# synthesis and evaluation of ome surface active agent from long chain fatty acids

## Shereen mohamed amin abd el aziz Wahb

A series of different types of surface active agents containing an amino acid residue were prepared from fatty alcohol and succinic acid .Fatty alcohols of methyl ester were prepared from reduction of corresponding fatty acids.The structure of prepared compounds was confirmed by Infra Red spectra (IR) and Proton Magnetic Resonance (1HNMR) and Elemental Analysis.The surface properties were evaluated by measuring surface tension, Interfacial tension ,Kraft point,Foam stability, critical micelle concentration and Emulsion stability. A comparison studies were done between different types of prepared surface active agents (amphoteric,anionic, cationic) Also these studies were discussed between the different structures in the same type of surface active agent .The result reveals the following facts:1- All the prepared surfactants have good emulsifying agents specially those which have long chain alkyl radicals so,they could be useful in dye bathes and as emulsion paints.2- A linear relationship was observed between surface and interfacial tension and alkyl chain length as the number of carbon atoms in alkyl chain increases the surface and interfacial tension increase.3- Wetting tests in all prepared surfactants(anionic,cationic,amphoteric) containing shorter alkyl radicals possessed better wetting time4- The kraft point decreases with increasing the hyDROPhilic part in the structure of surfactant. The kraft points increase as the hyDROPhobic part(alkyl radical)of alcohol increase and show better characterization in the following order (amphoteric>cationic>anionic) .5- The foam height of anionic surfactant was higher than the other prepared surfactants, also Foam stability and height decreases by increasing the alkyl chain.6- CMC was found to be significantly dependent on the hyDROPhobic chain length and decreased with increasing the carbon number in alkyl chain. Also CMC of anionic better than amphoteric better than cationic surfactants. The prepared surfactants have a good results which make them to choice in different industrial fields.7- Biodegradability of the prepared surfactants were measured and evaluated. All the compounds had much higher of biodegradability which make them less pollutant to the environment during their applications in different industrial fields .8- Antimicrobial activity was screened against different strains of gram(+ve) ,gram (-ve) and yeast. The results reveal that these compounds were effective and inhibited the growth of all tested microorganisms .