



# BIO TEC 2019

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## COMUNICACIONES ORALES

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Sociedad Española de Biotecnología

## Phenolic compounds profiles of different parts of the plant *Cynara cardunculus* L. var. *atilis*

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**Thematic Areas:** Plant Biotechnology

**Abstract:** *Cynara cardunculus* L., commonly known as cardoon, is a perennial plant that belongs to the *Asteraceae* family. Native to the Mediterranean basin, it is also found in other regions of the world such as Argentina, Africa, Chile, China, United States, and Peru [1]. It has been used in folk medicine due to its diuretic and dyspeptic properties, such as liver tonic and in hepatic disease treatments [2]. Its flowers are the most commonly used part due to its milk coagulating properties (vegetable rennet in goat and sheep cheeses manufacture), but its immature heads are also widely consumed as food in several dishes. In recent years, the expansion of different industrial applications of crop residues (e.g. forage, paper pulp industry, or biodiesel and energy production) has been a key lever to the growth of Mediterranean cardoon cultivation [3].

Cardoon is considered a functional food as a result of its richness in compounds with high added-value and proved health benefits [1,4]. Several studies make reference to its high content in phenolic compounds, such as phenolic acids and flavonoids including anthocyanins. The polyphenolic content of different plant parts of this species is strongly influenced by environmental conditions and harvest stage. Therefore, studies regarding the influence of these factors are extremely important to better understand the benefits associated to this plant. In the present study, the phenolic compounds composition of different plant tissues of cardoon (petioles, blades, heads, bracts and seeds) was analysed. Samples of cultivated cardoon (var. *atilis*) were collected in Greece in June 2018. The phenolic composition was analysed in hydroethanolic extracts by HPLC-DAD-ESI/MS.

Cardoon petioles, blades, heads, bracts and seeds presented differences in the phenolic composition, as also in their contents of individual compounds. Blades showed the highest number of phenolic compounds, being identified thirteen molecules. In petioles and bracts, a total of eleven phenolic acids and flavonoids were found, while in heads and seeds a total of nine and seven molecules were profiled, respectively. Blades were the plant part with the highest concentration of phenolic compounds, followed by bracts, petioles, seeds and heads. Caffeoylquinic and dicaffeoylquinic acids were the main compounds present in all the studied tissues.

The results obtained demonstrated that phenolic compounds allocation varies among cardoon plant parts harvested at the same time period, with blades being the part that showed the highest abundance and variety of phenolic compounds.

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