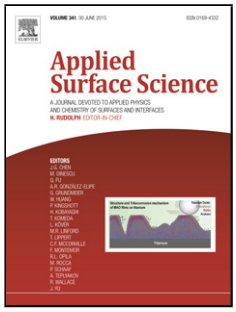

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Hydrophobic Conjugated Microporous Polymers for Sorption of Human Serum Albumin

Chunli Zheng[a], Miaomiao Du[a], Shanshan Feng[a], Hanxue Sun[b], An Li[b*], Chi He[a**], TianCheng Zhang[c], Qiaorui Wang[a], Wei Wei[d]

[a]Department of Environmental Science and Engineering, Xi' an Jiaotong University, Xi'an 710049, P.R. China
[b]College of Petrochemical Technology, Lanzhou University of Technology, Lanzhou 730050, P. R. China
[c]Civil Engineering Department, University of Nebraska-Lincoln at Omaha Campus Omaha, NE 68182-0178
[d]School of Computer Science and Engineering, Xi'an University of Technology, Xi'an 710048, P.R. China

*. chi_he@mail.xjtu.edu.cn
**. lian2010@lut.cn

Abstract

This paper investigated the sorption of human serum albumin (HSA) from water by three kinds of conjugated microporous polymers (CMPs) with surface hydrophobicity and intrinsic porosity. It was found that the three CMPs captured HSA with fast sorption kinetics and good working capacity. Equilibrium was obtained at 80 min for all the tests, and the maximum sorption quantity (q_m) ranged from 0.07 to 0.14 mg/mg. With the increase in the particle external surface area of the CMPs, a greater extent of HSA sorption was achieved. Moreover, promoting the dispersion of CMPs in HSA aqueous solution was also beneficial to the extraction. Attenuated Total Reflection Fourier Transform Infrared spectroscopy verified the interactions between the CMPs and the N-H, C=O, and C-N groups of HSA. This paper might provide fundamental guidance for the practical application of CMPs to proteins separation and recovery.

Keywords