Identification of Purine Alkaloids

Lab.7

13-3-2024

Presented by : Assist.lect. Tiba M. Hameed



Quantitative and Qualitative Analysis of caffeine Crystals :

- **Quantitative Analysis:**
- This is done by weighing the crystals of caffeine alkaloid.

- **Qualitative Analysis:**
- The Specific Chemical Tests : The Murexide Test:
- Aim: to identify the caffeine alkaloid (purine alkaloids) from other alkaloids.
- Equipments and Reagents:
- Porcelain dish.
- Water bath.
- Potassium chlorate (KClO3).
- Conc .HCl.
- Ammonia vapor.

Procedure:

- Take few crystals of caffeine alkaloid in porcelain dish and add small amount of potassium chlorate ($KClO_3$), then add 2 drops of conc. HCl . Evaporate to dryness, then expose to ammonia vapor.

- **Result:**
- Purpule color is produced with caffeine and other purine derivatives .

The Identification of purine (caffeine) Alkaloids By Chromatography :

- By the use of thin layer chromatography (T.L.C)
- The stationary phase = Silica gel
- The mobile phase = Acetone: Water: Ammonia (90:7:3).
- The standard compound = caffeine
- Mechanism of separation = Adsorption.
- Developing = Ascending.
- Detection: by UV instrument.

Procedure:

- 1) Prepare mobile phase, and place it in the glass jar.
- 2) Cover the jar with glass lid and allow standing for 45 minutes
- before use.
- 3) Apply the sample and the standard spots on the silica gel plates, on the base line by the use of capillary tube.
- 4) Put the silica gel plate in the glass jar and allow the mobile phase to rise to about two-third the plate.
- 5) Remove the plate from the jar, dry and identified by U.V. 245 ,366 nm. Then calculate Rf values.

Caffeine crystals

