NKA—9大孔树脂对苹果多酚的动态吸附工艺优化Optimization of the Adsorption Property of Apple Polyphenols on NKA—9 Macroporous Resin

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关键词： 苹果多酚 大孔树脂 动态吸附 动态解吸 工艺参数 优化

摘 要： 为了提高对苹果多酚的分离效率，以实现工业化生产，在单因素试验得出的工艺基础上，采用响应曲面法建立了NKA—9大孔树脂对苹果多酚(AP)动态吸附和动态解吸的二次多项数学模型，验证了模型的有效性。考察了上样速率、样液质量浓度、样液pH值对AP动态吸附量以及洗脱速率、洗脱剂体积分数和洗脱剂用量对AP动态解吸的影响。优化出NKA—9大孔树脂的动态吸附工艺参数为：上样速率1.10mL/min，样液质量浓度2.50mg/mL，pH值4.83；动态解吸工艺参数为：洗脱速率0.61mL/min，洗脱剂体积分数59.48%，洗脱剂用量125.73mL。In order to improve extract efficiency of apple polyphenols, the dynamic law of apple polyphenols (AP) adsorption and desorption to NKA—9 macroporous resin was researched to establish a mathematic model. The Response Surface Methodology(RSM) was used to investigate the effects of feeding rate, sample concentration and pH on the adsorption properties of macroporous resin and the effects of flow rate, eluent concentration and elution volume on the desorption properties of macroporous resin for apple polyphenols. The results showed that the optimum adsorption conditions were the feeding rate of 1.10mL/min, sample concentration of 2.50mg/mL, pH 4.83. The optimum desorption parameters were the flow rate 0.61mL/min, eluent concentration 59.48%, elution volume 125.73mL. In conclusion, the NKA—9 macroporous resin can be used as the best material to extract the apple polyphenols.

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