

Full Papers

Zn/Al/Tyr摩尔比对Tyr/Zn-Al-LDH纳米复合物的影响

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摘要 本文系统地研究了共沉淀法合成酪氨酸(Tyr)/层状氢氧化物(LDH)纳米复合材料的插层过程,详细地研究了LDH与Tyr的起始摩尔比R对合成的纳米复合材料性质的影响。采用了各种表征手段如粉末X-射线衍射, 红外谱图, 比表面积和孔径分布, 以及热失重分析等对合成的产物进行了表征。实验结果表明,除了较低的R值外, 其余产物的层间距都有不同程度的增加, 这表明生物阴离子已经进入层状化合物的层间,从而引起了层间距的增大。而且, 随着酪氨酸进入层间量的增加, 会引起表面积和孔面积的逐渐增加。TEM结果表明随着层间酪氨酸量的增加, 纳米复合材料从六边形变成球形。

关键词 [层状化合物](#), [插层反应](#), [氨基酸](#), [纳米复合物](#)

分类号

Influence of Molar Ratio of Zn/Al/Tyr on the Formation of Tyr/Zn-Al-LDH Nanohybrids

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Abstract The intercalation of amphoteric amino acid tyrosine (Tyr) into LDH by co-precipitation method was systematically studied. The influence of initial molar ratios (*R*) of LDH to Tyr has also been examined. Powder X-ray diffraction, Fourier transform infrared spectroscopy, specific surface areas and pore size distributions, and thermal analysis have been employed for the characterization of the nanocomposites. The nanohybrids were found to have an expanded layered structure except the samples prepared with low *R* values, indicating that the biomolecules were intercalated into the gallery as anions. The intercalation of amino acids resulted in the increase of the surface areas and pore volumes, and the value of surface areas and pore volumes increased with enhancement of biomolecules intercalated. TEM analysis revealed that with increasing biomolecules into the gallery, the nanohybrids were changed from hexagonal particles to spherical ones. Moreover, the configuration of Tyr anions was varied under different *R* values, changed from monolayer to bilayers with more biomolecules intercalating into the gallery.

Key words [layered double hydroxides](#), [intercalation](#), [amino acids](#), [nanohybrid](#)

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