

## عنوان مقاله:

Immobilization and Evaluation of Agarose-Nickel Matrices for Expanded Bed Adsorption: Isotherm and Kinetic Studies

## محل انتشار:

چهاردهمین کنگره ملی مهندسی شیمی ایران (سال: 1391)

تعداد صفحات اصل مقاله: 5

## نویسندگان:

a Rezvani - Nanotechnology research institute, school of chemical engineering, babol university of technology, babol, iran

m jahanshahi

g najafpoor

## خلاصه مقاله:

Ligands should be coupled to the expanded bed adsorption (EBA) matrices since these matrices can not be directly applied in the adsorption of bio-molecules. The applicability of a novel EBA matrix (Agarose-Nickel beads) was evaluated by immobilization a dye ligand (Reactive Green 19;RG19) on to the composite for pseudo affinity adsorption of bovine serum albumin (BSA). pH and temprature were investigated as adsorption parameters affecting the interactions between BSA and RG19-immobilized (Ag-Ni-RG19) adsorbent. The highest adsorption was in pH 4.0 and 25°C. The adsorption on Ag-Ni-RG19 adsorbent was decreased as the increase of pH and temprature. The adsorption behavior appeared to follow the Langmuir-Frendlich adsorption isotherm model. The theoretically maximum binding capacity ( $q_m$ ) of Ag-Ni-RG19 adsorbent estimated from this isotherm was 21.66 mg/ml, which is very close to that obtained experimentally (21.08 mg/ml). Subsequently adsorption data were modeled using the pseudo-first-order and pseudo-second-order kinetics equations. It was shown that the pseudo-second-order kinetic equation could best describe adsorption. Evaluating the adsorption behavior of the Ag-Ni-RG19 adsorbents shows them promising adsorbents to use in EBA processes

## کلمات کلیدی:

Agarose-Nickel-RG19 adsorbent, expanded bed adsorption, immobilizing, dye ligands, pseudo affinity adsorption

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/172114>

