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Kinetics and Mechanism of Rh(III) Catalysed Oxidation of D-ribose by Cerium(IV) in Aqueous Acidic Medium

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ABSTRACT

A Kinetics investigation of catalysed oxidation of D-(+)ribose by cerium(IV) have been studied in acidic medium in the temperature range 308-333 K. The reaction has been found to be first order with respect to ribose in the presence of Rh(III) catalysed .The rate follow first order kinetics in Rh(III)catalysed oxidation reaction. The effect of [HSO_4^-] has also been observed. A 1 : 2 stoichiometry is observed in the oxidation. From the effect of temperature on the rate of reaction , the Arrhenius equation and various activation parameters have been computed. A suitable mechanism has been proposed and a rate law explaining the experimental observations is derived.

Keywords: Kinetics, Reaction mechanism, Oxidation, Rhodium, Cerium (IV), Arrhenius equation.
