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# ASSESSING *CYTISUS* FLOWERS AS A NATURAL RESOURCE OF ANTIOXIDANT COMPOUNDS USING SUSTAINABLE EXTRACTION METHODS

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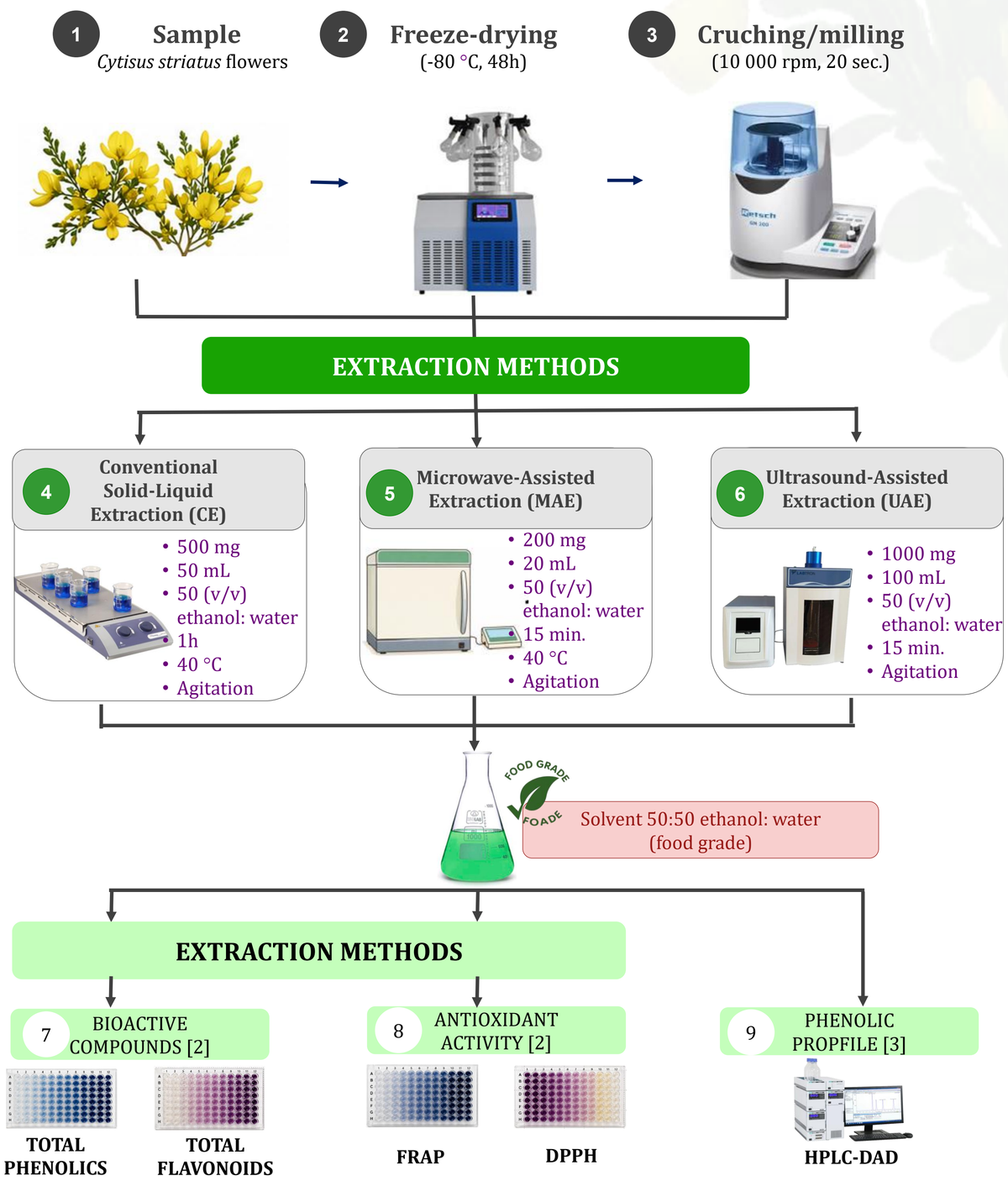
## Introduction

*Cytisus striatus* (Hill) Rothm. is a native shrubby species widely distributed across the Iberian Peninsula. The biomass generated can be used in conformity with European and national regulations (Circular Economy and Waste Management in line with the United Nations Sustainable Development Goals for 2030), reducing residues accumulation and obtaining added value compounds with high potential for integration into bioeconomy, circular economy, and sustainable development models [1].

## Material and methods




**References:**
1. Alvaredo-López-Vizcaíno, A., et al. (2025). International Journal of Molecular Sciences, 26, 7100.
2. Santo, L.E., et al. (2025). Foods, 14, 3170.
3. Melo, D.M., et al. (2024). Food Bioscience, 61, 104759.

## Results and discussions

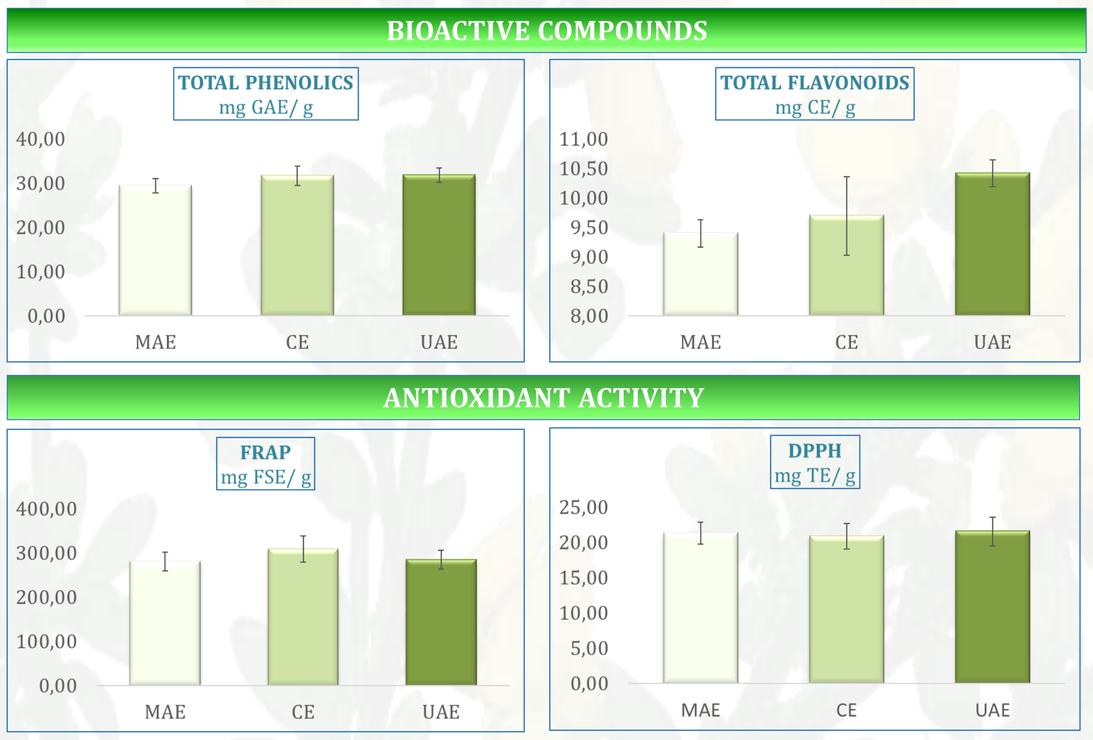



**Figure 1.** Results are expressed in dry weight (dw). MAE – microwave-assisted extraction; CE – conventional solid-liquid extraction; UAE – ultrasound-assisted extraction

- The TPC values ranged from 29.31 to 31.80 mg GAE/g dw and TFC varied between 9.39 and 10.41 mg CE/g dw, displaying antioxidant capacity with highest values of 20.03 mg ET/g dw and 287.09 µmol ESF/g dw for DPPH and FRAP, respectively.
- UAE was the most effective method for extracting bioactive compounds, possibly because ultrasound increases the penetration and availability of solvents in the floral matrix, allowing for greater interaction between the solvent and the target compounds.

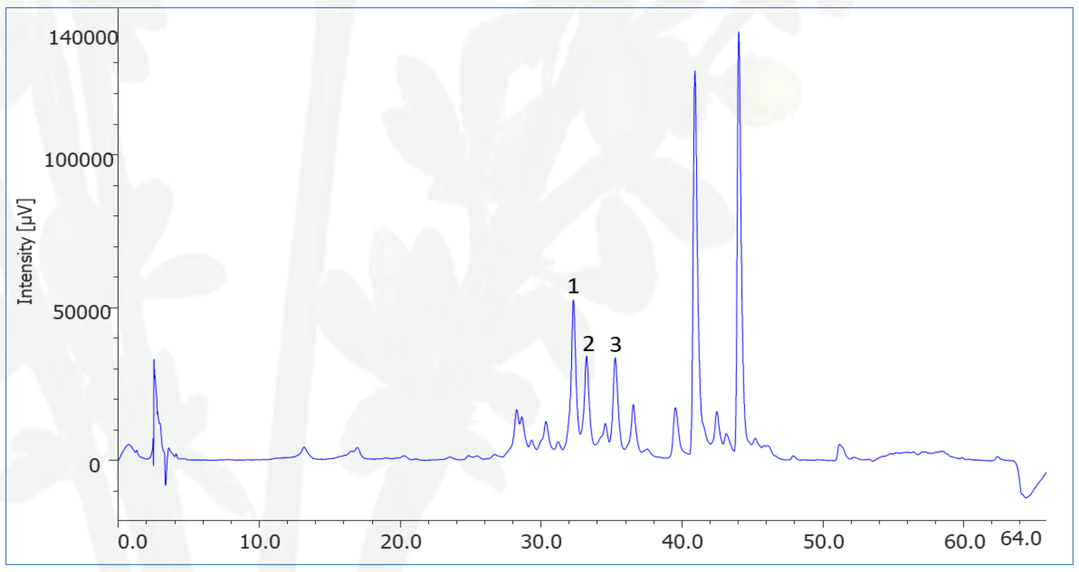



**Figure 2.** HPLC-DAD chromatogram of the phenolic profile of freeze-dried *C. striatus* flowers using ultrasound-assisted extraction, showing the identified phenolic compounds at 335 nm: **1)** luteolin-7-*O*-glicoside (3.78±0.10 mg/g dw), **2)** rutin (3.39±0.03 mg/g dw), and **3)** apigenin-7-*O*-glicoside (1.84±0.05 mg/g dw).

## Conclusions

This study highlights the potential of *Cytisus* flowers as promising source of bioactive compounds for several applications, in line with the principles of the circular economy and the sustainable valorization of resources. Thus, green extraction technologies offer a path toward sustainable resource recovery, aligning economic, environmental, and health-related goals in a bio-circular-green economy paradigm.

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