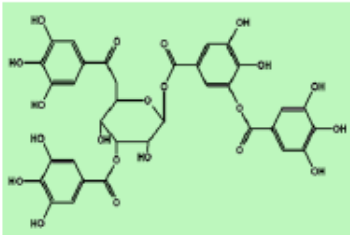

DETERMINATION OF TANNINS IN TEA



The word tannin is very old and reflects a traditional technology. "Tanning" (waterproofing and preserving) was the word used to describe the process of transforming animal hides into leather by using plant extracts from different plant parts of different plant species.

Tannins are complex phenolic compounds responsible for the sensation of astringency and are active in tanning of hide. Many food products contain tannins in their consumable forms e.g.:

- Tea, Cocoa.
- Unripe fruits (apples, cherries, strawberries, bananas)
- Walnuts
- Plant parts containing tannins include bark, wood, fruit, fruit pods, leaves, roots, and plant galls.
- Examples of plant species used to obtain tannins for tanning purposes are wattle (*Acacia* sp.), oak (*Quercus* sp.), eucalyptus (*Eucalyptus* sp.), birch (*Betula* sp.), willow (*Salix caprea*), pine (*Pinus* sp.), quebracho (*Scinopsis balansae*).

One of the most satisfactory definitions of tannins was given by Horvath (1981):

"Any phenolic compound of sufficiently high molecular weight containing sufficient hydroxyls and other suitable groups (i.e. carboxyl's) to form effectively strong complexes with protein and other macromolecules under the particular environmental conditions being studied".

Tannins can complex with:

- Proteins.
- Starch.
- Cellulose.
- Minerals.

Tannins are phenolic compounds that precipitate proteins. They are composed of a very diverse group of oligomers and polymer. There is some confusion about the terminology used to identify or classify a substance as tannin, in fact.

Astringency is the contracting or drying taste, which results from coagulation of the proteins of saliva and the mucous epithelium of the mouth, causing a reduced lubricant action.

Tannins are water-soluble so they are extracted from tea by boiling with water.

Principle:

Ferric chloride reagent gives a color with tannins under acidic conditions. The color is measured spectrophotometrically and compared with the color obtained with a standard tannins solution

Procedure:

- 1- Weigh accurately 0.5g of tea.
- 2- Add 75ml of water and boil for 30 min.
- 3- Filter in a 100ml-measuring flask and complete to volume with water.
- 4- Take 1ml of solution; add 1ml of ferric chloride reagent and 8ml of water.
- 5- The standard is prepared by adding in a tube 1ml of standard, 1ml of reagent and 8ml of water.
- 6- Read the absorbance of unknown and standard against blank at 540 nm.

