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Determination of Minocycline by Rhodamine B-Modified gold nanoparticles

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Abstract

In this study,a rapid, economical and highly sensitive method is described for determination of trace amounts of Minocycline based on the fluorescence resonance energy transfer(FRET) between AuNPs and Rhodamine B (RB) ,in which RB acts as the donor and AuNPs as the acceptor .The reaction was monitored spectrofluorometrically by measuring the increase in fluorescence of RB at 572 nm after 7min of mixing the reagents in tris buffer solution (pH=6.5).Various chemical (such as the type of buffer, the effect of acidity and reagents concentration) and reaction time were studied and were optimized.By using the recommended procedure and under optimum conditions ,the calibration graph was linear from 0.01 to 5 $mg.L^{-1}$ of Minocycline and Limit of detection was 0.003.The proposed method was applied to the determination of Minocycline in milk and water samples.

Keyword

Minocycline, Rhodamine B, gold nanoparticles, fluorometry, FRET