



Comparative Study of Oxidative Transformation of Aromatic Aldehydes by Pyridiniumdichromate in Partial Aqueous Medium

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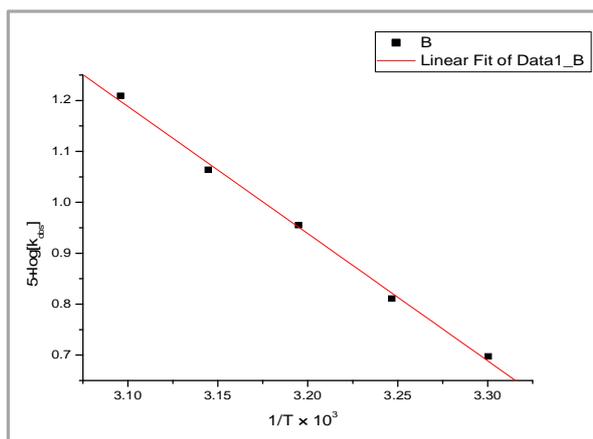
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ABSTRACT

The oxidation of five mono substituted benzaldehydes the present work deals with kinetic study of the oxidation of *p*-Methoxy benzaldehydes and *p*-Chloro benzaldehyde by pyridinium chlorochromate (PDC) in aqueous acetic acid solution the oxidation has been carried out in HClO_4 as solvent. The reaction is first order with respect to PDC in both aromatic alcohol i.e. *p*-Methoxy benzaldehyde and *p*-Chloro benzaldehyde Michaelis-Menten-type kinetics were observed with respect to aldehyde .indicating the oxidation of both the alcohols Michaelis-Menton type kinetics is observed. The effect of solvent composition indicated that the reaction rate increases with an increase in the polarity of the solvent. The rate decreases with the increase in the water content of the medium. The reaction rate has been determined at different temperature and activation parameters calculated for oxidation reaction. A suitable mechanism has been proposed.

Graphical Abstract:



Variation of Rate with Temperature

Keywords: *p*-Methoxybenzaldehyde, *p*-chlorobenzaldehyde, PDC, Oxidation, Kinetic Mechanism.