

Determination of Proteins by Resonance Rayleigh-Scattering Method with Acridine Orange and Surfactant

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Keywords: Resonance Rayleigh-scattering; Sodium dodecanesulfonate, Human serum albumin; Acridine orange

In an acidic medium, sodium dodecanesulfonate and acridine orange combine with human serum albumin (HSA) to form a macromolecular complex. This results in a significant enhancement of the resonance Rayleigh-scattering (RRS) intensity and a new strong peak at 397 nm, permitting highly sensitive determination of HSA. RRS intensity at 397 nm is directly proportional to the concentration of HSA in the range 0–75 $\mu\text{g mL}^{-1}$. A novel sensitive method for determination of HSA protein, based on the enhancement of RRS, has been developed. Detection limit was 0.12 $\mu\text{g mL}^{-1}$. The method has been applied to determine protein in human serum and urine with satisfactory results.