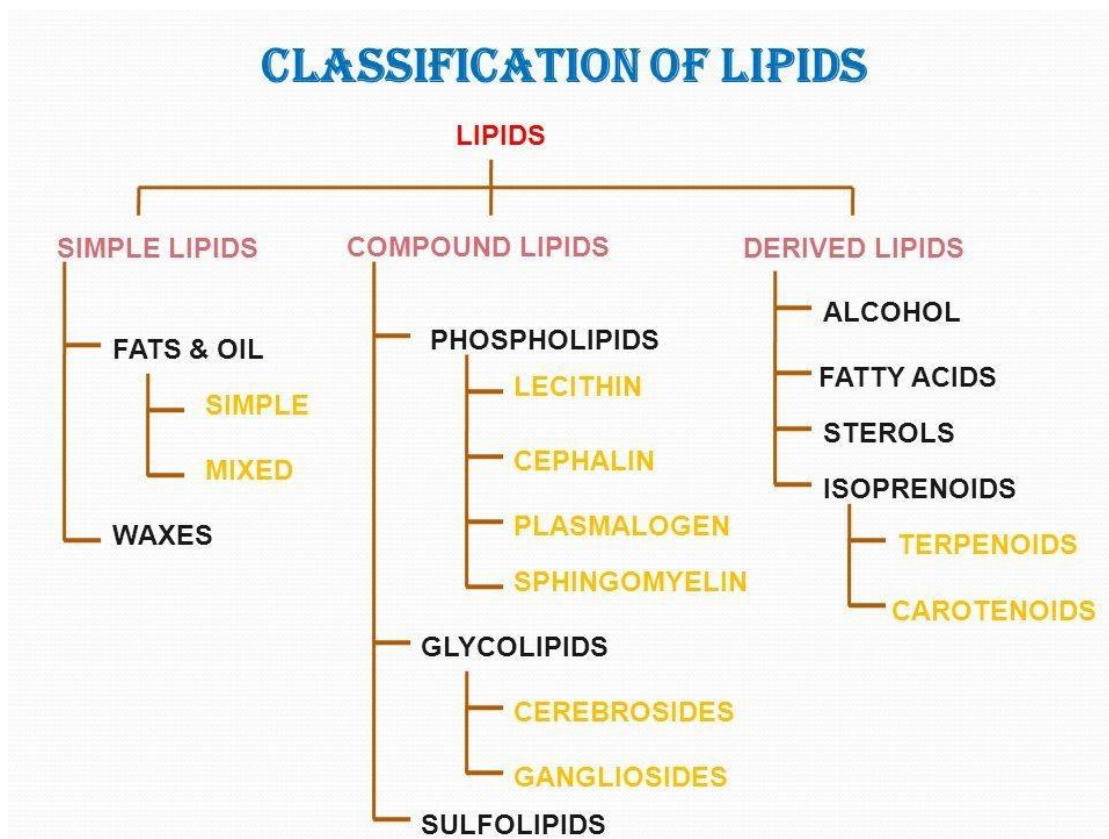


Classification of Lipids.

- Lipids are naturally occurring **fatty acids and amphiphathic in nature.**
- They are **heterogenous** group of compound include **fats, oils, waxes, phospholipids.**
- They make up about **70%** of the dry weight of the **nervous system.**
- Lipids are crucial for the healthy functioning of the nerve cells.



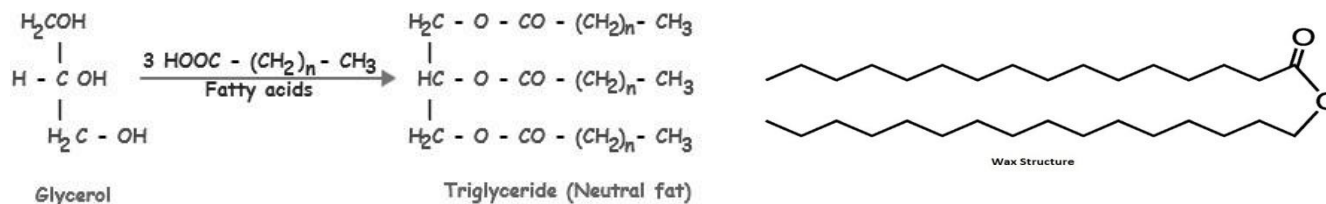
Types of Lipids

- I. Simple Lipids or Homolipids
- II. Compound Lipids or Heterolipids or Conjugated lipids
- III. Derived Lipids

I. Simple Lipids or Homolipids

- Simple lipids are the **esters of fatty acids** with various **alcohols.**

- **Fats and Oils** (triglycerides and triacylglycerols) - These are esters of fatty acids with trihydroxy alcohol and **glycerol**.



- **Waxes** are the esters of fatty acids with high molecular weight monohydroxy alcohols **except glycerol**.

Example: Beeswax, Carnauba wax.

II. Compound Lipids or Heterolipids or Conjugated lipids

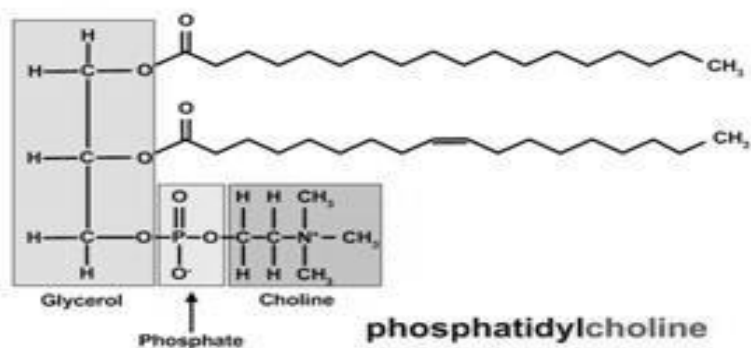
- Heterolipids are contains simple lipids and non lipid units like phosphates, carbohydrates and proteins.

Phospholipids

- The lipids contain phosphate groups as a head is called Phospholipids. e.g. phosphatidylcholine.
- They can form lipid bilayers because of their amphiphilic characteristic.
- The structure of the phospholipid molecule generally consists of two hydrophobic fatty acid "tails" and a hydrophilic phosphate "head", joined together by a glycerol molecule.

Example

Phosphatidylcholine (lecithin) (PC) : glycerol + two fatty acid + phosphoric acid + choline.



Glycolipids

The lipids contains carbohydrates as a head is called Glycolipids.

Example: gangliosides, sulpholipids and sulfatids.

III. Derived Lipids

Derived lipids : derived from **simple and compound lipids** by hydrolysis.

- These include fatty acids, alcohols, monoglycerides and diglycerides, steroids, terpenes, carotenoids.
- The most common derived lipids are **steroids, terpenes and carotenoids**.

Steroids

- It do not contain fatty acids, they are nonsaponifiable, and are nohydrolyzed on heating.
- They are widely distributed in animals, where they are associated with physiological processes. Example: Estranes, androstranes, etc.

Terpenes

- Mostly found in plants.
- Example: Natural rubber. gernoil, etc.

Carotenoids

- It are tetraterpenes.
- They are widely distributed in both plants and animals.
- They are exclusively of plant origin.
- Due to the presence of many conjugated double bonds, they are colored red or

yellow.

Example: Lycopreene, carotenes, Xanthophylls.

