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Using supported ionic liquids to remove cytostatics from human urine

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In 2018, over 18 million new cancer cases emerged [1]. Progresses accomplished in cancer treatment, namely in the development of effective ant-cancer drugs (e.g., cytostatics) allow cancer patients to live better and longer [2]. Nevertheless, cytostatics, as with other drugs, are excreted through urine, reaching wastewater treatment plants (WWTPs), and subsequently contaminating the aquatic environment [3, 4].

A promising technological tool to remove cytostatic drugs from aqueous matrices is represented by the use of supported ionic liquids (SILs). This work is aimed at synthesizing and characterizing several SILs based on quaternary ammonium structures using silica as the support material. The determination of adsorption kinetics and isotherms was then carried out to infer on SILs adsorption capacity for cyclophosphamide (model cytostatic drug). SILs capacity to remove cyclophosphamide from aqueous samples was contingent on the cation structure, opening the way to design effective alternative adsorbents for cytostatics removal.

References

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References

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