

研究简报

牛血清白蛋白对 Cu^{2+} - SCN^- - H_2O_2 化学振荡系统影响作用的初步研究

孙涛¹, 郭洪瑞², 许环麟¹, 周宝宽¹

1. 天津医科大学化学教研室, 天津 300070;
2. 南开大学化学学院, 天津 300071

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摘要 研究了牛血清白蛋白(BSA)对 Cu^{2+} - SCN^- - H_2O_2 化学振荡系统的扰动作用, 观察并分析了BSA对该振荡体系的影响规律, 在此基础上提出了基于化学振荡系统的蛋白质定量检测方法.

关键词 [化学振荡](#) [牛血清白蛋白](#) [定量](#)

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Influence of BSA on Cu^{2+} - SCN^- - H_2O_2 Chemical Oscillating System

SUN Tao¹, GUO Hong-Rui², XU Huan-Lin¹, ZHOU Bao-Kuan^{1*}

1. Department of Chemistry, Tianjin Medical University, Tianjin 300070, China;
2. College of Chemistry, Nankai University, Tianjin 300071, China

Abstract The influence of bovine serum albumin (BSA) on Cu^{2+} - SCN^- - H_2O_2 chemical oscillating system was studied. The stable oscillating system contains 0.004 mol/L NaSCN, 0.066×10^{-3} mol/L CuSO_4 and 0.111 mol/L H_2O_2 , and it was injected during the peak of the third cycle of BSA. The electrode potential-time($E-t$) curve was recorded and analyzed. The influence of the concentration of BSA on the chemical oscillating system's cycle prolonging(cycle-slope rate, R_S) can be indicated in a quadratic term equation:

$$R_S = 1.94 \times 10^{-3} \rho(\text{BSA})^2 + 0.000595 \rho(\text{BSA}) + 0.059292$$

Protein may affect the chemical oscillation through midbody interference, binding with certain metallic ions, or alteration of solution's physical characteristics, but in protein may weaken the physical interference of the chemical oscillation by BSA. A linear relationship between in protein of BSA and oscillation cycle is derived with a coefficient correlation of $R=0.996$, and a linear range of 1—100 mg/L. Therefore, it is a new dynamic quantitative assay for the analysis of protein.

Key words [Chemical oscillation](#) [Bovine serum albumin](#) [Quantitative assay](#)

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