



A review on tannins

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Abstract

Tannins are polyphenolic secondary metabolites of higher plants and widely distributed in several plant species and are found in wood, bark, leaves and fruits. Tannins containing drugs precipitate proteins for the protection of inflamed surfaces of skin and treatment of burns. Ellagitannins and gallitannins are also used in dyeing, photography, refining beer and wine as well as an astringent in medicines.

Keywords: tannin, biomolecule, astringent, tannic acid, anti-oxidant effect

Introduction

Tannins are polyphenolic biomolecules, astringent with bitter taste ^[1]. These are high molecular weight phenolic compounds. These are complex organic, non-nitrogenous and non-crystalline substances. The tannin compounds are widely distributed in many plant species, commonly found in both gymnosperms and angiosperms ^[2]. Tannic acid, Gallic acid, Catechins, Chlorogenic acid ^[3] and Phloroglucino are belongs to tannins and plays an important role in the ripening of the fruit. Tannins are considered the sources of energy through their oxygen content. They serve as a protective to the plant. In the food industry tannins are used to clarify wine, beer, and fruit juices ^[4]. Other industrial uses of tannins include textile dyes and as coagulants in rubber production. Tannins also

have important nutraceutical properties and used in cosmetics for anti-aging skin care and to combat hair loss ^[5]. The antimicrobial property of tannic acid can also be used in food processing to increase the shelf-life of certain foods ^[6].

Physical Properties

Color: Reddish brown and Dark brown

Solubility: Soluble in water, acetone, glycerols, and alcohol.

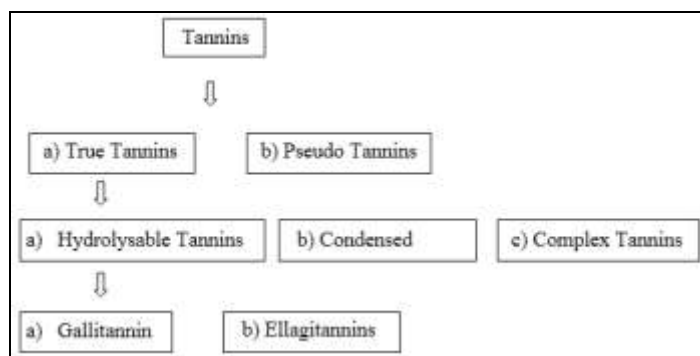
State: non-crystalline

Taste: Bitter and Puckering taste

Chemical Properties

Precipitation, astringent, reaction with salts, carcinogenicity, anti-oxidizing properties.

Classification



Identification test

Table 1

Qualitative Test	Quantitative test
Gelatin test	Folin – Denis reagent method
Goldbeater's skin test	Copper acetate method
Phenazone test	Iodometric method
Ferric chloride test	Agglutination method

Bromine water test

Hide powder method

Medicinal and Biological Properties

Tannins containing drugs precipitate proteins for the protection of inflamed surfaces of skin and treatment of burns [7]. These act as anti-diarrheals and anti-oxidant effect, anti-viral, anti-bacterial, anti-inflammatory and anti-parasitic effects. It prevents cancer by preventing cellular damage. It can also be effective in protecting the kidneys. Tannins have been used for immediate relief of dysentery, skin ulcers [8], sore throats, fatigue, hemorrhaging and diarrhea.

Economic Properties

It is used in the manufacture of inks. These are used in the laboratory as astringents for the detection of gelatin, proteins and alkaloids [9]. Tannins are used in the tanning process of animal hides to convert them into leather. It's used in oils, dyes, fibers, glues, waxes, perfumes, drugs and flavoring agents. Various tannins produce different colours with ferric chloride like black, blue, green. These are used as a tanning agent in dyeing industries and putrefying agents in leather industries [10].

Conclusion

Tannins are polyphenolic secondary metabolites of higher plants and widely distributed in several plant species and are found in wood, bark, leaves and fruits. Tannins containing drugs precipitate proteins for the protection of inflamed surfaces of skin and treatment of burns. Ellagitannins and gallitannins are also used in dyeing, photography, refining beer and wine as well as an astringent in medicines.

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