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Fe/Si/Al分子印迹材料的制备及其对酸性橙II(AOII)的选择吸附性能

Preparation of Fe/Si/Al molecularly imprinted particles and selective adsorption performance for Acid Orange II

关键词: [分子印迹](#) [酸性橙II](#) [Al³⁺](#)

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摘要: 以Fe/Si凝胶作为基底,酸性橙II(AOII)为模板分子,引入Al³⁺形成Lewis酸识别位点,制备全无机型Fe/Si/Al分子印迹型材料(MIPs),通过SEM、XRD、BET、FT-IR等对其进行表征,并研究了其对AOII的选择吸附性能.研究表明,与同具有苯环结构的干扰物双酚A(BPA)相比,MIPs对AOII的吸附能力明显高于BPA,说明其对模板分子具有吸附选择性.此外,MIPs对AOII的吸附行为符合Langmuir吸附等温线和拟二级吸附动力学方程,且主要为化学吸附.

Abstract: The preparation of a novel inorganic molecularly imprinted material (MIPs) with Fe/Si gel as the base and Acid Orange II (AOII) as the template molecules was studied. To ensure the specificity of the molecular recognition, aluminum ions were introduced to form the Lewis acid sites. The MIPs was characterized by using SEM, XRD, BET and FT-IR. The selective adsorption capacity of MIPs for AOII was also studied. It was found that the MIPs adsorbed more AOII than the interferent BPA, which also has the structure of benzene ring, proving the selective adsorption capacity of MIPs for template molecules. The adsorption of AOII was mainly attributed to the chemical adsorption, which conforms to Langmuir isotherm model, and adsorption process fits for pseudo-second kinetics behavior.

Key words: [molecularly imprinted particles](#) [Acid Orange II](#) [Aluminum ion](#)

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