**TANNINS PART 2**

**Physicochemical Properties of Tannins:**

| **Property** | **Description** |
| --- | --- |
| **Solubility** | Soluble in water, alcohol, acetone; insoluble in non-polar solvents like chloroform. |
| **Taste** | Characteristic astringent taste. |
| **Appearance** | Amorphous powders or shiny flakes. |
| **Molecular Weight** | Typically 500–3000 Daltons. |
| **Complexation** | Can form complexes with alkaloids, gelatin, heavy metals, and proteins. |
| **Precipitation Ability** | Hydrolyzable tannins precipitate on hydrolysis, forming simpler phenols. |
| **Reaction with Iron Salts** | Blue-black or green color, depending on the type of tannin. |

**General Chemical Tests for Tannins:**

| **Test Name** | **Procedure** | **Observation** | **Inference** |
| --- | --- | --- | --- |
| **Ferric chloride test** | Add a few drops of ferric chloride to the aqueous extract of the drug. | Blue-black color (hydrolyzable), green-black (condensed). | Indicates presence of tannins. |
| **Goldbeater's skin test** | Soak a piece of goldbeater's skin in hydrochloric acid, rinse, then dip in extract, wash and treat with FeSO₄. | Brown/black coloration. | Confirms true tannins (not pseudo-tannins). |
| **Gelatin test** | Add 1% gelatin solution + NaCl to the extract. | White precipitate. | Confirms presence of tannins. |
| **Lead acetate test** | Add lead acetate solution to the extract. | White precipitate. | Presence of tannins. |
| **Matchstick test** | Boil extract with HCl, dip matchstick in it, dry, and warm. | Pink/red color on matchstick tip. | Indicates presence of catechin (condensed tannins). |
| **Alkaline reagent test** | Add NaOH to extract. | Yellow color that turns colorless on acidification. | Indicates presence of flavonoid tannins. |