

铜-有机配位体不饱和配合物的催化化学发光活性及其分析应用

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摘要 铜(II)离子与许多有机配位体组成饱和配合物后,均导致铜(II)在Luminol-H₂O₂和o-Phen-H₂O₂体系中催化化学发光活性的消失。本文首次发现,当铜(II)离子与某些有机配位体组成1:1不饱和配位化合物时,它们非但不抑制化学发光,而且比铜(II)离子具有更高的催化化学发光活性,据此,本文建立了用配合溶解Cu(OH)₂,流动注射化学发光技术测定氨基酸的新方法,检测限均可达pmol级,比文献普遍使用的抑制化学发光法灵敏度高达10~150倍,线性范围达三个数量级,相对偏差在5.4%以下。

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Catalytic chemiluminescence activation of copper unsaturated complex with organic ligands and their applications

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Abstract The catalytic activation of copper unsaturated complex with amino acids and some other organic ligands upon the luminol-hydrogen peroxide and o-phenanthroline-hydrogen peroxide chemiluminescence systems have been studied in detail. A new chemiluminescence method for determination of amino acids with a copper hydroxide column and flow injection systems were established based on the complexometric dissolution of copper hydroxide to form amino acid-copper unsaturated complex, which catalyze the chemiluminescence reaction between luminol and hydrogen peroxide. A compare with the method based on complex suppression of chemiluminescence from the Cu²⁺ luminol-H₂O₂ system, the method is more high sensitivity and wider linear range. The detect limits for all amino acids are pmol level. The method has been applied to the determination of lysine in some food and phenylalanine in sermm with satisfactory results.

Key words [AMINO ACID](#) [HIGH SPEED LIQUID CHROMATOGRAPHY](#) [COPPER COMPLEX](#) [HYDROGEN PEROXIDE](#) [LUMINOL](#) [PHENANTHROLINE](#) [FLOW INJECTION ANALYSIS](#) [CHEMILUMINESSENCE](#)

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