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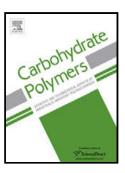
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Fabrication of porous zeolite/chitosan monoliths and their 1 applications for drug release and metal ions adsorption 2 Yongli Zhang^{1,2}, Weiwei Yan^{1,2}, Zhiming Sun^{1,2*}, Cheng Pan³, Xue Mi^{4*}, Gang 3 Zhao^{1,2}, Jianping Gao^{3,*} 4 (¹Huanhu Hospital, Tianjin 300060; ²Tianjin cerebral vascular and neural degenerative 5 disease key laboratory, Tianjin 300060; ³School of Science, Tianjin University, Tianjin 6 300072; ⁴School of Medicine, Nankai University, Tianjin 300071, P R China) 8 9 Abstract Ordered porous zeolite/chitosan (Zel/Chi) monoliths were prepared by a 10 unidirectional freeze-drying method, and their properties and structures were 11 12 characterized by various instrumental methods. The metal ion adsorption and the drug 13 release performance of the porous Zel/Chi monoliths were also studied. The release rate of cefalexin from drug-loaded Zel/Chi monoliths depended on the composition 14 15 and porous structure of the monoliths. The metal ion adsorption capacity of the Zel/Chi monoliths was related to the concentration of the metal ions, the adsorption 16 time and the Zel/Chi ratio. An experimentally maximum adsorption of 89 mg/g was 17 achieved for Cu2+ ions. The Zel/Chi monoliths with adsorbed Cu2+ ions effectively 18 catalyzed the reduction of 4-nitrophenol to 4-aminophenol and had good recyclability. 19 20 They were easily recovered by simply removing them from the reaction system and rinsing them with water. 21 **Key words:** zeolite, chitosan, porous material; adsorption; drug releasing 22 23 1. Introduction 24 *Corresponding author: Fax: +86 22 274 034 75. 25 E-mail address: szhm618@163.com (Z M Sun), jianpingg@eyou.com (J P Gao), 26 tjumixue@163.com (X Mi) 27

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