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Effect of anionic surfactant sodium dodecyl sulfate on the reaction of hexacyanoferrate(III) oxidation of levothyroxine in aqueous medium: a kinetic and mechanistic approach

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Abstract

The effect of anionic surfactant sodium dodecyl sulfate (SDS) on the rate of oxidation of levothyroxine (LVT) by hexacyanoferrate(III) in alkaline medium has been investigated spectrophotometrically at different temperatures. The reaction follows a complex kinetics showing first order dependence of rate with respect to both alkali and LVT. The effect of SDS on the rate of reaction has been observed at the critical micellar concentration of the surfactant, indicating binding of the substrate with the surfactant micelle. The binding parameters have also been evaluated using the Menger and Portnoy model.

Keywords

Author Keywords: Levothyroxine; Kinetics; SDS; CMC

KeyWords Plus: CETYLTRIMETHYLAMMONIUM BROMIDE; DEGRADATION-PRODUCTS; THYROXINE HORMONE; ELECTRON-TRANSFER; MICELLAR; IMMUNOASSAY; ACID; MS

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