

# ***CHAPTER-IX***

## SUMMARY

### PRESENTATION OF WORK

The thesis has been presented in eight chapters and the abstract of the matter is being given chapterwise as follows.

#### CHAPTER-I

This chapter has been divided into two sections :

(1) *Chapter I-A* includes General Introduction about the chemical kinetics.

(1) *Chapter I-B* includes the brief review .

#### CHAPTER-II

This chapter has been divided into six sections:From Chapter II-A to Chapter II-F.

In the different sections of Chapter-II, oxidation and reduction processes have been explained in detail including decarboxylation.A general view about amino acids has been also given. As permanganate is a versatile oxidant.Special attention has been given to its nature and on the reaction of permanganate with organic substrate. Particular attention has been given on the surfactant looking to its applicability in present work as a micellar catalyst. Since it as a case of homogeneous acid catalysis,due to this different acidity functions and different hypothesis to explain the role of water in the mechanism have been discussed at length. In the end of the chapter details about effect of added neutral salts and role of metal ion catalysis and effect of surface have been presented.

Following are the contents of different sections;

(1) *Chapter II-A* : Oxidation-Reduction processes, Decarboxylation and Oxidative decarboxylation.

(2) *Chapter II-B* : Amino acids:-Brief introduction.

(3) *Chapter II-C* : Permanganate as an oxidant,oxidation by permanganate, oxidation of amino acids by other oxidant, oxidation of amino acids by permanganate.

(4) *Chapter II-D* : Surfactant, Oxidation of different compounds in presence of surfactants, Oxidation of amino acids in presence of surfactants.

(5) *Chapter II-E* : Brief discussion on homogeneous acid catalysis, different acidity functions, Zucker-Hammett's hypothesis, Bunnett's hypothesis, Bunnett-Olsen's hypothesis, linear free energy relationship and on Hammett-Taft equation.

(6) *Chapter II-F* : Salt effect, specific ionic effects, catalysis by ions and effect of surface area.

### **CHAPTER-III**

This chapter has been divided into two sections:

(1) *Chapter III-A* : Background, scope and plan of present work.

(2) *Chapter III-B* : Experimental.

### **CHAPTER-IV,V,VI,VII :-Present Experimental Work**

In these chapters experiments performed for the determination of various kinetic and activation parameters for all the four amino acids, i.e.

Glycine (Chapter IV) , L-Alanine (Chapter V) , L-Valine (Chapter VI) and

L-Leucine (Chapter VII) have been presented.

### **CHAPTER-VIII :-Result and Discussion**

In this chapter, observations that could be made from the experimental data have been discussed at length. Mechanisms in agreement with the experimental results have been proposed and their justification is supported using various facts, references and the work performed by different researchers.

## PUBLICATIONS

### Research papers communicated

(1) “Kinetic studies in the mechanism of surfactant catalyzed oxidative deamination and decarboxylation of glycine by acidic permanganate.”

Communicated.

Authors:-Nameeta Bende, Vijay R. Chourey and A.G.Fadnis

In Journal of Environmental and Chemical Research.

(2) “Kinetic and mechanism of micellar catalyzed oxidative deamination and decarboxylation of L-alanine by acidic permanganate.”

Communicated.

Authors:-Nameeta Bende, Vijay R. Chourey and A.G.Fadnis

In Arabian Journal of Chemistry (Manuscript number is ARABJC-D-12-00837).

(3) “Kinetic studies in the surfactant catalyzed oxidative deamination and decarboxylation of L-Valine by acidic permanganate”.

Communicated.

Authors:-Nameeta Bende, Vijay R. Chourey and A.G.Fadnis

In Journal of Colloid and Interface Science (Manuscript number is JCIS-12-2554)

(4) “Effect of metal ion on reaction velocity of surfactant catalysed oxidation of some amino acids by acidic permanganate” ”.

Communicated.

Authors:-Nameeta Bende, Vijay R. Chourey and A.G.Fadnis

In Journal of Ultra Chemistry

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Acceptance of Paper

**"Research Journal of Chemistry and Environment"**

Dear Author,

We are pleased to inform you that paper submitted by you for publication in **"Research Journal of Chemistry and Environment"** was processed. Your paper titled "Kinetics and mechanism of miceller catalyzed oxidative deamination and decarboxylation of Glycine by acidic permanganate" has been **approved by both the experts** and it will be published in coming issues soon. Our journal is indexed in SCIE, SCOPUS etc. and its SCI impact factor is 0.379. All our journals are online and you can access us at [www.shankargargh.net](http://www.shankargargh.net)

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acidic permanganate

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(Dr. A. H. Ansari)  
Chief Editor

## ABSTRACTS IN SOUVENIR OF CONFERENCES

Authors of all Abstracts: Nameeta Bende\* and Vijay R. Chourey

(1) "Kinetic Studies of  $\alpha$ -amino acetic acid"

In Third M.P. Science Congress-2006 (Rajeev Gandhi College, Bhopal, M.P.)

Held on 9-10 Dec, 2006

(2) "Surfactant catalysed oxidation of glycine by acidic permanganate"

In Recent Trends in Surface Sciences-2007 (Govt. M.L.B. Girls P.G. College, Indore, M.P.) Held on 14-15 Sept, 2007

(3) "Kinetic studies in the surfactant catalyzed oxidative deamination and decarboxylation of glycine by acidic permanganate."

In Fourth M.P. Science Congress-2007 (Govt. Holkar Science College, Indore)

Held on 26-27 Dec, 2007

(4) "Kinetic studies in the surfactant catalysed oxidative deamination and decarboxylation of L-alanine by acidic permanganate" was presented in following conferences:-

(A) Second Bhartiya Vigyan Sammelan and Expo-2009 (Devi Ahilya Vishwa Vidyalaya [D.A.V.V.], Indore, M.P.) Held on 1 to 3 Dec, 2009

Page no.: - Basic Science-Chemistry (45)

(B) International Conference on Concurrent Techno and Enviro Search (National Institute of Technical Teachers Training & Research, Bhopal; M.P.) Held on 4-5 Dec, 2010

Page no.: - Search and Research Youth Congress (98)

(C) Recent Trends in Chemical and Biological Sciences (Govt. Holkar Science College, Indore, M.P.) Held on 13 to 15 Jan, 2012

Page no.: - Ind. Res. Comm. Vol. 6(1), 102, 2012