



CIBIQ

1^{er} Congreso Iberoamericano de Ingeniería Química Ibero-American Congress on Chemical Engineering

LIBRO DE RESÚMENES/ BOOK OF ABSTRACTS

ISBN: 978-84-09-12431-2

Editado por/ Edited by

ANQUE

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Removal of cytostatics resorting to supported ionic liquids: a way to prevent environmental contamination

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Abstract

Cancer prevalence is growing fast globally, leading to a great societal challenge related with patients' life quality and survivorship [1]. Within this framework, pharmaceutical industry is evolving in the light of more effective anticancer therapies, with the use of cytostatic drugs e.g., cyclophosphamide, playing an important role. Still, as with other pharmaceuticals, the excretion of cytostatics during urination leads to their release in wastewater treatment plants and consequently contaminating the aquatic environment [2, 3].

On the hunt for alternative routes to remove cytostatics from aqueous samples, supported ionic liquids (SILs) appear as viable candidates. Here, several ammonium-based SILs were synthesized using silica as the support material and further characterized. Then, in order to attest the potential of SILs as adsorbents for cyclophosphamide (model cytostatic drug), adsorption kinetics and isotherms were determined. The results indicate that the ILs' cation structure is responsible for a remarkable enhancement in the removal of cyclophosphamide from aqueous samples, attesting the potential application of SILs as adsorbents.

References

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Acknowledgements

This work was developed within the scope of the project CICECO-Aveiro Institute of Materials, FCT Ref. UID/CTM/50011/2019, financed by national funds through the FCT/MCTES. This work was financially supported by the project POCI-01-0145-FEDER-031106 (IonCytDevice) funded by FEDER, through COMPETE2020 - Programa Operacional Competitividade e Internacionalização (POCI), and by national funds (OE), through FCT/MCTES. A.C.A.S. acknowledges University of Aveiro, for funding in the scope of the framework contract foreseen in the numbers 4, 5 and 6 of the article 23, of the Decree-Law 57/2016, of August 29, changed by Law 57/2017, of July 19. M.C.N. acknowledges FCT, I.P. for the research contract CEECIND/00383/2017 under the CEEC Individual 2017.