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研究简报

合成昆布氨酸的简单方法

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摘要 结合当今绿色化学的要求, 采取清洁化的原料与工艺, 利用氨基酸能与氢氧化锌反应生成螯合物的性质, 使Zn^{2+}离子与化合物1的*α*-氨基、羧基中的氧形成稳定的螯合物, 从而达到保护*α*-氨基及游离*ε*-氨基的目的, 再与甲基化试剂作用, 使ε-氨基完全烃基化, 生成三甲基季铵离子, 最后再除去Zn^{2+}离子, 即可制备产率和纯度都较高的白色针状晶体4.

关键词 *L*-赖氨酸 昆布氨酸 仿生合成法 绿色化学

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Simple Method for Synthesizing Laminine

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Abstract Laminine(4) is a kind of non-protein amino acids in the kelp, which can prevent and cure hypertension. Because of its trace amount in the nature, it was always prepared by using bio-mimetic synthesis methods. And none or few of the synthetic methods of compound 4 were reported so far. In this article, with lysine(1) as the starting material, compound 4 was prepared with bio-mimetic synthesis method, with a yield of 37.6% and a purity of 97.2%. The structure of compound 4 was determined *via* HPLC, IR, MS, ^{1}H NMR, ^{13}C NMR and element analysis, and some of its physical and chemical properties were also studied. The results show that compound 4 is white crystalloid and has no smell, the quasi-molecular ion peak of compound 4 is *m/z* 207.1, and chemical shift *δ* 3.63(s, 9H), the features at 2945, 2863 and 1480 cm^{-1} in IR spectrum all show that *ε*-amino group of compound 4 is fully alkylated. This method could get pure laminine with simple operations, and it could be considered as a green technology with great industrial profits and notable ecological values.

Key words *L*-Lysine Laminine Bio-mimetic synthesis method Green chemistry

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