

CONTENTS

Subject	Page No
Acknowledgement	
Aim of the work	
Summary	
INTRODUCTION	1
• Synthetic surface active agent	1
• Nonionic surfactants	4
• Sulfates	5
• Sulfonates	5
• Sulfated Oils	5
• Sulfated Monoglycerides	5
• Fatty alcohol Sulfates	6
• α -sulfonated Fatty acid and ester	9
• Ester Sulfonates	10
• Sulfonated ester from dicarboxylic acid	12
B- Nonionic Surfactants	13
• Condensation of ethylene oxide on carboxylic acid	14
• Condensation with long chain fatty alcohol	15
• Condensation of ethylene oxide with an amine	16
• Condensation of ethylene oxide with an amide	17
• Alkylolamide	18
• Fatty amine oxide	20
• Condensation with mercaptan	21

C- Cationic surfactants	22
• Cationic surfactants containing one nitrogen atom	23
• Cationic surfactants containing more than one nitrogen atom.....	25
• Cationic surfactants Containing hetero cyclic ring	26
• Cationic surfactants containing sulfide and disulfide bonds	27
• Cationic surfactants with sulfonium head group	27
D- Amphoteric surfactants	27
• Amphoteric surface activ agent carboxy betain compounds.....	28
• Amphoteric surface activ agent amido betaine compounds	29
• Amphoteric surface activ agent sulfobetaine compounds.....	29
• Amphoteric surface activ agent from amino acid	29
• Amphoteric surface activ agent from fatty acid	30
• Amphoteric surface activ agent from amine oxides	30
Application and uses of nonionic surfactant	31
• Ethoxylated alcohols	31
• Ethoxylated fatty acid ester	34
• Ethoxylated alkanolamide	34
• Ethoxylated fatty amine	35
• Application of sugar surfactants	36
Aapplication and uses of cationic surfactants	38
• As fabric softener	38
• As foaming detergent	38
• As microbicidal fungicidal effect	39
• As bleach activator	39
• As laundry detergent	40
• As soil release	40
• As emulsifiers and anticorrosion	40

Results And Discussion	42
Preparation of dodecyl benzene sulphonyl chloride	42
Preparation of N-(amino-alkyl-4-dodecyl benzene sulphonamide).....	42
Nonionic Surfactants	43
• Determination average degree of hydroxyethylation (ADE).....	43
• Surface Properties.....	49
• Biodegradability.....	55
• Biological activity of nonionic surfactants.....	57
Cationic surfactants.....	59
• Surface properties of cationic surfactants	61
• Biodegradability of cationic surfactants.....	63
• Biological activity of cationic surfactants.....	64
Materials and Methods.....	68
• Preparation of nonionic surfactants.....	70
• Estimation of polyethylene glycol content	72
• Surface active properties of prepared non ionic surfactants	72
• Preparation of cationic surfactants.....	74
Figures	
References.....	77
Arabic Summary.....	\