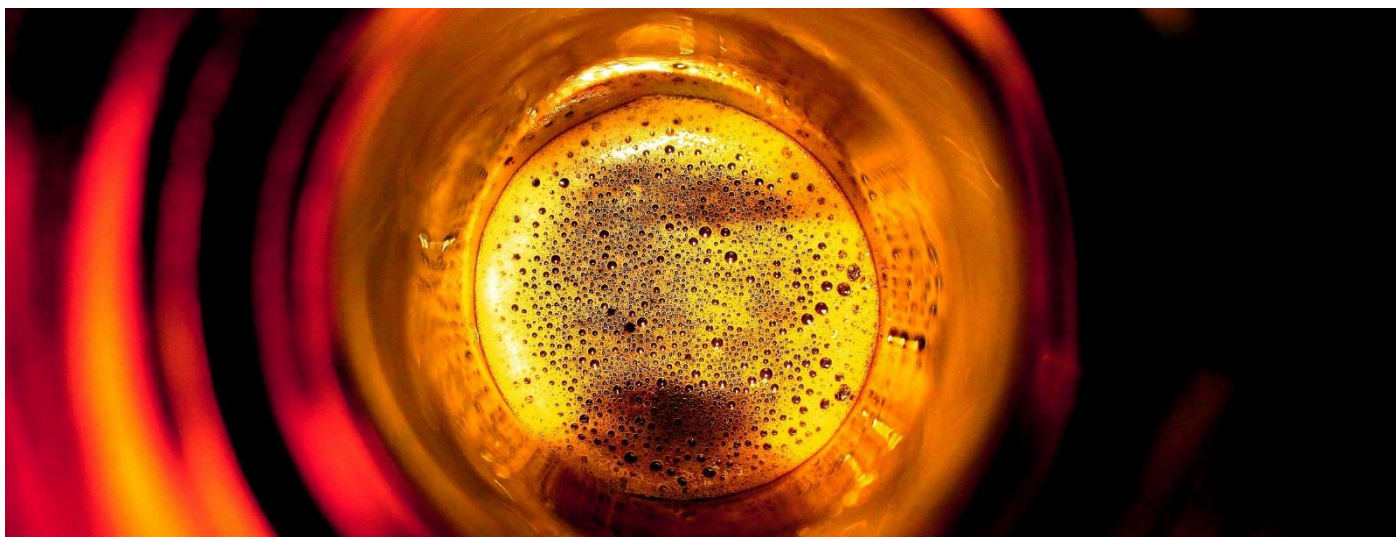


EFFICIENT AND SELECTIVE MAGNETIC ADSORBENT FOR REMOVAL OF PURINE COMPOUNDS AND NUCLEIC ACIDS FROM LIQUID MATRICES



TECHNOLOGY SUMMARY

New low cost magnetic adsorbents prepared from egg-shell membranes and deep eutectic solvents, which selectively and effectively remove purine compounds and nucleic acids from liquid matrices, such as fermented drinks and/or alcoholic beverages.

APPLICATIONS

This technology can be used for purine compounds removal from:

ALCOHOLIC AND FERMENTED BEVERAGES (food and beverages industry)

BIOLOGICAL MATRICES (R&D and biopharmaceutical and biotechnology industries)

BENEFITS

SELECTIVITY

EFFICIENCY: 80-90% removal efficiency of purine compounds from laboratorial samples.

LOW COST AND SUSTAINABILITY: produced from egg-shell membranes and deep eutectic solvents derived from natural sources.

CONTEXT

Most alcoholic drinks, such as wine and beer, are prepared by fermentation. In addition to ethanol, beverages have several compounds in their composition, such as nucleic acids and their degradation products (purine-based compounds). Purine compounds when ingested by humans are broken into uric acid, responsible for several diseases, including gout and increased abdominal perimeter.

To reduce the purine compounds content in fermented beverages, enzymatic degradation processes have been proposed. However, this approach has a reduced degradation rate and a high cost. The adsorption/removal of purine-based compounds using activated carbon and zeolites has also been described; however, these processes have low selectivity (since amino acids, aromas and/or other essential nutrients are also removed), thus limiting their application.

The present technology comprises the use of magnetic adsorbents capable of selectively and efficiently remove purine compounds and nucleic acids from liquid matrices. The adsorbent materials are sustainable and of low cost since they are prepared using a residue, the egg-shell membrane, and deep eutectic solvents derived from natural sources.

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IP RIGHTS

Provisional patent application filed in Portugal (priority date: 29-10-2018).

DEVELOPMENT STAGE

TRL 4: small-scale laboratory prototype. Ongoing studies with several types/samples of beer.

With the necessary support, 6 months are sufficient for the respective scale-up and commercialization.

The experimental protocol for the attainment and production of the technology is implemented at the laboratory level, and inventors are available to publicly exhibit the technology.

KEYWORDS

MAGNETIC ADSORBENT PURINE COMPOUNDS

FERMENTED BEVERAGES NUCLEIC ACIDS

EGGSHELL MEMBRANE

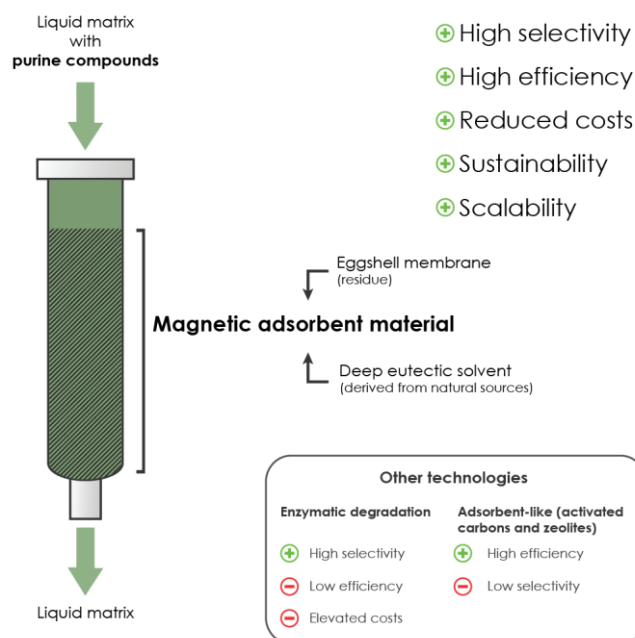
DEEP EUTECTIC SOLVENT

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Technology #CI18013



DEVELOPED BY

Researchers from Aveiro Institute of Materials (CICECO) from the University of Aveiro.

BUSINESS OPPORTUNITY

Licensing agreement.

PARTNERSHIP

The University of Aveiro seeks industrial partners within food/beverages and biotechnology areas with interest on the application and/or commercialization of magnetic adsorbent materials for purine compounds and nucleic acids removal from liquid matrices.