## Title

A selective journey: enantioselective biphasic systems for the resolution of propranolol

## Description

150 words max

Enantiomers may have different biological properties, leading to complications when using racemates for the treatment of diseases. Considering the difficulty in the synthesis of pure enantiomers, the synthesis of racemates followed by their chiral resolution is deemed as a simpler and cheaper alternative. Enantioselective liquid-liquid extraction (ELLE) is a promising separation process. ELLE is composed of two immiscible phases that enable the optimization of enantioseparation through the addition of a chiral selector, such as chiral ionic liquids (CIL) or tartaric acid derivatives. Upon their introduction in ELLE, these chiral selectors may help increase the selectivity of the system, contributing to high performant extraction/separation approaches. In this work, CILs and tartaric acid derivatives were used in biphasic systems as chiral selectors, aiming to separate R/S-propranolol (R/S-PRP) enantiomers. The most promising system was applied in centrifugal partition chromatography to further improve the enantiomeric purification rates.

## Hashtags / Keywords

keyword1;keyword2;keyword3

Three to ten pertinent keywords (to be used as hashtags) need to be added.

NO PUNCTUATION OR SPECIAL CHARACTERS OTHER THAN "

Enantioseparation; Esters of tartaric acid; Chiral ionic liquids; Aqueous biphasic systems; Enantioselective liquid–liquid extraction; Propranolol.

## Select the research line(s) in which your work fits:

- [ ] L1 - Information and Communication Technology
- [ ] L2 - Energy and Industrial Applications
- [x] L3 - Sustainability
- [ ] L4 - Health

## Author List

Presenting Author(a);Second Author(a,b);Third Author(c)

Authors' full first and last names must be provided, and separated by ",".

The initials of any middle names can be added.

Ana R. F. Carreira (a); Ana M. Ferreira(a); Mafalda R. Almeida(a); João A. P. Coutinho (a); Tânia E. Sintra (a)

## AfiliationsImmersive Reader

(a) Affiliation 1, Zip, City, Country;(b) Affiliation 2, Zip, City, Country;(c) Affiliation 3, Zip, City, Country

(a) CICECO – Aveiro Institute of Materials, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal;

## E-mail of the presenting author

ritafutre@ua.pt

## Acknowledgments

This work was developed within the scope of the project CICECO-Aveiro Institute of Materials, UIDB/50011/2020 & UIDP/50011/2020, financed by national funds through the FCT/MEC and when appropriate co-financed by FEDER under the PT2020 Partnership Agreement. This work was also financially supported by the project POCI-01-0145-FEDER-030750 (PTDC/EQU-EPQ/30750/2017) - funded by FEDER, through COMPETE2020 - Programa Operacional Competitividade e Internacionalização (POCI), and by national funds (OE), through FCT/MCTES. The NMR spectrometers are part of the National NMR Network (PTNMR) and are partially supported by Infrastructure Project N° 022161 (co-financed by FEDER through COMPETE 2020, POCI and PORL and FCT through PIDDAC). The authors thank Mara G. Freire for allowing the use of the CPC equipment. Ana R. F. Carreira acknowledges FCT for the Ph.D. grant SFRH/BD/143612/2019.