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研究论文

香豆素分子模板聚合物的合成与性能研究

侯能邦, 刘院林, 汪国松, 朱秀芳, 丁中涛, 曹秋娥*

(云南大学化学系教育部自然资源药物化学重点实验室 昆明 650091)

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摘要 以香豆素为模板分子, *α*-甲基丙烯酸(MAA)、丙烯酰胺(MA)、2-乙烯基吡啶(2-VP)和4-乙烯基吡啶(4-VP)为功能单体, 二甲基丙烯酸乙二醇酯(EGDMA)为交联剂, 利用分子模板技术分别在甲苯、甲醇、氯仿和乙腈溶剂中合成了一系列香豆素分子模板聚合物(MTP), 研究了聚合体系组成对模板聚合物吸附特性的影响. 结果表明, 在所合成的模板聚合物中, 以MAA为功能单体, 乙腈为致孔溶剂, 以1∶4∶30的摩尔比加入模板分子、MAA及EGDMA时制备的模板聚合物吸附容量高、印迹效果和选择性好. 此模板聚合物有作为白芷样品中香豆素吸附分离材料的应用前景.

关键词 香豆素 分子模板聚合物 分子模板技术 吸附

分类号

Studies on Preparation and Characteristics of Molecular Template Polymer with Coumarin

HOU Neng-Bang, LIU Yuan-Lin, WANG Guo-Song, ZHU Xiu-Fang, DING Zhong-Tao, CAO Qiu-E*

(*Key Laboratory of Medicinal Chemistry for Natural Resource of Ministry of Education, Department of Chemis-try, Yunnan University, Kunming 650091*)

Abstract A series of molecular template polymers (MTP) were prepared by the molecular template technology in toluene, methanol, chloroform or acetonitrile with coumarin as the template molecule, methacrylic acid (MAA), acrylamide (MA), 2-vinylpyridine (2-VP) or 4-vinylpyridine (4-VP) as the functional monomer, and ethylene glycol dimethacrylate (EGDMA) as a crosslinker, respectively. The effects of the composition of polymerization systems on the adsorption property of MTP were studied. The results indicated that the template polymer prepared using MAA as functional monomer and acetonitrile as porogen with the molar ratio of coumarin∶MAA∶EGDMA＝1∶4∶30 added in the polymerization, exhibited advantageous characteristics of high binding activity, optimal imprinting effect and good selectivity compared with the other MTP prepared in this work, and could be used as adsorption material for separation of coumarin from the traditional Chinese medicine *Angelica dahunica*.

Key words coumarin molecular template polymer molecular template technique adsorption

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通讯作者 曹秋娥 qecao@ynu.edu.cn