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Kinetics and mechanism of oxidation of Anti-tubercular drug Isoniazid by Peroxomonosulphate

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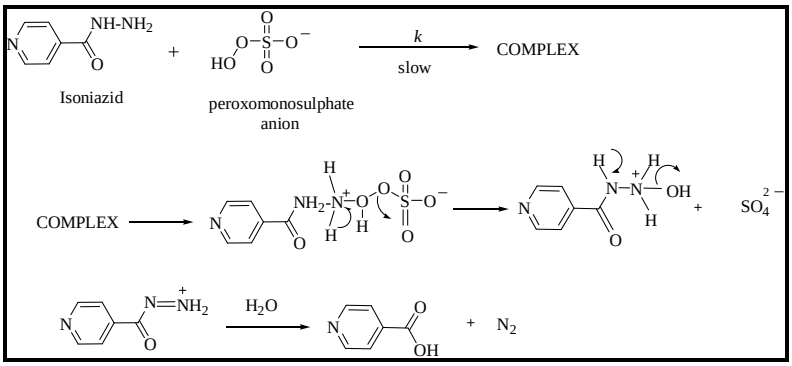
ABSTRACT

The kinetics and mechanistic aspects of oxidation of anti-tubercular drug isoniazid was studied by oxone in acidic medium. The reaction exhibits first order each in [oxone] and [isoniazid]. The reaction rate increased slightly with increase in [acid]. Variation of ionic strength had no effect on the reaction rate. The reaction is failed to induce the polymerization of acrylonitrile. The decrease in the rate of reaction with a decrease in dielectric constant of the medium was observed. The reaction was studied at six different temperatures and the thermodynamic parameters were calculated. The mechanism proposed involves the formation of isoniazid-oxone complex in the slow step, resulting in isonicotinic acid.

Graphical Abstract



Kinetic investigations in the oxidation of isoniazid.

Keywords: Isoniazid, Oxone, Kinetics, Mechanism.