic action, high phenolic content and high biological activity, these results could help defining the best combination of harvesting procedure time of conservation and processing of cardoon flowers.

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