

Castanea sativa Agri-Food By-Products: A Sustainable Approach

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INTRODUCTION

- ✓ *Castanea sativa* (sweet chestnut), widely cultivated for its edible nuts, generates significant quantities of by-products.



By-products:



spiny burrs, shells, peels, and leaves

Bioactive compounds:

Polyphenols



Polysaccharides



Other Phytochemicals



Properties:

Antioxidant



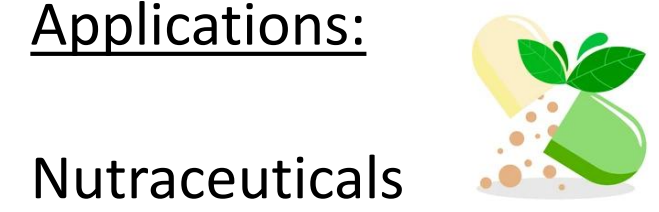
Antimicrobial



Anti-Inflammatory



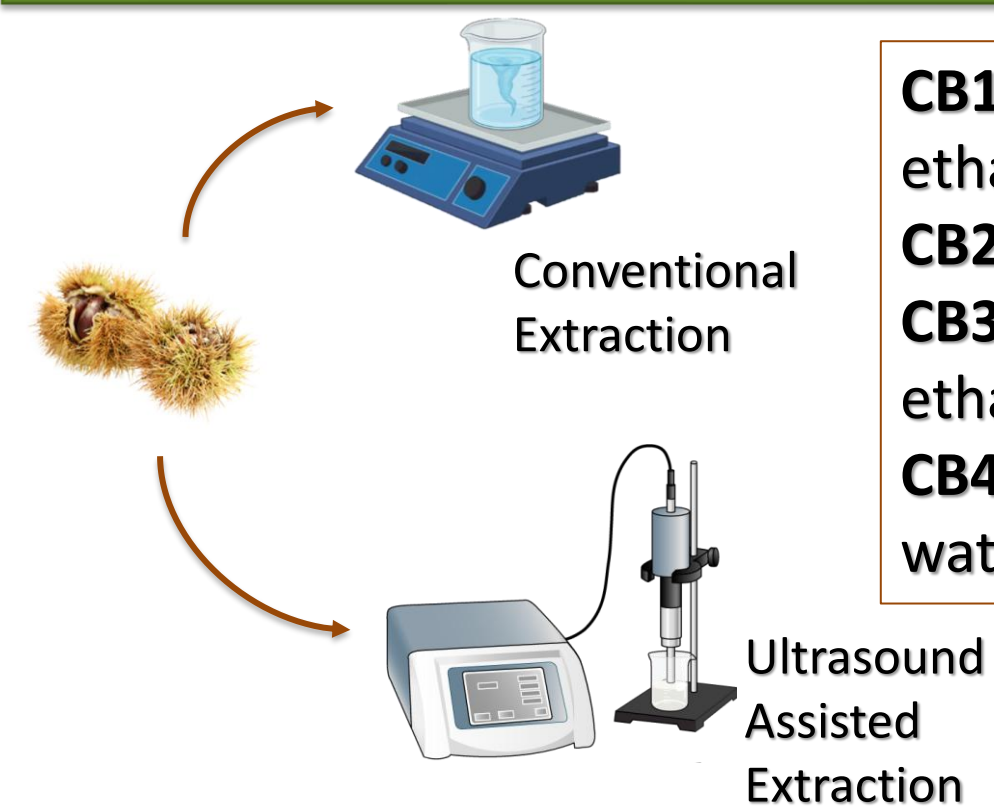
Applications:

Nutraceuticals
Sustainable food packaging

Circular Economy

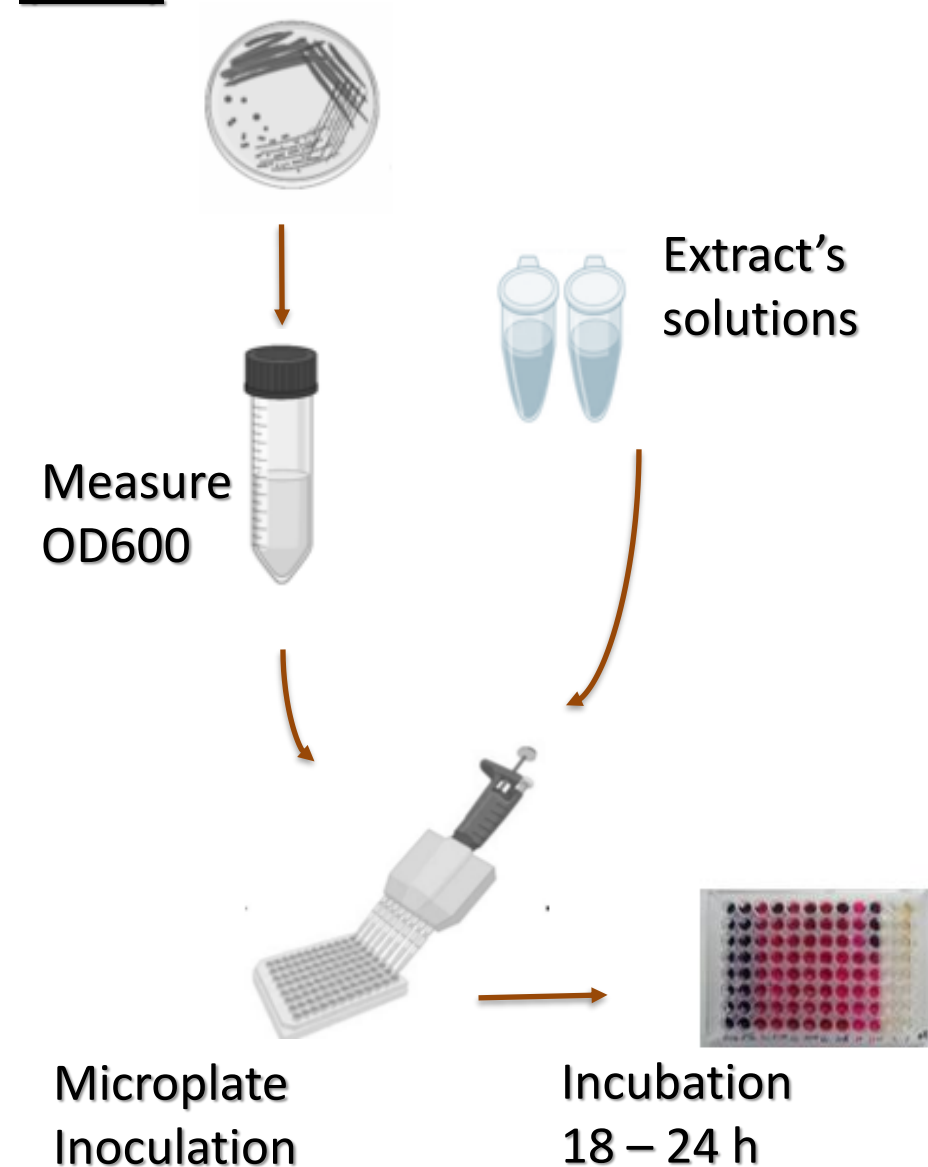


METHOD



CB1 – Conventional extraction with 80% ethanol 80%
CB2 – Conventional extraction with water
CB3 – Ultrasound Assisted Extraction with ethanol 80%
CB4 – Ultrasound Assisted Extraction with water

Antimicrobial Activity – Minimum Inhibitory Concentration (MIC)

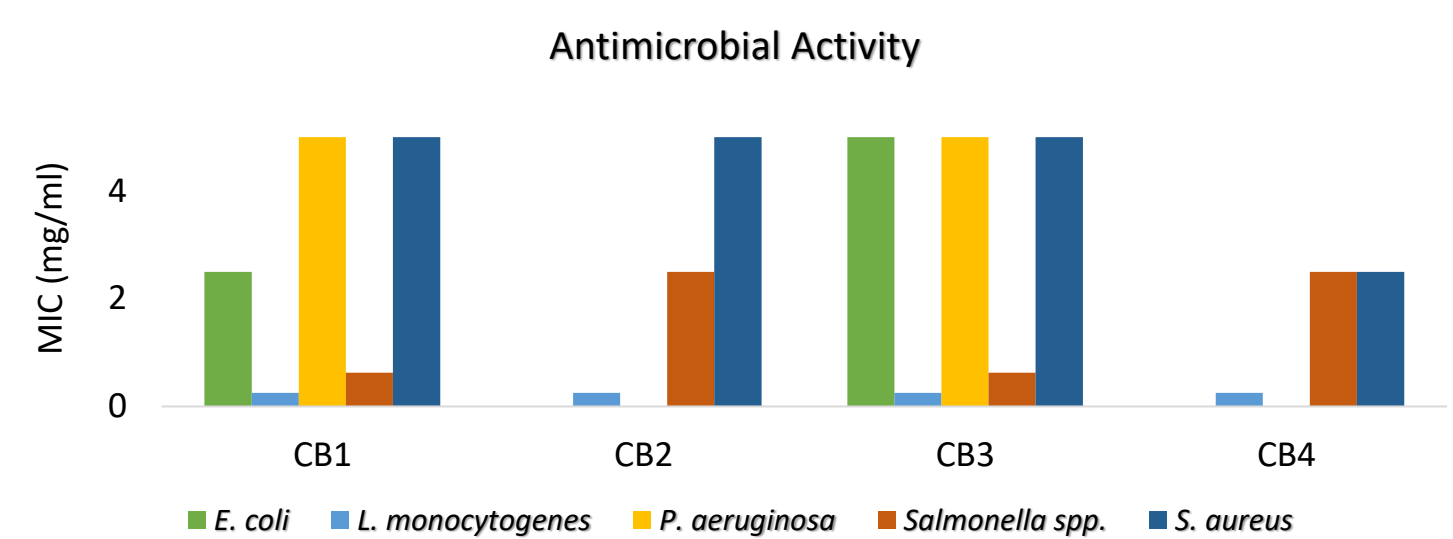


Antioxidant Activity

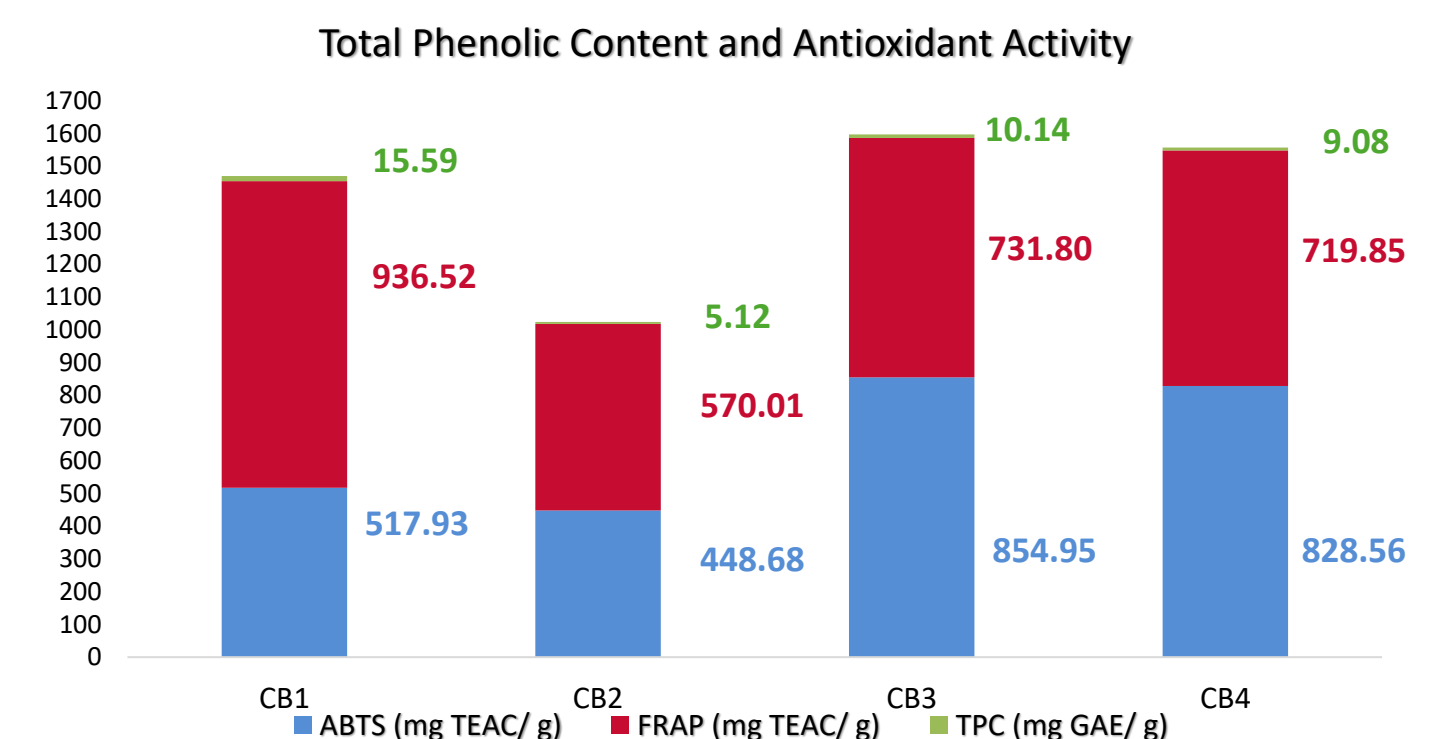
Assay
SolutionsABTS
FRAP
Total Phenols (TPC)Microplate
preparation
following the
protocols

RESULTS & DISCUSSION

- ✓ These extracts have effectiveness against *Escherichia coli*, *Listeria monocytogenes* and other important pathogens.
- ✓ The *K. pneumoniae* MICs is >5 mg/ml all extracts, as well as the MICs of *E. coli* and *P. aeruginosa* on CB2 and CB4 extracts.



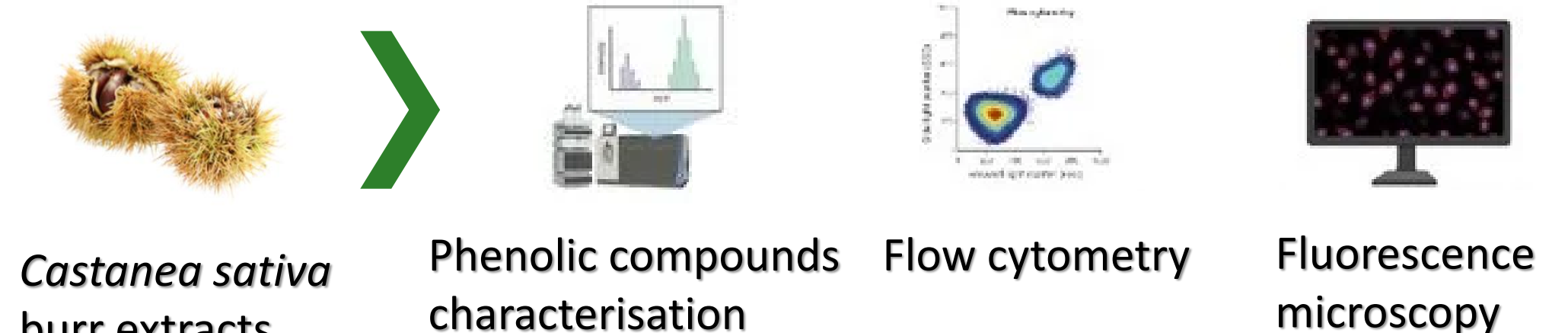
- ✓ Further analysis of the *Castanea sativa* extract was carried out:



CONCLUSION



What's next?



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- This work is supported by National Funds by FCT – Portuguese Foundation for Science and Technology, under the projects FCT/MCTES (PIDDAC): CIMO, UIDB/00690/2020 (<https://doi.org/10.54499/UIDB/00690/2020>) and UIDP/00690/2020 (<https://doi.org/10.54499/UIDP/00690/2020>); SusTEC, LA/P/0007/2020 (<https://doi.org/10.54499/LA/P/0007/2020>) Portugal; CECAV UIDB/00772/2020 (<https://doi.org/10.54499/UIDB/00772/2020>) and CITAB UID/04033/2025 and LA/P/0126/2020 (<https://doi.org/10.54499/LA/P/0126/2020>).
- The authors are grateful to the Fundação “La Caixa” and to FCT for the financial support through Project “WoodlandFungi - Valorização e Sustentabilidade dos Cogumelos Silvestres do Barroso”, Projetos-Piloto Inovadores “Programa Promove - O futuro do Interior”, call 2023.
- R. Guimarães and J. Garcia acknowledge national public funding through “Investimento RE-COS-i02 – Missão Interface N.º 01/COS-i02/2022”, a project supported under the PRR (www.recuperarportugal.gov.pt), and financed by the European Union/Next Generation EU.
- Joana Martins is grateful to the –Portuguese Foundation for Science and Technology (FCT) for her PhD Grant 2023.05610.BDANA: (<https://doi.org/10.54499/2023.05610.BDANA>).