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研究简报

利用还原性多糖合成银纳米粒子

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摘要 利用还原性多糖为稳定剂、$AgNO_3$为前驱物, 通过一条绿色途径合成银纳米粒子, 并探讨了纳米粒子的形成机理. 对多糖高浓度时制得的复合物在空气与氮气气氛下进行了热处理, 分别得到了银的大孔海绵体与银纳米粒子/碳的复合材料. 对产物进行了X射线衍射(XRD)、扫描电子显微镜(SEM)、透射电子显微镜(TEM)、紫外-可见分光光度(UV-vis)以及BET吸附表征.

关键词 银纳米粒子 多糖 绿色化学 银/碳复合材料

分类号

Synthesis of Silver Nanoparticles by Reductive Polysaccharides

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Abstract Silver nanoparticles have been prepared using reductive polysaccharides as protecting agents and silver nitrate as precursor via a facile green approach. The possible formation mechanism of silver nanoparticles was proposed. The composites synthesized at high concentration of polysaccharide were calcined in different atmosphere. Macroporous sponge of silver and silver nanoparticle/amorphous carbon composite have been obtained in air and nitrogen, respectively. The as-synthesized samples were characterized by XRD, SEM, TEM, UV-vis and BET adsorption methods.

Key words silver nanoparticle polysaccharide green chemistry silver/carbon composite

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