

RESEARCH NOTES

用于清除胆红素的磁性亲和分离方法

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摘要 An affinity adsorbent, Cibacron Blue 3GA immobilized magnetic polyvinyl alcohol (PVA) microspheres was used for bilirubin removal taking the advantage of easy separation of magnetic sorbent from the biosystem. Fe₃O₄ superparamagnetic particles was synthesized with hydrothermal reaction of ferrous chloride (FeCl₂) and ferric chloride (FeCl₃). Such magnetic particles are then encapsulated in biocompatible PVA to form magnetic polymer microspheres sized from 2 to 15 nm with hydroxyl groups on its surface. Cibacron Blue 3GA, a dye-ligand, was covalently coupled with the polyvinyl alcohol through the nucleophilic reaction between the chloride of its triazinering and the hydroxyl groups of PVA molecules under alkaline condition. The affinity adsorbent carried 21.1 μmol Cibacron Blue 3GA per gram magnetic polymer microspheres was used to remove unconjugated and conjugated bilirubin from the solution which was composed of bilirubin or bilirubin and protein. After the adsorption, the adsorbent loaded with bilirubin was removed easily in the magnetic field.

关键词 [Cibacron Blue 3GA](#) [bilirubin](#) [magnetic affinity separation](#)

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Study on Removal of Bilirubin with Magnetic Affinity Separation Technique

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Abstract An affinity adsorbent, Cibacron Blue 3GA immobilized magnetic polyvinyl alcohol (PVA) microspheres was used for bilirubin removal taking the advantage of easy separation of magnetic sorbent from the biosystem. Fe₃O₄ superparamagnetic particles was synthesized with hydrothermal reaction of ferrous chloride (FeCl₂) and ferric chloride (FeCl₃). Such magnetic particles are then encapsulated in biocompatible PVA to form magnetic polymer microspheres sized from 2 to 15 nm with hydroxyl groups on its surface. Cibacron Blue 3GA, a dye-ligand, was covalently coupled with the polyvinyl alcohol through the nucleophilic reaction between the chloride of its triazinering and the hydroxyl groups of PVA molecules under alkaline condition. The affinity adsorbent carried 21.1 μmol Cibacron Blue 3GA per gram magnetic polymer microspheres was used to remove unconjugated and conjugated bilirubin from the solution which was composed of bilirubin or bilirubin and protein. After the adsorption, the adsorbent loaded with bilirubin was removed easily in the magnetic field.

Key words [Cibacron Blue 3GA](#); [bilirubin](#); [magnetic affinity separation](#)

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