

M.Sc. IV Semester

MBT- 4003B (Optional)

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Bioemulsifiers

General Character

Emulsifiers are a large category of compounds considered as surface active agents or surfactants. An emulsifier acts by reducing the speed of chemical reactions, and enhancing its stability.

Bioemulsifiers are known as **surface active biomolecule materials**, due to their unique features over chemical surfactants, such as non-toxicity, biodegradability, foaming, biocompatibility, efficiency at low concentrations, high selectivity in different pH, temperatures and salinities

Emulsifiers are found in various natural resources and are synthesized by Bacteria, Fungi and Yeast. Bioemulsifier's molecular weight is higher than that of biosurfactants

General Character

They are complex mixtures of heteropolysaccharides, lipopolysaccharides, lipoproteins and proteins.

Emulsifiers are substances that increase the uniformity of nutrients, such as fatty acids, fat-soluble vitamins, and amino acids. The function of emulsions is closely related to its chemical structure

There are three kinds of emulsions:

**temporary,
semi-permanent, and p
ermanent.**

An example of a temporary emulsion is a simple vinaigrette while mayonnaise is a permanent emulsion. An emulsion can be hot or cold and take on any flavor from sweet to savory; it can be smooth or have a bit of texture.

Application in Bioremediation

Bioemulsifiers can **emulsify hydrocarbons enhancing their water solubility and increasing the displacement of oily substances from soil particles**. For these reasons, inclusion of bioemulsifiers in a bioremediation treatment of a hydrocarbon polluted environment could be really advantageous.

Applications of Emulsions

- (i) Concentration of ores in metallurgy.
- (ii) In medicine (Emulsion water-in-oil type)
- (iii) Cleansing action of soaps.
- (iv) Milk, which is an important constituent of our diet an emulsion of fat in water.
- (v) Digestion of fats in intestine is through emulsification.