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OVER VIEW OF PHARMACEUTICAL ANALYSIS

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PHARMACEUTICAL ANALYSIS may be defined as the application of analytical procedures used to determine the purity, safety, quantity and quality of drugs and chemicals.

Importance of Pharmaceutical Analysis

- **identity of the drug in the formulated product.**
- **Determination of active ingredient or additional impurities & concentrations of specified impurities.**
- **stability of the drug.**
- **rate of drug release, pka values, partition coefficients , solubility, and stability of drug from its formulation.**
- **identity and purity of pure drug that meet specification.**



TECHNIQUES OF PHARMACEUTICAL ANALYSIS

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1. Titrimetric techniques

2. Chromatographic

2.1. Thin layer chromatography

2.2. High-performance liquid chromatography (HPLC)

2.3. Gas chromatography

3. Spectroscopic techniques

3.1. Spectrophotometry

3.2. Near infrared spectroscopy (NIRS).

3.3. Nuclear magnetic resonance spectroscopy (NMRS) .

4. Electrochemical methods

5. Electrophoretic methods

6. Hyphenated techniques



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TITRIMETRIC ANALYSIS

- **Measurement of the volume of a unknown solution (analyte, titrand) with a known concentration of a reagent (titrant) .**
- **Titrimetric methods are widely used for routine analysis because they are rapid, convenient, accurate, cheap and readily automated**



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SPECTROSCOPIC TECHNIQUES

- **The use of spectroscopy in determining the chemical or physical constitution of substances- both qualitative and quantitative.**
- **Classification:- 1.Spectrophotometry 2.Near infrared spectroscopy (NIRS). 3.Nuclear magnetic resonance (NMR) 4.Fluorimetry and phosphorimetry**



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ELECTROCHEMICAL METHODS

- The study of an analyte by measuring the potential (volts) and/or current (amp) in an electrochemical cell containing the analyte.

CHROMATOGRAPHY

- A method of separating and analyzing mixtures of chemicals into individual components.
- The separation by allowing a solution or mixture to pass through an adsorbent (such as, gel, or paper) so each compound becomes adsorbed into a separate.



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THANK YOU