

分离工程

## 微结构葡聚糖凝胶浓缩分离蛋白质的性能

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**摘要** 采用UV, HPLC等测试方法研究了含微结构的葡聚糖凝胶(BHMs)对蛋白的浓缩分离性能。结果表明:含微结构的葡聚糖凝胶在室温下对牛血清蛋白的浓缩分离效率达95.3%以上,随温度的升高,浓缩分离效率降低,且当温度超过BHMs凝胶的低临界溶液温度(40℃)后,浓缩分离效率发生突变;和普通交联葡聚糖凝胶相比,通过控制流动相的温度,葡聚糖BHMs凝胶可实现对多种不同分子量蛋白的高效分离,提高了分离效率,分离时间由24h缩短至9h。吸水溶胀动力学以及SEM分析表明,BHMs凝胶的溶胀满足指数动力学方程,疏松多孔性结构及由其决定的温度敏感性是BHMs凝胶具备良好浓缩分离性能的原因。

**关键词**

[微结构](#) [葡聚糖凝胶](#) [蛋白质](#) [浓缩分离性能](#)

分类号

## Protein concentration and separation behavior of dextran bulk hydrogels with microstructure

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### Abstract

The microstructure, swelling ratio and protein concentration and separation behavior of dextran bulk hydrogels with microstructure (BHMs) were studied with scanning electron microscopy (SEM), visible ultra-violet spectrophotometry (UV) and high performance liquid chromatography (HPLC). The experimental results indicated that the bovine serum albumin concentration and separation efficiency and swelling ratio increased with increasing microgels content or decreasing temperature. Comparing with the cross-linked dextran hydrogels, dextran BHMs realized baseline separation for multi-component proteins including bovine serum albumin, lysozyme and ovalbumin; additionally, the separation time was reduced from 24 h to 9 h. The excellent concentration and separation performance of dextran BHMs were ascribed to its loose and porous microstructure.

### Key words

[microstructure](#) [dextran hydrogel](#) [protein](#) [concentration and separation behavior](#)

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