



“बेटी बचाओ, बेटी पढ़ाओ”

JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Faculty of Pharmaceutical Science

Faculty Name - JV'n Abhishek Kumar
Course - B. Pharm (1st sem)
Session - Pharmaceutical Inorganic Chemistry –
(General Methods of Preparation)

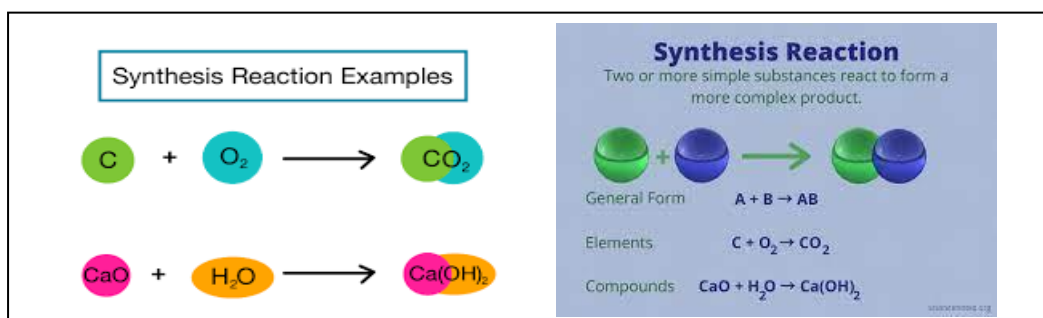
Academic Day starts with –

- Greeting with saying ‘**Namaste**’ by joining Hands together following by 2-3 Minutes Happy session, Celebrating birthday of any student of respective class and **National Anthem**

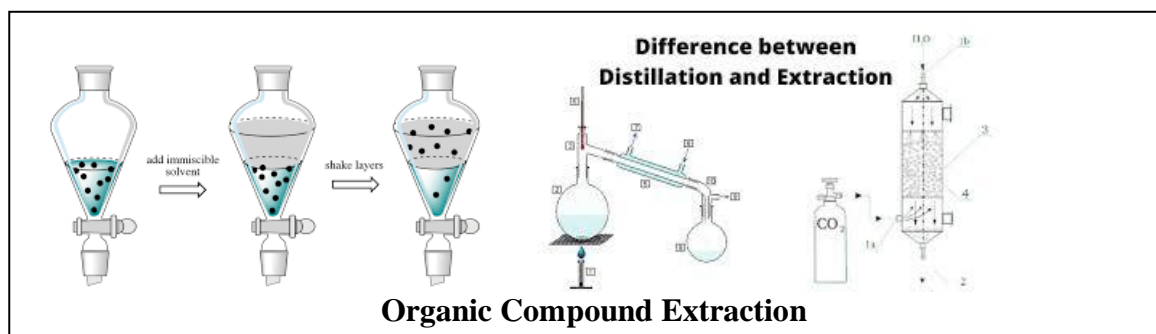
Pharmaceutical Inorganic chemistry

General methods of Preparation

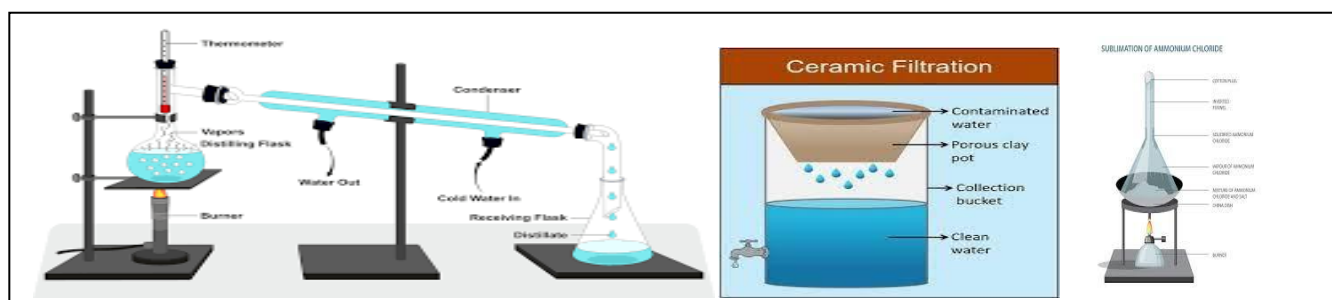
- 1. Synthesis:** Chemical reactions are used to create compounds from starting materials.



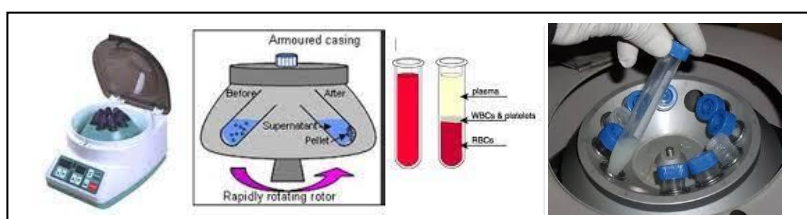
2. **Extraction:** Compounds are isolated from natural sources using solvents



3. Purification : Techniques like crystallization, distillation, and chromatography are used to separate and purify compounds.



4. **Isolation:** Compounds are separated from a mixture using techniques like filtration or centrifugation.



5. **Combination:** Compounds can be formed by combining different substances in appropriate conditions.

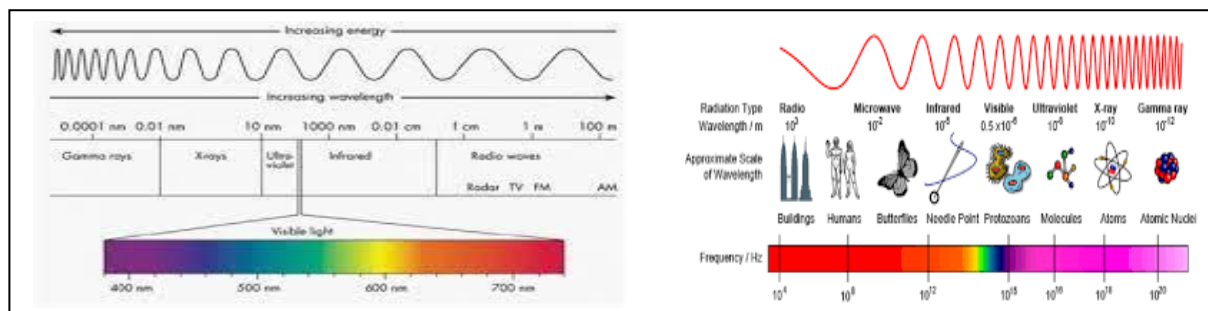
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|--|---|
| <p>Combination reaction</p> $A + B \rightarrow AB$ | (i) $2KClO_3 \xrightarrow{\text{Heat}} 2KCl + 3O_2$ |
| <p>Decomposition reaction</p> $AB \rightarrow A + B$ | (ii) $MgO + H_2O \rightarrow Mg(OH)_2$ |
| <p>Combustion reaction</p> $CH_4 + O_2 \rightarrow CO_2 + H_2O$ | (iii) $4Al + 3O_2 \rightarrow 2Al_2O_3$ |
| <p>Neutralization reaction</p> $HCl + NaOH \rightarrow H_2O + NaCl$ | (iv) $Zn + FeSO_4 \rightarrow ZnSO_4 + Fe$ |
| <p>Displacement reaction</p> $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$ | (a) (i) and (iii) (b) (iii) and (iv) |
| | (c) (ii) and (iv) (d) (ii) and (iii) |

Assay Methods

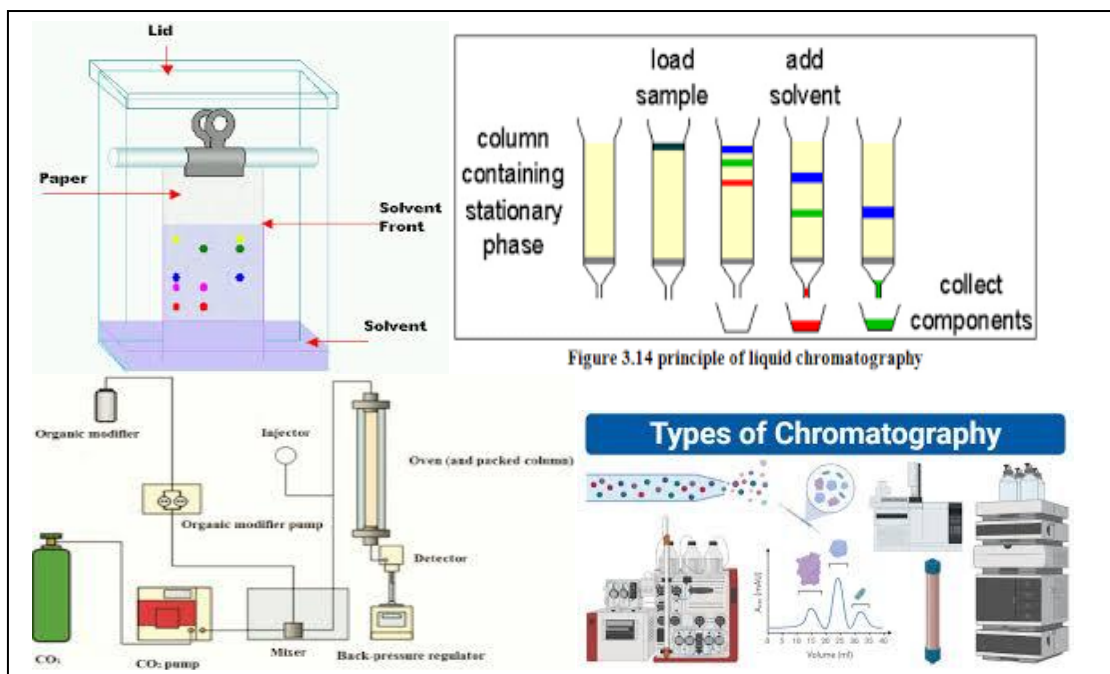
- 1. Titration :** A reagent of known concentration is added to react with the compound, and the endpoint is determined visually or instrumentally.



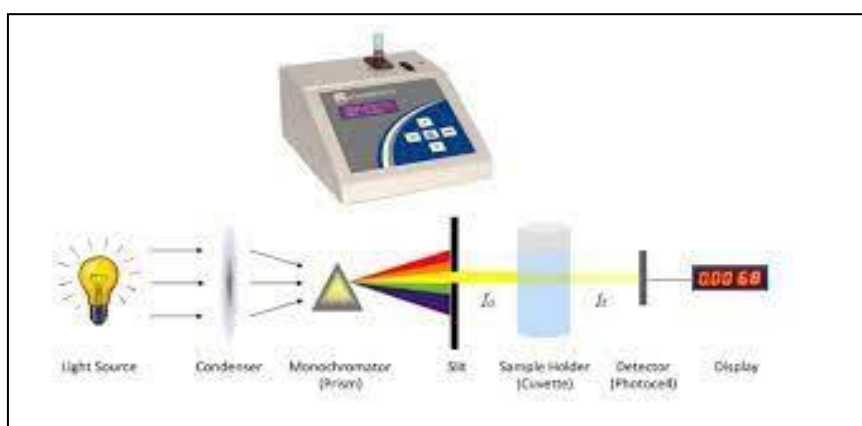
- 2. Spectroscopy:** Techniques like UV-Vis, IR, NMR, and mass spectrometry are used to analyze compounds based on their interactions with light or magnetic fields.



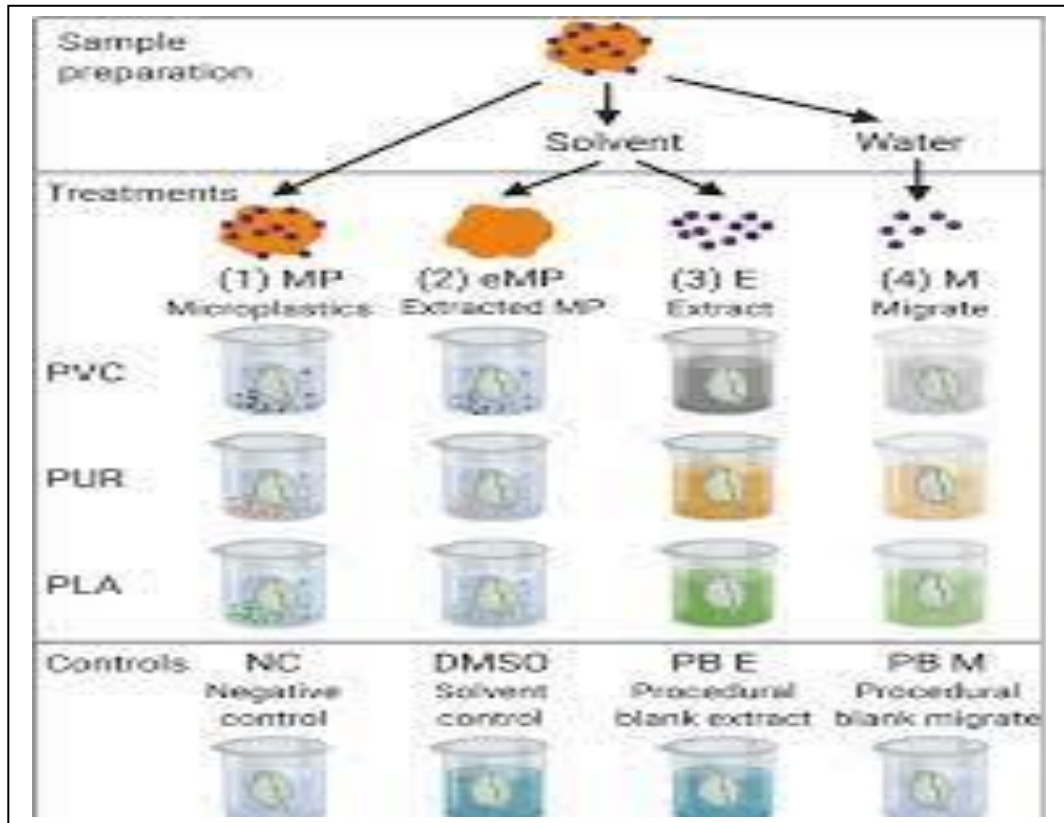
- 3. Chromatography:** HPLC, GC, TLC, and other chromatographic methods separate and quantify compounds based on their distribution between a stationary phase and a mobile phase.



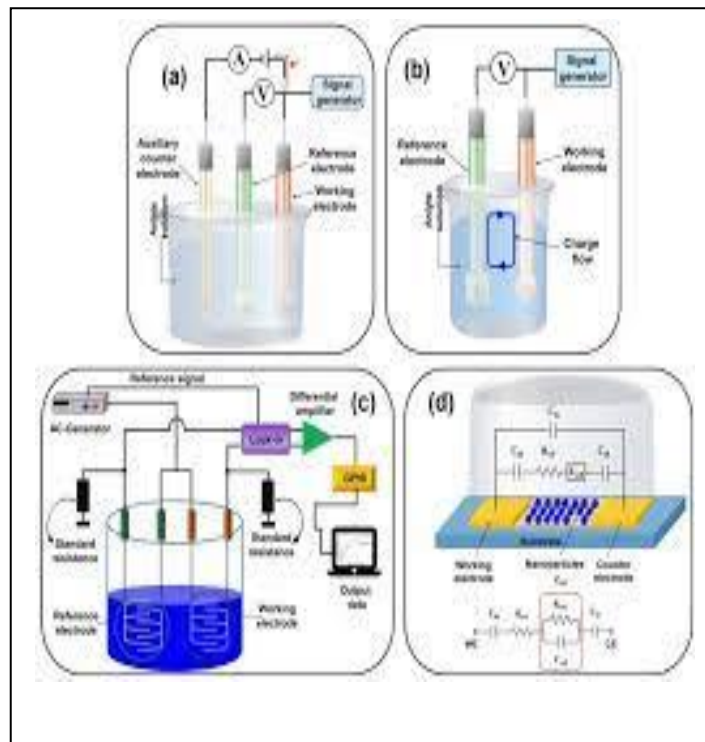
4. **Gravimetric Analysis:** The compound is precipitated and then weighed to determine its quantity.
5. **Colorimetry:** The compound's concentration is determined based on the color it imparts to a solution.



6. **Bioassays:** Biological responses (e.g., enzyme activity or cell growth) are used to determine the compound's potency.



7. Electrochemical Methods: Techniques like voltammetry or potentiometry measure the compound's electrochemical behavior



- **Next Topic-**

- Pharmaceutical Inorganic Chemistry- General Methods Of Preparation
Compounds

- **Academic Day ends with-**

National song' Vande Mataram'