Lipids part(1)

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➢Lipids: are defined as those substances from living organisms that dissolve in nonpolar solvents such as ether , chloroform and aceton but not in water.

➢Functions of lipids :

1- in cell membrane.

2-stored energy

3-plasma lipoprotein

4-protective

5-serving as hormones

Classification of lipids:

1-simple lipids:

A- fat , oil

B- wax and triglyceride

2- compound lipids

A- phospholipids:are structural components of cell membrane

(consist of glycerol+fatty acids+phosphoric acid)

B-sphingolipids: occure chiefly in the cell membrane of the brain and nervous system.

C-glycolipids

D-lipoproteins:consist of (protein +lipid group)

Lipoproteins are classified according to their density to:

A-chylomicron

B-very low density lipoproteins(VLDL)

C-low density lipoproteins(LDL)

D-high density lipoproteins(HDL)

3-derived lipids: produced from the hydrolysis of simple lipids and compound lipids.
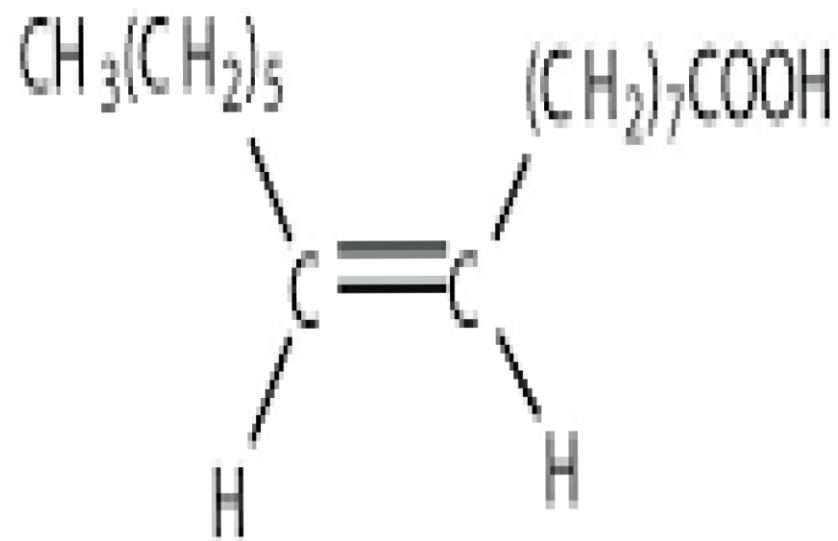
Fatty acids (FA):

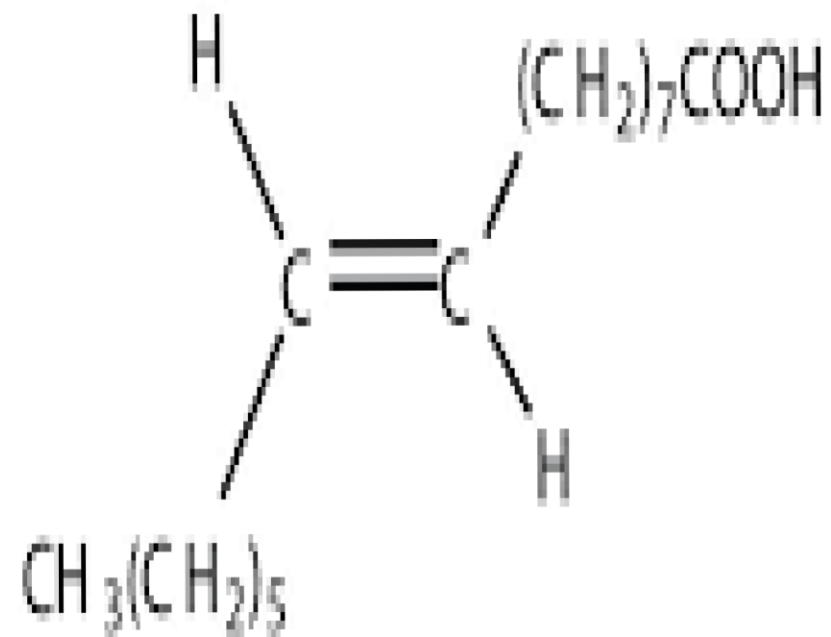They are monocarboxylic acids contain hydrocarbon chains of variable lengths.

Fatty acids that contain only {c – c} single bonds are called saturated fatty acids.

 while Fatty acids that contain one or more double bonds {c = c } are called unsaturated fatty acids and they can occure in two isomeric forms : cis and trans.

cis fatty acid

trans fatty acid

➢ Nonessential fatty acids: are fatty acids that can be synthesized

➢ Essential fatty acids: they must be obtained from the diet because mammals do not possess enzymes required to synthesize them.

➢ Free fatty acids that produced from ingestion of triglyceride by the intestine are absorbed into the blood where they bound to albumin and transpoted to the tissues that need fuel, these free fatty acids level elevated in diabetes mellitus.