



Kinetics and Mechanism of Oxidation of some Thioacids by Pyridinium Dichromate

Rekha Sharma¹, Deepika Soni¹, Kamla¹, Shweta Vyas²,
Laszlo Kotai³ and Pradeep K. Sharma^{1*}

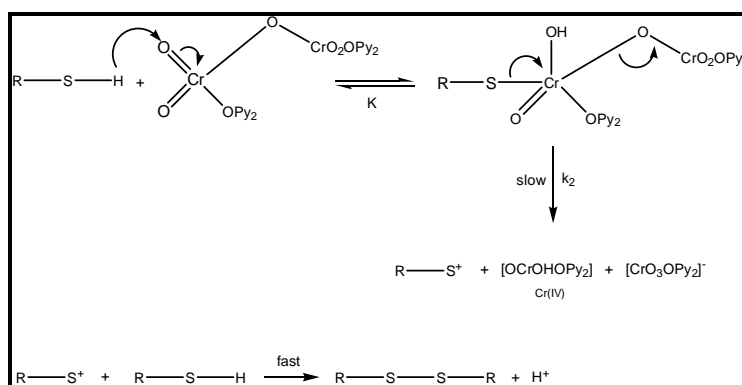
1. Chemical Kinetics Laboratories, Department of Chemistry, J.N.V. University, Jodhpur, **INDIA**
2. Department of Chemistry, University of Kota, Kota, Rajasthan, **INDIA**
3. Institute of Material and Environmental Chemistry, RCNS, HAS, Budapest, **HUNGARY**
E-mail: drpkvs27@yahoo.com

Accepted on 13th November, 2018

ABSTRACT

Oxidation of thioglycolic, thiolactic and thiomalic acids by pyridinium dichromate (PDC) in dimethylsulphoxide (DMSO) leads to the formation of disulphide dimmers. The reaction is first order in PDC. Michaelis-Menten type of kinetics is observed with respect to the thioacids. Reaction is failed to induce the polymerisation of acrylonitrile. The reaction is catalysed by hydrogen ions. The hydrogen ion dependence has taking the form $k_{obs} = a + b [H^+]$. The oxidation of thiolactic acid has been studied in nineteen different organic solvents. The solvent effect has been analysed by using Kamlet's and Swain's multiparametric equations. A mechanism involving the formation of a thioester and its decomposition in slow step has been proposed.

Graphical Abstract



Scheme

Keywords: Dichromate, Kinetics, Mechanism, Oxidation, Thioacids.