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Kinetic Study of Oxidation of Milk Sugar by Ceric Ammonium Sulphate in Acidic Medium

Surendra K. Rajput[¶1] and Sonal Choubey[*2]

1. Department of Chemistry, Govt. N.P.G. College Raipur-492010 (C.G), India
2. Department of Chemistry, Disha Institute of management and Technology

E-mail: sonalchoube@gmail.com

ABSTRACT

The kinetics of uncatalysed and catalysed oxidation of D-galactose by Cerium(IV) has been studied in acidic medium in the temperature range 303-338 K. The reaction has been found to be first order with respect to [D-galactose]. The rates follow first order kinetics in [Ir(III)] catalysed oxidation reaction. The effect of [HSO_4^-] has also been observed. The increase in ionic strength of the medium decreases the rate of uncatalysed reaction while increases catalysed reaction. A1:2 stoichiometry is observed in the oxidation. From the effect of temperature on the reaction rate, the Arrhenius and activation parameters were calculated. A suitable mechanism was proposed and a rate law explaining the experimental results is derived.

Keywords: Cerric Ammonium Sulphate (CAS), Oxidation of milksugar (D-Galactose,) , Kinetics, Mechanism in Ir (III) catalyst.
