



**PP-65: SPECTROPHOTOMETRIC KINETIC AND MECHANISTIC STUDY ON
OXIDATIVE DECOLORIZATION OF ERIOCHROME BLACK-T WITH
CHLORAMINES-T IN ALKALINE MEDIUM CATALYZED BY Os (VIII) AND
UNCATALYZED REACTION IN ACID MEDIUM**

A.S. Manjunatha, Puttaswamy^{*}

Department of Chemistry, Central College Campus, Bangalore University, Bangalore-560 001,
India

Abstract: In this research, we have developed optimum conditions for the facile oxidative decolorization of Eriochrome black T (EBT) with sodium N-chloro-p-toluenesulfonamide or chloramine-T (CAT) in acid and alkaline media [1]. The kinetics and mechanism of oxidative decolorization of EBT with CAT catalyzed by Os(VIII) in alkaline medium and uncatalyzed reaction in acid medium at 303 K have been spectrophotometrically investigated at $\lambda_{\text{max}} = 520 \text{ nm}$ [2]. The reaction exhibits a first-order dependence of rate each on $[\text{CAT}]_0$ and $[\text{EBT}]_0$ in both the media and also with respect to $[\text{H}^+]$. The order with respect to both $[\text{OH}^-]$ and $[\text{Os (VIII)}]$ was fractional. Oxidation products of EBT were indicated as naphthalene-2-ol and 7-nitro-3,4-dioxo-3,4-dihydro-naphthalene-1-sulfonic acid in both the cases. Various activation parameters were calculated. It was observed that the decolorization reactions are about eight-fold faster in acid medium in comparison with alkaline medium. It was also noted that Os(VIII) catalyzed reaction was about seven-fold faster than the uncatalyzed reaction. Mechanisms and rate laws confirming to the observed kinetic results have been worked out. Importantly, the developed oxidative decolorization method is simple, efficient, economical, requires less time and environmentally benign. Hence, it can be adapted for treating EBT present in industrial or laboratory wastewater.

References:

- [1] H. Zollinger, Color Chemistry. Syntheses, Properties and Applications of Organic Dyes and Pigments, Wiley, Weinheim, third ed., 2003.
- [2] Jagadeesh RV, Ru(III), Os(VIII), Pd(II) and Pt(IV) catalyzed oxidation of glycyl-glycine by sodium N-chloro-p-toluenesulfonamide: Comparative mechanistic aspects and kinetic modeling. J Phys Org Chem 2008;21:844.

*Corresponding author: Prof. Puttaswamy, E-mail: pswamy_chem@yahoo.com

**PP-66: EFFECT OF PROLINE ON *TRITICUM AESTIVUM* (WHEAT) UNDER THE
DROUGHT CONDITIONS OF SALINITY**

Manisha Jain^a, Elsa Mini Jos^a, **Deepika Arora^b** and Kameshwar Sharma YVR^{a*}

Abstract: The increasing salinity is a major problem in agriculture around the world. Salt stress results in inhibition or reduction in plant growth which affects productivity. Also, most of the crop plants like Wheat are glycophytes, which are sensitive to even low salt concentrations. Hence it is important to find out the role played in plant salt tolerance by compatible osmolytes such as proline. Proline appears to be the preferred organic osmoticum in many plants. The proposed functions of proline under stress conditions include osmotic adjustments, protection of enzymes and membrane,