

Ministry of Higher Education and
Scientific Research
University of Anbar
College of Dentistry



Practical Medical Chemistry
Class:1st stage

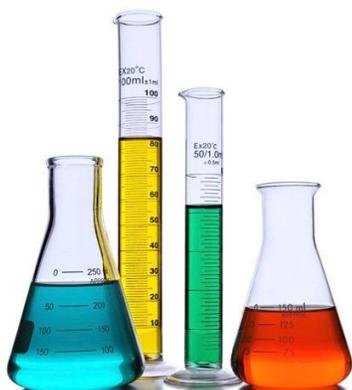
Lab.10

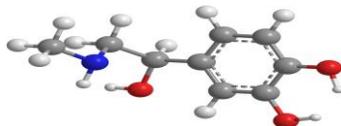
Hydrocarbons

الهيدروكربونات

By :

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Hydrocarbons

Hydrocarbons: compounds formed mainly from carbon and hydrogen atoms and other atoms. Can be subdivided into :

a. Aliphatic hydrocarbons

- 1- Saturated hydrocarbons (alkane such hexane)
- 2- Unsaturated hydrocarbons (alkene: presence of a double bonds, such propene , hexene...) and alkyne presence triple bonds such propyne , hexyne)

b. Aromatic hydrocarbons: example benzene C_6H_6 , toluene $C_6H_5CH_3$.

Solubility: the long chain of hydrocarbons and the saturated hydrocarbons are insoluble in water while unsaturated hydrocarbons are soluble:

Compound

solubility in H₂O

Hexane

insoluble

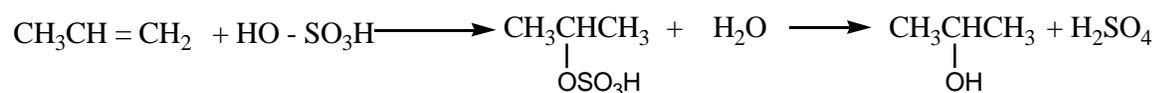
Unsaturated hydrocarbon

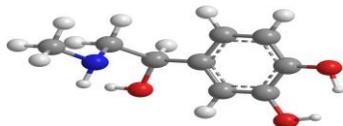
soluble

Benzene

insoluble

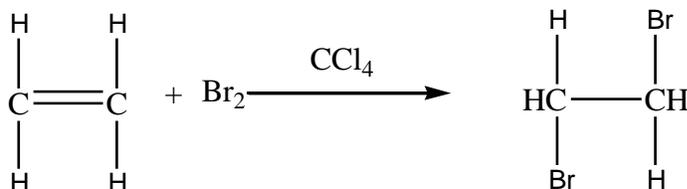
Unsaturated with presence acid to form alcohol :



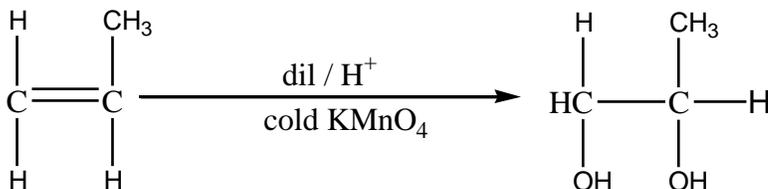
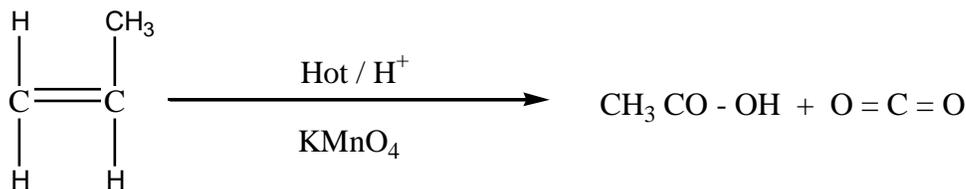


Chemical reactions:

a. Reaction of Unsaturated compounds with Br₂ / CCl₄

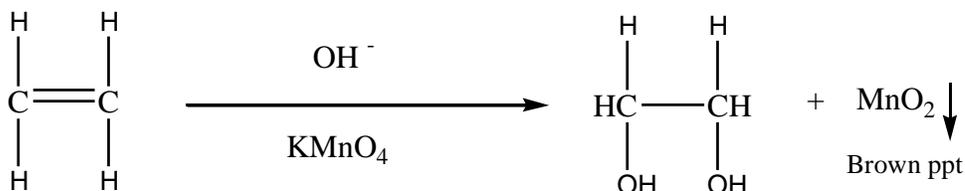


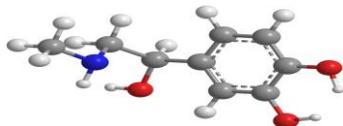
b. Oxidation reaction (Acidified potassium permanganate):



Procedure : add 10 drops of alkene in test tube then add 5 drops of 0.5 % KMnO₄ solution, add 5 drops of dilute sulphuric acid (H₂SO₄) . shake the test tube observe the decolourisation of the permanganate .

c. Reaction of Alkaline potassium permanganate (Bayer's).



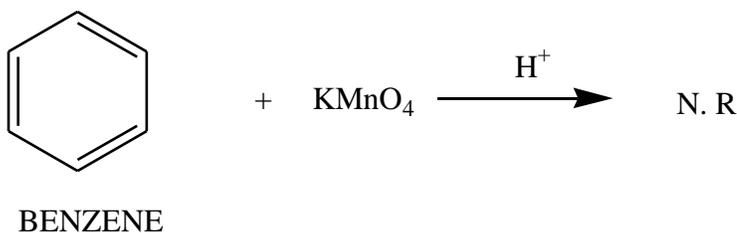
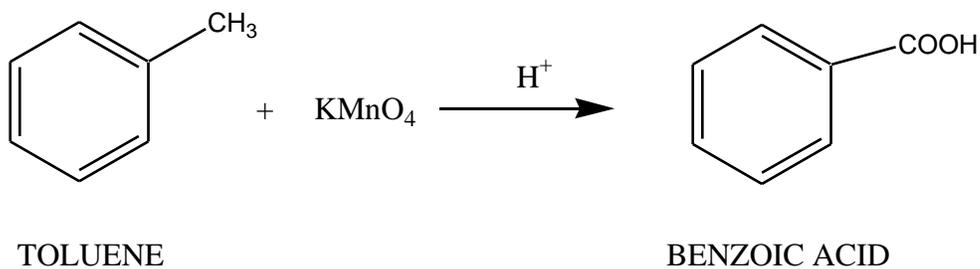


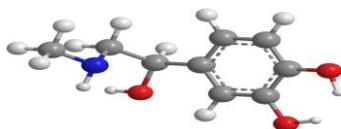
Procedure: add 10 drops of alkene in the test tube then add 5 drops of Bayer's reagent. Shake, observe the change in color of the permanganate and the formation of brown precipitate.

compound	Br ₂ / CCl ₄	KMnO ₄ / acidic H ₂ SO ₄		KMnO ₄ / basic. Na ₂ CO ₄
		Hot	Cold	
Hexane	N. R.	N. R.	N.R.	N.R
Unsaturated	react	react	react	react
Benzene	N. R.	N.R.	N. R.	N. R.

3- Aromatic hydrocarbon:

-potassium permanganate: the test with aromatic substituted compounds :





H.W.

- 1- What are the 4 types of hydrocarbons?
- 2- Is CO_2 a hydrocarbon?
- 3- Why are alkanes non-polar?