

论文

叶酸的光化学行为及其应用

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摘要:

目的: 研究叶酸的光化学行为并提出测定叶酸的光化学荧光分析方法。方法: 叶酸在六次甲基四胺-盐酸介质中,经 365 nm 紫外光照射后, 发生光化学反应, 产物的荧光强度(λ_{ex} 280 nm, λ_{em} 443 nm)较叶酸本身的增大了25倍。根据光化学反应产物的荧光强度测定叶酸的含量。结果: 叶酸的浓度在 $1.0 \times 10^{-5} \sim 1.0 \times 10^{-7}$ mol.L⁻¹范围内, 荧光强度与浓度呈良好的线性关系, 检出限为 1.5×10^{-9} mol.L⁻¹, 相对标准偏差为1.6%。结论: 本方法适用于片剂中叶酸的测定。

关键词: 光化学荧光光度法; 叶酸

PHOTOCHEMICAL BEHAVIOUR OF FOLIC ACID AND ITS APPLICATION

Zhao Huichun; Zhang Tianlei; Zhang Tieli and Feng Ruiqin

Abstract:

AIM: To study the photochemical behaviour of folic acid and establish a photochemical fluorimetric method for folic acid determination. METHODS: In (CH₂)₆N₄-HCl medium, a photochemical reaction takes place on irradiation of the folic acid with 365 nm ultraviolet light. The photochemical product showed an intense fluorescence intensity (λ_{ex} 280 nm, λ_{em} 443 nm), which was 25 times higher than that of the original folic acid. On this basis, the determination of folic acid was carried out. RESULTS: The linear relationship between the fluorescence intensity and concentration of folic acid is over the range of $1.0 \times 10^{-7} \sim 1.0 \times 10^{-5}$ mol.L⁻¹, the detection limit is 1.5 nmol.L⁻¹ and relative standard deviation is 1.6%. The recoveries are in the range of (99.5~106.5)%. CONCLUSION: It can be applied to the determination of folic acid in tablets.

Keywords: folic acid photochemical fluorimetry

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