

# Alternative Synthesis of Sugar Based Surfactants

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**Abstract:** *Field of surface chemistry, it is of interest to describe certain properties based on the molecular structure of the surfactant. It is, therefore, of interest to know the purity or composition of the surfactant studied. Remaining hydrophobic starting material or by-products are very often surface active and may thus affect the surface measurement studies. This review consist the characteristic of surfactants with sugar head group in their structure called sugar based surfactants.*

**Keywords:** Surfactant reigns, elective biodegradability

## 1. Introduction

Sugar based surfactant of the many known sugar's (mono saccharide disaccharides, oligosaccharides and ploysaccharides). Sucrose a disaccharides has been widely used for the synthesis of a variety of surfactant with excellent surface active properties.

## 2. General Consideration

Literature survey reveals the fact that sucrose based surfactants have been synthesized have been synthesized by the many school of research bazen etal<sup>1</sup> have represented the synthesis of sucrose based surfactants through region selective sulphonation of acyl (sucrose and the Nucleophile opening of a sucrose cyclic sulphate. These Authors have described the synthesis of a new class of anionic and amphoteric sucrose-based surfactant direct sulphonation of 6-o-acyl. Sucrose using the pyndine sulphur trioxide complex led to a mixture to the region-isomeric monosulphates 6'-o- acyl 4-o- sulphosucrose and 6-o-acyl-1'-o-sulphonation of 1'-o- acyl sucrose afforded a mixture of 1'-o-acyl-6-o-sulphosucrose and 1'-o-acyl-6-o-sulphosucrose. The ratio of regioisomers-ranged from 4.71 to 7.51 depending on reaction time and size of fatty acyl chain. The region-specific synthesis of 6-acyl-4-o sulphate sucrose derivative was accomplished by Nucleophile substitution of the cyclic Sulphate using various fatty acids.

The amphoteric 6-Alkyl amino 6-dexy-4-o- sulpho sucrose surfactant were also synthesized by Nucleophile substitution of the sucrose cyclic sulphate by different fatty amines. All the synthesized sucrose based surfactant displayed excellent surface active properties.

## 3. Stereoselective

Synthesis of sucrose monoesteras surfactant has been. Accomplished by IR visor and coworkers in this research programs first sucrose was transformed into the dibutyle the acetal enhancing the Nucleophilicity at C-6, Oxygen and rest riding. The subsequent reaction.

The surface activity properties to the sucrose monoester obtained were determined and composed with those of commercially available ionic and non-ionic surfactant.

Another school of research has accomplished enzyme catalyzed region selective. Synthesis of sucrose fatty acid effort surfactants a commercial substitution, preparation was used in pyridine to catalyzed the region selective conversion of sucrose and fatty acid vinyl esters into the 1'-0 acyl sucrose derivatives. The 1-0- acyl sucrose 1-0-myristyl sucrose and 1'-0-steafyail sucrose where obtained as the major product of their reaction. The 1-c di-0-acyl sucrose derivative where also obtained as the miner product.

The Critical Micellar concentration (CMC) of each of the sucrose monoester was determined sucrose estars of fatty acids having twelve or more carbon atom are expected to display surface active properties. These molecules aggregate to form Micellar particles at the specific concentration called critical micellar concentration (CMC) This value seems to be the practical significance since it is the concentration of surfactant required of solubilize hydrophobic molecules in water calorimetric method for CMC determination atom 4.5 was found to be useful for the Accurate analysis of sucrose base surfactants. Evaluation studies that the fatty acid esters of sucrose are emulsifying agent and good detergents.

They are sufficiently stable to hydrolysis for use in cotton detergency application low toxicity also points to particular usefulness in cosmetics Pharmaceuticals and food applications it seems quite obvious that sucrose can be used as a raw material for the synthesis of nonionic surfactants their amphiphilic behavior is due to the presence of free hydroxyl group (Hydrophilic) and a hydrophobic alkyl chain. They have wide range of application because of unique properties such as surfactant being nontoxic, skin comfortable nonpolluting and biodegradability.

Undoubtedly sucrose may be heated as a bulk raw material for the synthesis of surfactants of all kinds more importantly sucrose is a highly voluble molecule and is available at low cost in every part of the world.

The sucrose base surfactant can be synthesized by chemical enzymation of their fermentation based methods and their surface active properties can be easily determined.

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