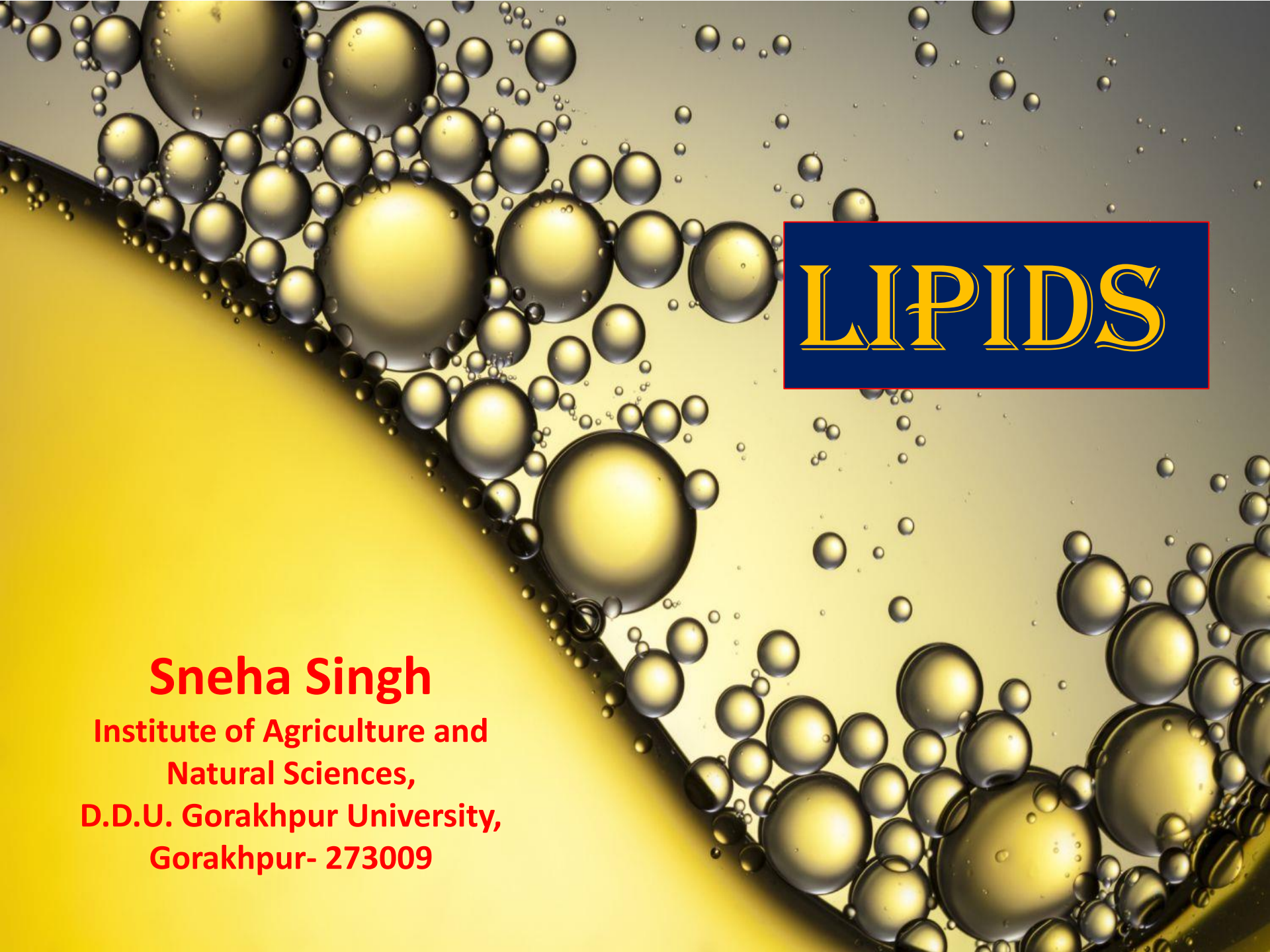


The background of the slide is a microscopic image showing numerous spherical droplets of varying sizes. These droplets, which appear to be oil, are dispersed in a clear, light-colored liquid (water). The droplets are highly reflective, showing bright highlights and dark shadows that give them a three-dimensional appearance. They are distributed across the entire frame, with some appearing in sharp focus in the foreground and others blurred in the background, creating a sense of depth. The overall color palette is dominated by the golden-yellow of the oil and the pale, almost white, of the water.

LIPIDS

Sneha Singh

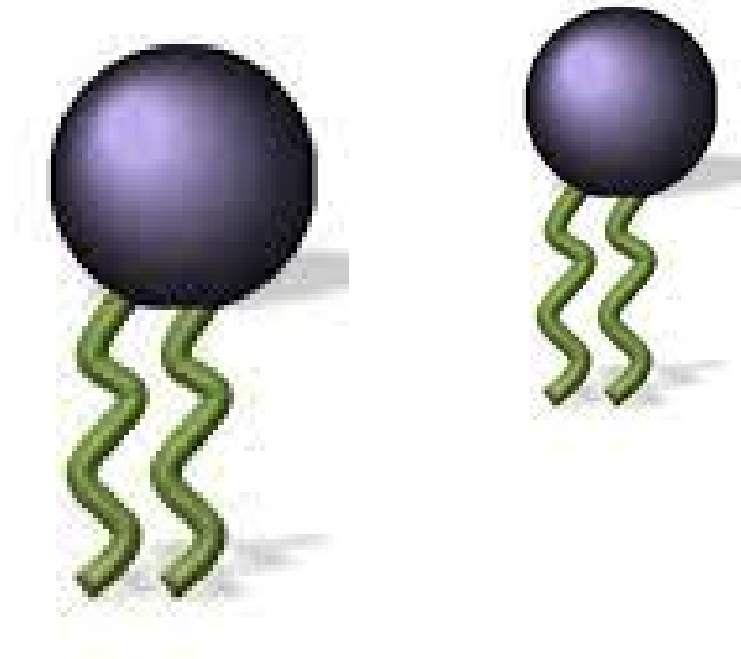
**Institute of Agriculture and
Natural Sciences,
D.D.U. Gorakhpur University,
Gorakhpur- 273009**

Structure and classification of lipids

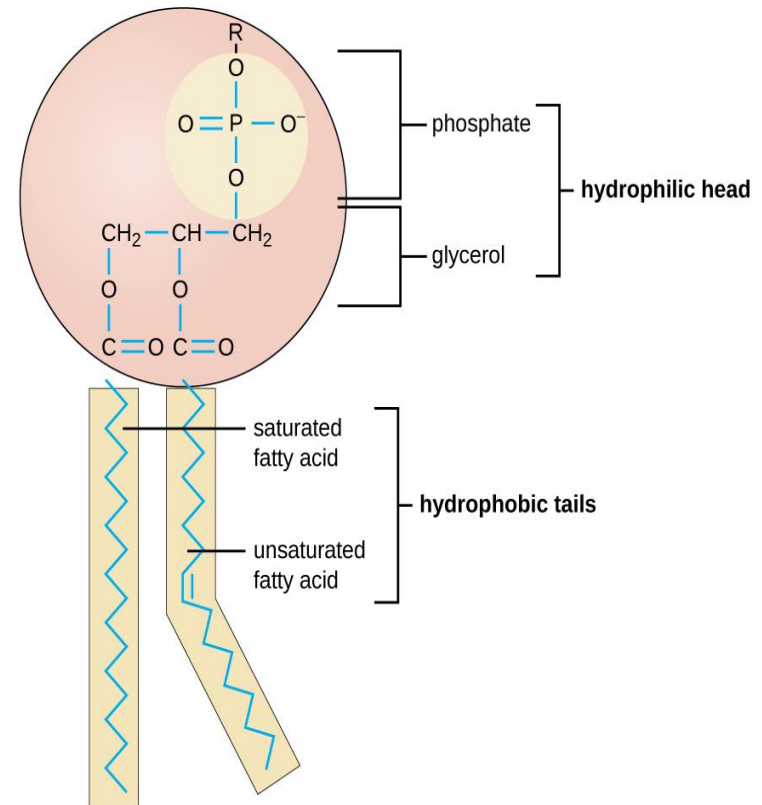


Lipids

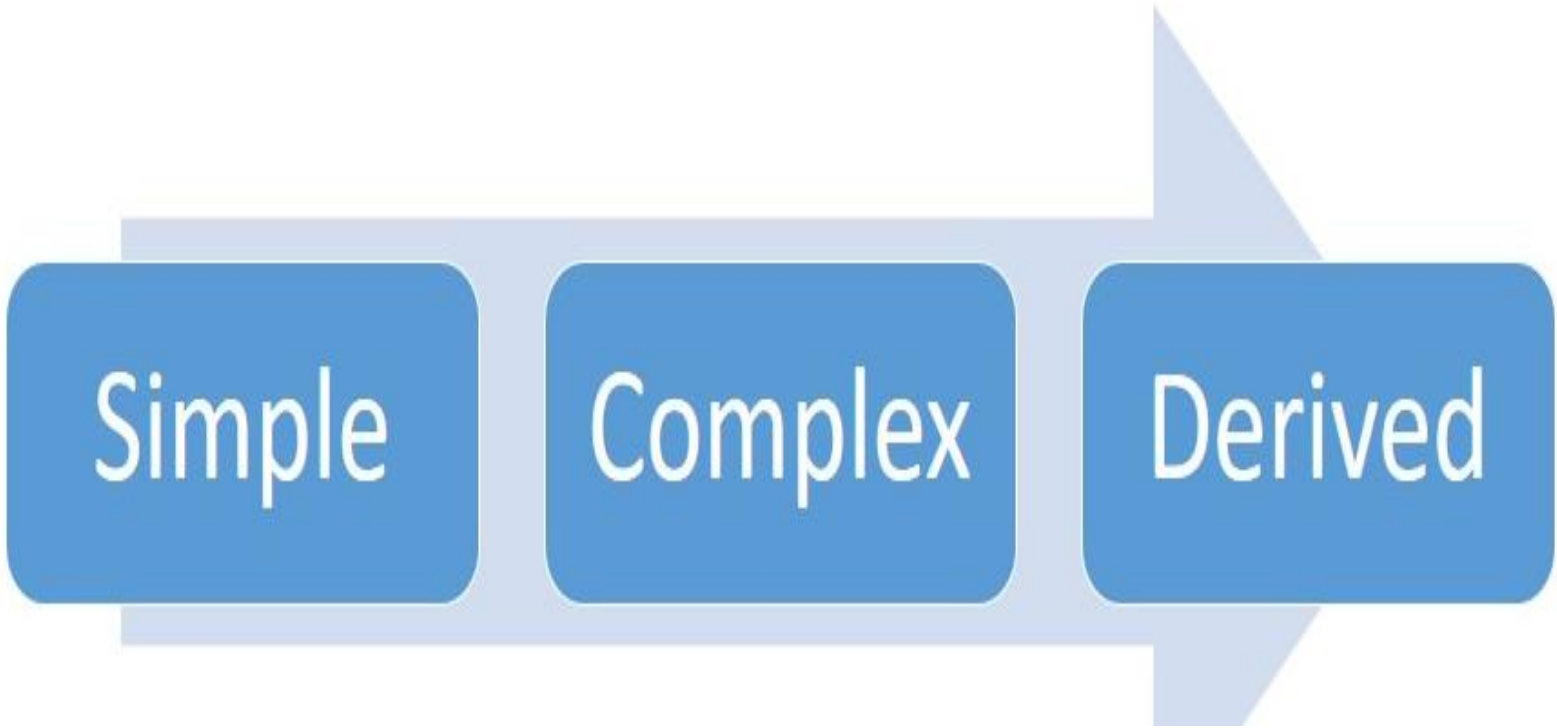
- ❖ Lipids are naturally occurring macromolecules an essential component of the cell membrane and required for homeostatic function of the cell.
- ❖ Lipids contribute to some of the body's most vital processes.



- ❖ The structure is typically made of a glycerol backbone, 2 fatty acid tails (hydrophobic), and a phosphate group (hydrophilic).
- ❖ Lipids are fatty, waxy, or oily compounds that are soluble in organic solvents and insoluble in polar solvents such as water.
- ❖ Lipids include Fats and oils (triglycerides), Phospholipids, Waxes, Steroids.



Classification of lipids

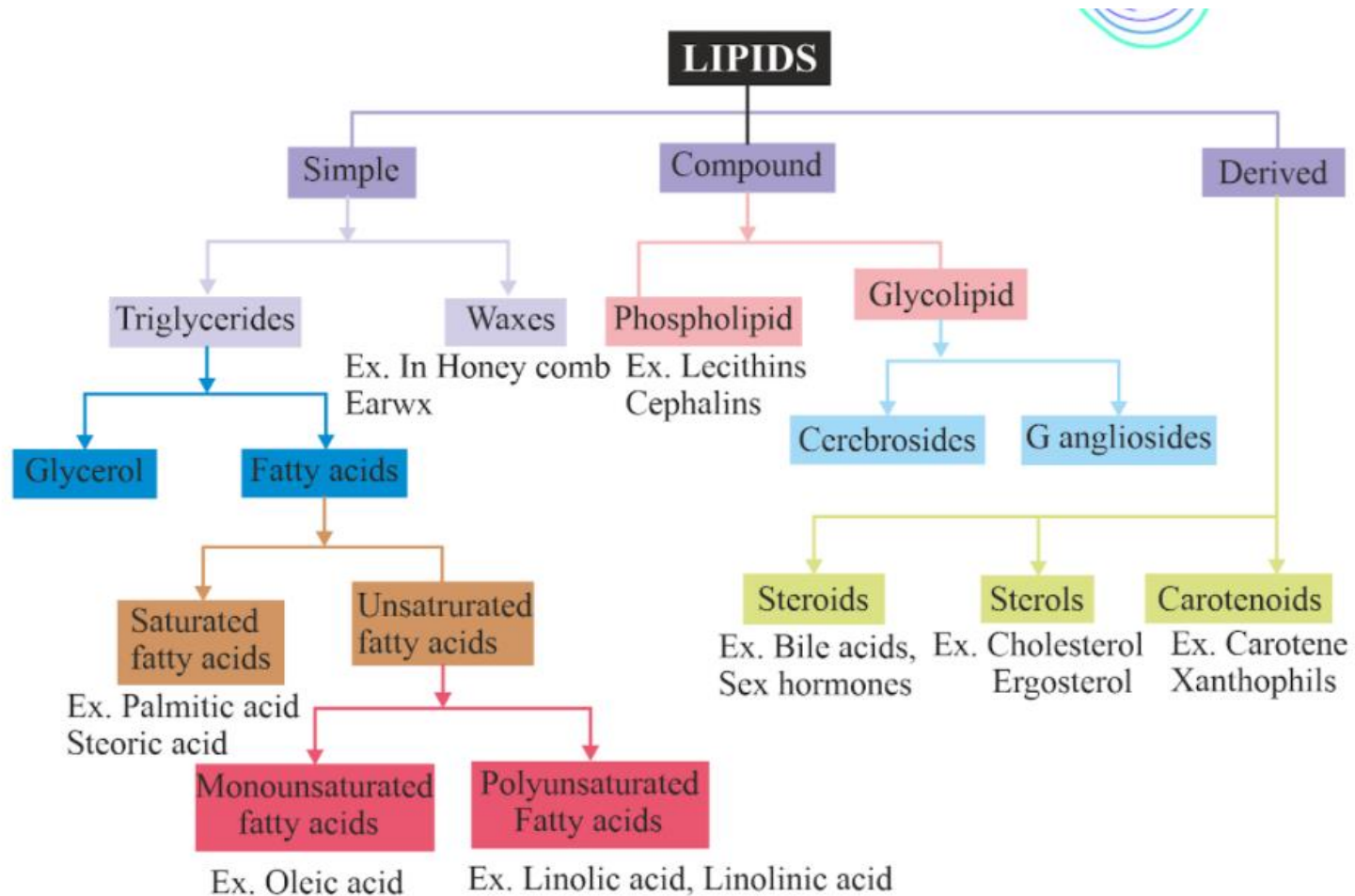


```
graph LR; A[Simple] --> B[Complex]; B --> C[Derived];
```

Simple

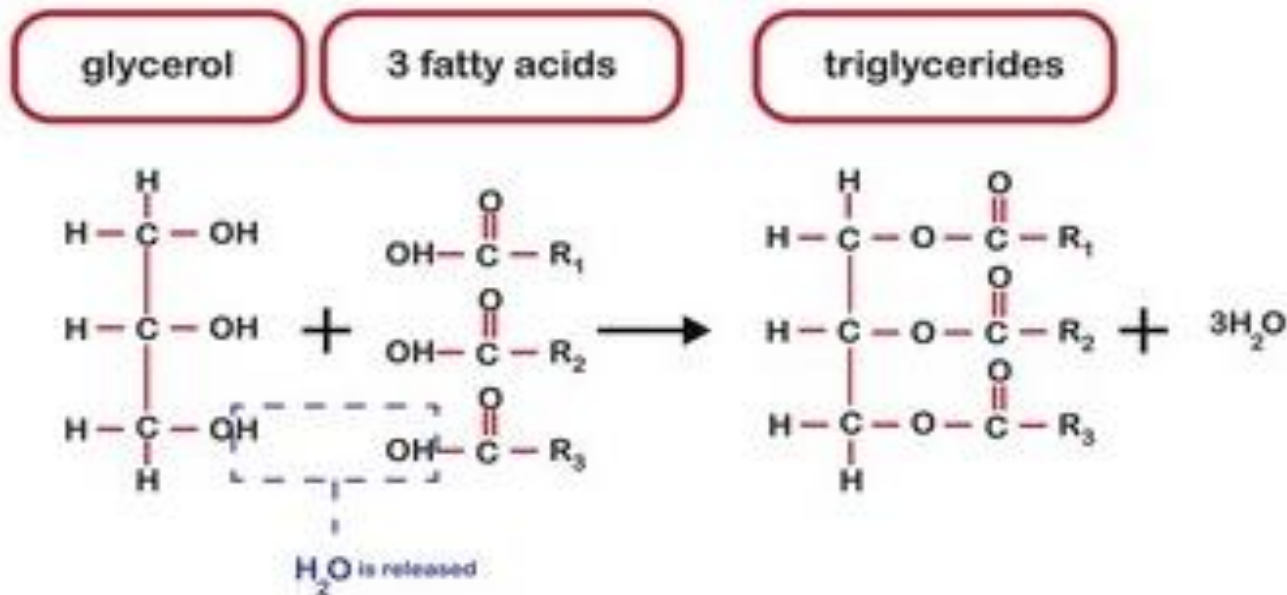
Complex

Derived



Triacylglycerol

- ❖ Triacylglycerol are non polar, hydrophobic in nature and major form of stored lipid.
- ❖ These are distinguished as fat and oil on the basis of physical state.

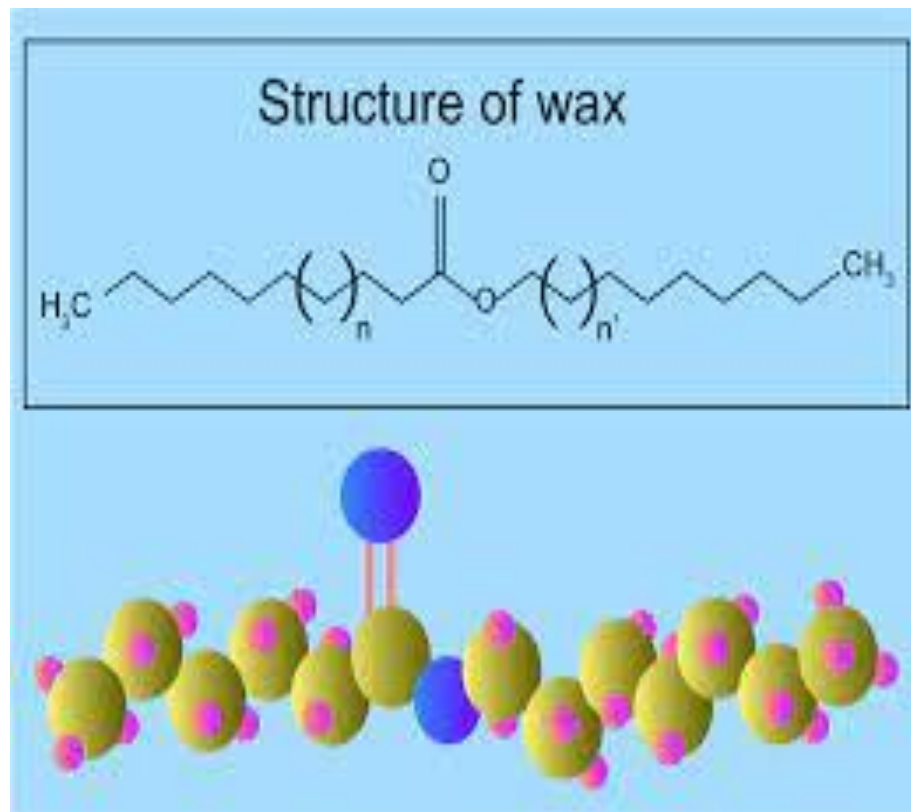


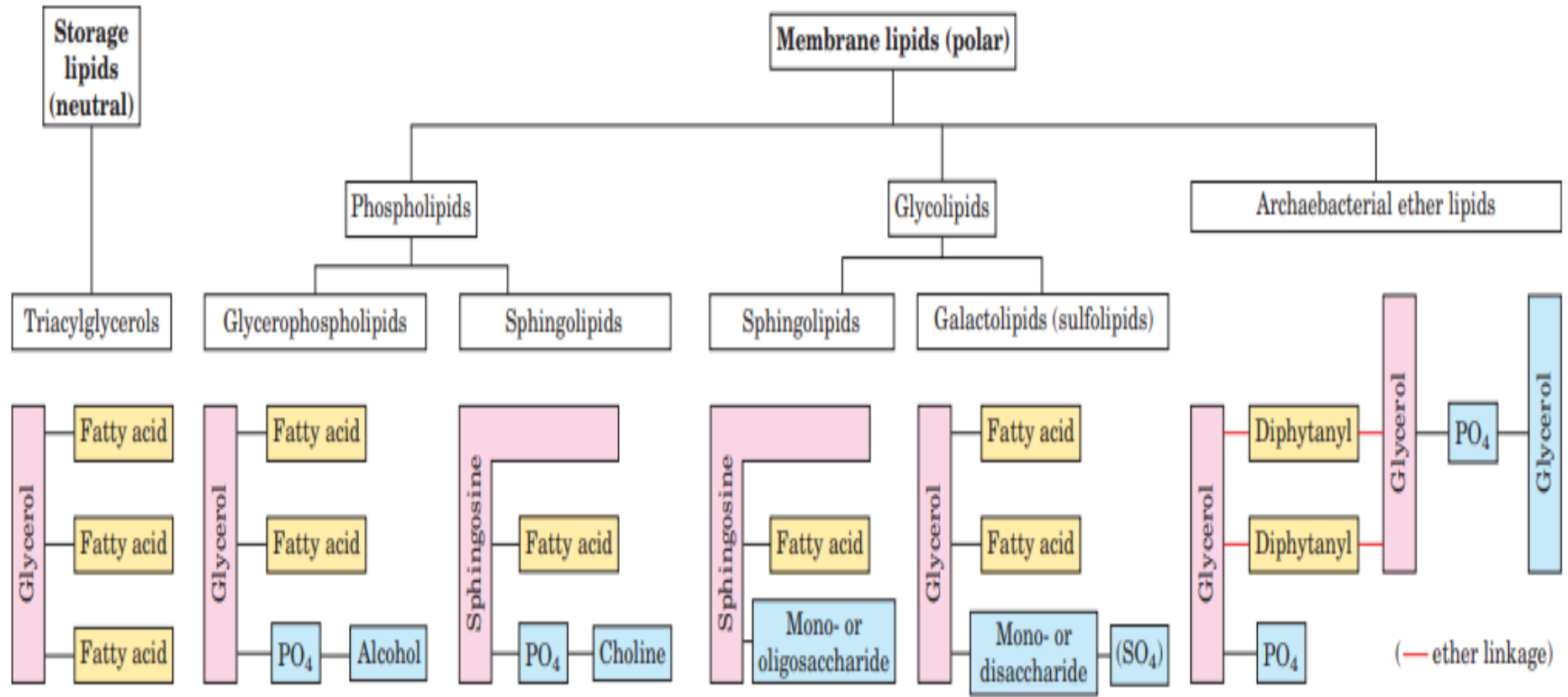
Waxes

❖ Natural waxes are esters of fatty acids and long chain alcohols.

❖ They are formed by esterification of long chain fatty acids and high weight monohydroxy alcohols.

e.g., Beewax (Triacotanyl palmitate).





Function of Lipids

- ❖ Serve as a storage form of metabolic fuel food.
- ❖ Serve as a transport form of metabolic fuel.
- ❖ Provide structural component of plasma membrane.
- ❖ They have protective function in organism from environment.
- ❖ Apart from general function biological lipids serve as pigment, hormones, signaling molecules, co factors and detergents.