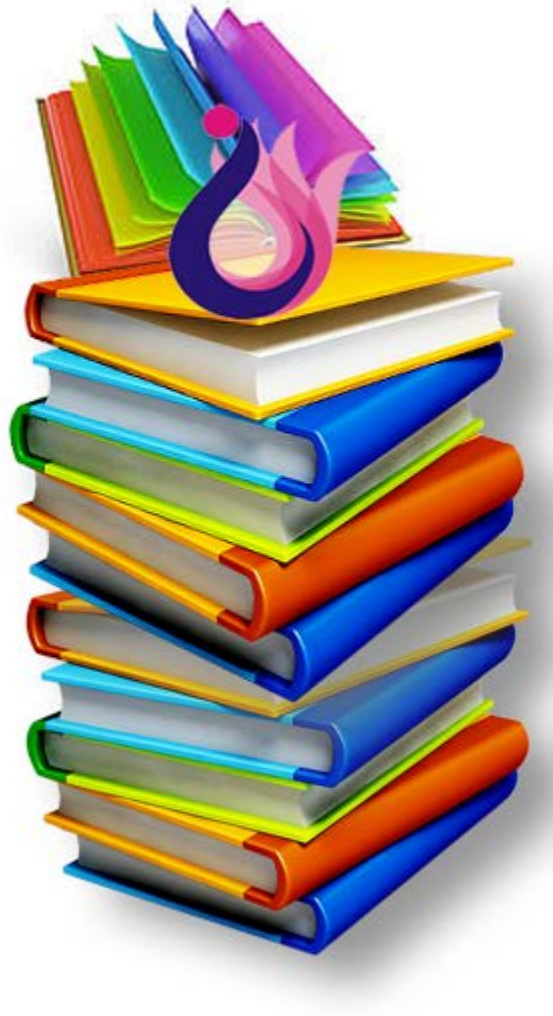
Diazotization Titration

Peter Griess in 1858



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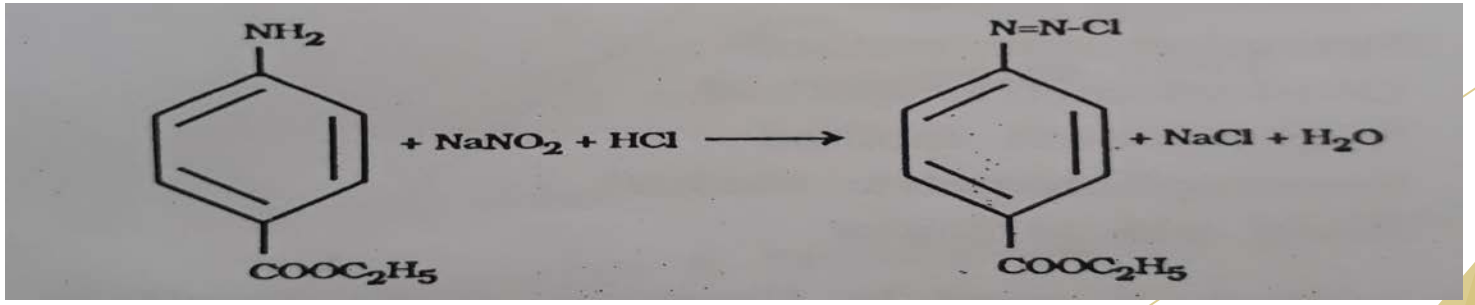
Introduction

- The process forming diazonium compound or salts its called as Diazotisation.
- The Diazotization titration are carried out for the estimation of drug containing primary aromatic amino group.
- Several drug contain either primary aromatic amino group or they can be converted to have such groups by simple reaction like hydrolysis or reduction.

- The principle involved in this method is that the primary aromatic amine present in the sample reacts with the sodium nitrite in the presence of acid such as hydrochloric acid to obtain a diazonium salt.
- The addition of sodium nitrile to hydrochloric acid couse formation of nitrous acid.
- This nitrous acid diazotize the aromatic amino group. After the end point excess nitrous acid is formed is shown by formation of blue color.
- Another example:

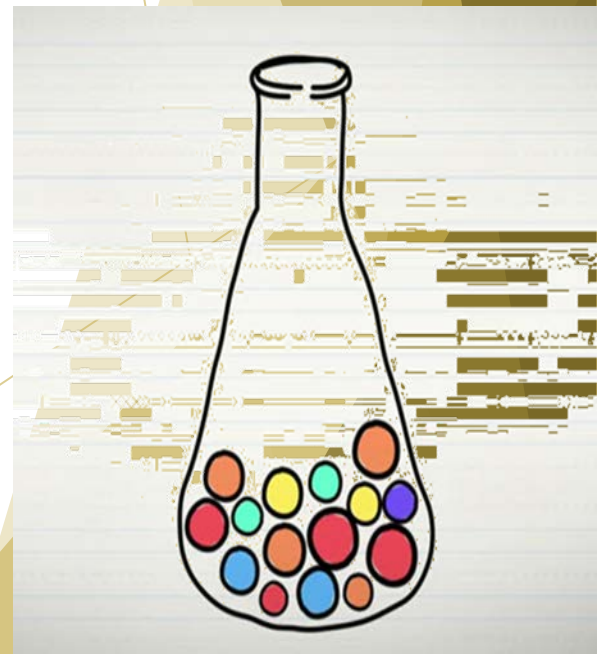


FACTORS AFFECTING THE DIAZOTIZATION

- Acid concentration.
- pH of the $NaNO_2$.
- Temperature of the reaction (should be maintained at 0–5 °C).
- Reaction time (it takes 10–15 min): the compounds react with nitrous acid at different rates based on the nature of the compound.
- Slow diazotizable groups: sulpha groups, carboxylic groups and \ nitrogen oxide group.
- Fast diazotizing groups: anilide, toluidine and aminophenol

- **Types of Diazotization Reaction**
- Direct Titration
- Reverse titration
- Special method

- Amino phenols are radially oxidized by nitrous acid to quinones.
- For such a substances the titration is carried out in the presence of copper sulphate which form diazoxide. These diazooxides are more stable.



- **Application**
- Direct titration with nitrite solution

  - Benzocaine, Dapsone, Primaquine phosphate tablet,

    Procain Hcl, Sodium amino salicylayte tablets, granules.
- Conversion to amino group by chemical reaction

  1. BY REDUCTION –

     - metronidazole

     - Secnidazole

     - Chloramphenicol

  2. Hyderolysis

     - Paracetamol (Acetyl Derivative)

     - Phthalyl Sulphathiazole (Pthyl derivative)

     - Succinyl Sulphathiazole

Thank You...!!!