S Y N O P S I S

Synopsis of the dissertation entitled "KINETICS AND MECHANISM OF SOME SUBSTITUTED ANILINES BY CHLORAMINE-B." being submitted " by Shri. Neel S.B. to the Shivaji University, Kolhapur for the award of the degree of 'Master of Philosophy in Chemistry is given below.

The dissertation has been divided into four chapters. The reactions have been carried out in hydrochloric acid medium in 50% V/V ethanol at an ionic strength of 0.5M. Chlorination of o-toluidine and m-toluidine by chloamine-B was selected for the present work. The reaction path of chlorination with suitable electronic movements has been suggested with the derivation of rate law.

Chapter : I : It deals with Introduction. It contains upto date literature survey relating to chloramine-B and its use in chlorination reactions. The theoretical background of the study and scope of the present study has been given in brief.

Chapter : II : It consists of preparation of solutions. Detailed experimenntal procedure and analysis of end products has been given. It includes the kinetic measurements, estimation of various parameters and determination of stoichiometry of the reaction.

Chapter : III : This includes the results of kinetic data, its analysis and conclusions. It also includes the calculation of orders with respect to effects reactant concentrations, temperature, acid medium, added salt, hydrogen ion concentration at constant chloride

ion concentration, ionic strength, solvent composition and addition of reaction product, benzene sulphonamide. It includes calculation of thermodynamic parameters and their significance. Discussion in this chapter signifies the results obtained from the analysis of kinetic data and includes the derivation of rate law. On the basis of kinetic evidences the most probable mechanism for the chlorination of o-toluidine, and m-toluidine is proposed. The analysis of product showed the presence of benzene sulphonamide and substituted N-chloroanilines.

The following rate law is suggested.

$$-\frac{d\,CAB}{dt} = k'\,[CAB][H^+]^{0.97}[S]^{056} + k''[CAB][Cl^-]^{0.39}[S]^{0.56}$$

for o-Toluidine.

The comparision of the results of o-toluidine and m-toluidine is made at the end of the chapter.

Chapter : IV : References All suitable and essential references are given in this chapter.

Place: Kolhapur.
Date : 22-8-1990

Research Candidate
(S,B.Neel)

Research Guide
(Dr. S.K.Haibatti)
Department of Chemistry
Shivaji University,
Kolhapur-416004.