Adsorption of nitrates using various adsorbents

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The objective of this work is to select proper adsorbents for removing nitrates from water and wastewater. For this purpose, different adsorbents including activated carbon, mesoporous silica such as MCM-48 and SBA-15, pumice, and chitosan have been assessed by conducting equilibrium experiments with different concentrations of nitrate. Adsorption equilibrium data of nitrate were fitted with Langmuir and Freundlich isotherm equations. From experimental data, it was proven that mesoporous silica, pumice, and chitosan have higher adsorption capacities than activated carbon and MCM-48 has the highest capacity.