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PREPARATION AND PHYSICOCHEMICAL STUDIES OF SOME AMINE SURFACTANTS

A THESIS SUBMITTED

For Ph.D. DEGREE IN CHEMISTRY

BY

NABEL ABDEL-MONEEM AMIN NEGM

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Thesis Advisors

Approved

- **Prof. Dr. Salah A. Abo-EL-Enein.** S. A. Abo-El-Enein
- **Prof. Dr. M. M. EL-Sukkary.** M. M. El sukkary
- **Prof. Dr. Ass. E. A. M. Gad.** E. A. M. Gad
- **Prof. Dr. Ass. F. I. EL-Hosseiny.** F. I. El-Hosseiny

Head of Chemistry Department

Prof. Dr. Saad S. M. Hassan

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CONTENTS

III. RESULTS AND DISCUSSION

Aim of The Work

Preparation and evaluation of the physicochemical properties for some amino surfactants.

This thesis includes the following topics:

1. Preparation of some polymerizable cationic amino surfactants.

2. The spectroscopic analysis for the prepared cationic amino surfactants.

3. Determination the critical micelle concentrations of these cationic surfactants.

4. Evaluation of the surface properties for the solutions of the prepared surfactants.

5. Studying the electrical conductivity, degree of dissociation, and dissociation constants for these surfactants in their solutions and also, the relative viscosity and thermodynamic parameters of activation.

6. Evaluation the thermodynamic parameters of micellization and adsorption for the prepared surfactants in their solutions.

7. Determination and evaluation of the micellar and thermodynamic parameters of the mixed system between one of the prepared surfactants and another nonionic one.

8. Evaluation of the prepared surfactants for their usage in the different purposes.

INTRODUCTION

I. Introduction and Literature Survey

The surface active agents are substances that, when present at low concentration in a system, has the property of adsorbing onto the surface or interfaces of the system and of altering to a marked degree the surface or interfacial free energies of those surfaces. Surface active agents have a characteristic molecular structure consisting of a structural group that very little attraction for the solvent, known as a hydrophilic group, together with a group that has strong attraction for the solvent, called hydrophilic group. That is known as an amphipathic structure, the hydrophobic group is usually a long chain hydrocarbon residue while the hydrophilic group is an ionic or highly polar group.

Depending on the nature of the hydrophilic group, surfactants can be classified into:

1- Anionic surfactant: the hydrophilic group of the molecule has a negative charge as sodium or potassium carboxylate.

2- Cationic surfactant: the hydrophilic group of the molecule has a positive charge as quaternary halides.

3- Zwitterionic surfactant: the hydrophilic group of the molecule