BIBLIOGRAPHY

OF

TANNIC ACID

BY

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A THESIS SUBMITTED FOR THE DEGREE OF

BACHELOR OF SCIENCE

(PHARMACY)

UNIVERSITY OF WISCONSIN

1939

Deyeux, N. 1793

Memoire Sun La Moix de Galle, Contenant son Analyse, celle de l'Acide Gallique, E un Examen particulier du précipité opéré par ces deux substances lorsqu'on les mîle avec le sulfate de fér.

Ann. de Chem. et de Phys., sl, V.17, p.3. (Nat. Dispens., 3ed., p.103; Ibid., 5ed., p.106; King's Am. Dispens., 18ed., 3 rev., V.1, p.94.)

Proved that tannin was a definite and characteristic compound.

1803

(An Advertisement for Tanner's Bark.)

Frederick-Town (Md.) Harald, 1, No. 46, p.3, c.4, April 30, 1803.

Wanted
One Hundred Loads of
Tanner's Bark
for which the highest price will be
given in cash by
John and Issac Mantz

April 30

Willdenow, C.L. 1809

Beschreibung des Baumes, der die in den Handel kommende Gallápfel tragt.

Jahrb. f. Pharm., 14, p. 53.

Describes the various trees yielding the galls used in commerce including Quercus infectoria, Quercus Robur, and Quercus pedunculata and gives a colored plate of Quercus infectoria at the end of the volume.

Pelouze, J. 1834

Uber die Zusammensetzung der Gerbsäure

Ann. der chemie., 10 p.210 (Nat. Dispens., 1ed., p.85; Ibid., 2ed., p.87; Ibid., 3ed., p. 103; Ibid., 5ed., p.106.)

Noticed that water is necessary in the preparation of tannin, for when powdered nutgalls were percolated with commercial ether containing water the percolate separated into 2 slightly colored layers, the lower one which is a very concentrated solution of tannin.

Wood, G.B. & Bache, F. 1834

Tannin

Dispens., U.S.A., ~~Ibid.~~, 2ed., p.653; Ibid., 3ed., p.1105; Ibid., 4ed., p.1177; Ibid., 5ed., p.800; Ibid., 6ed., p.800; Ibid., 7ed., p.800; Ibid., 8ed., p.800; Ibid., 9ed., p.820; Ibid., 10ed., p.819; Ibid., 11ed., p.860; Ibid., 12ed., p.938; Ibid., 13ed., p.976; Ibid., 14ed., p.1016; Ibid., 15ed., p.114; Ibid., 16ed., p.115; Ibid., 17ed., p.99; Ibid., 18ed., p.98; Ibid., 19ed., p.79; Ibid., 20ed., p.75; Ibid., 21ed., p.61; Ibid., 22ed., p.57.

Term tannin is discussed and divided into 2 groups according to the color produced by iron salts; preparation by a method recommended by Berzelius; physical and chemical properties discussed; used in medicine for hemorrhages and diarrhea.

Henry, O. 1835

De l'action du tannin sur les bases salifiables organiques, et applications qui en dérivent.

Journ. de pharm. et de chim., 21, p.213. (Am. Journ. Pharm., 7, p.226.)

Discusses the action of Tannic Acid on various organic salifiable bases (alkaloids).

Beral, P. 1840

Note Sur Le Tannin.

Théorie de l'extraction du tannin par l' ether

Journ. de Chem. Med., s.2, V.5, p.225. (Am. Journ. Pharm., 12, p.232.)

Gives a method for the extraction of tannic with ether.

Duval, J. 1841

Note sur le préparation du Tannin.

Ann. de Chim. et de Phys., s.2, V.74, p.222. (Am. Journ. Pharm., 13, p.171.)

Gives a method of preparing tannin by the use of ether and alcohol.

Druitt, R. 1844

On the Uses of Pure Tannin

Med. & Surg. Journ., 8, p.431. (Am. Journ. Med. Sci., U.S.A., p.162; Dispens. U.S.A., 8ed., p.803; 9ed., p.823; 10ed., p.822.)

Gives directions and formula for using Tannic Acid as a skin wash.

Weppen, F. 1846

Über die Präcipitation verschiedener organischer und unorganischer Stoffe durch thienische Kohle.

Ann. der Chemie, 55, p.241. (Am. Journ. Pharm., 18, p.204.)

Describes the action of animal charcoal with tannic acid, using it to prevent the acid from reacting with the salts of iron.

Kopp, H. 1847

(Acidum Tannicum).

Gesch. der Chem., V.4, p.368.

Tannic acid was first recognized as an individual compound by Deyeux in 1793 and later on by Seguin in 1795.

Wetherill, C. 1848

Rechersches sur la transformation de l'acide tannique en acide Gallique.

Journ. de Pharm., et de Chim., 45, p.107. (Chem Gaz., 5, p.483; Am. Journ. Pharm., 20, p.112.)

Describes a method for converting tannic acid into gallic acid.

Wöhler, F. & Frerichs, F. T. 1848

Über die Veränderungen, welche namentlich organische Stoffe die ihrem Übergang in den Harn erleiden.

Ann. der Chem., 65, p.335. (Chem. Gaz., 6, p.231; Dispens. U.S.A., 8ed., p.803; Journ. of Prakt. Chem., 44, p.60; Gottigen Nachrichten, 1848, p.65.; Disp. U.S.A., Ibid., 9ed., p.823; Ibid., 10ed., p.822; Ibid., 11ed., p.864; Ibid., 12ed., p.942; Ibid., 13ed., p.981; Ibid., 14ed., p.1020; Ibid., 15ed., p.118; Ibid., 16ed., p.119; Ibid., 17ed., p.102; Ibid., 18ed., p.102.)

Reports the results observed when Tannic Acid was administered to a dog.

Hirion, F. 1850

Tannin (de la solution concentrée de) dans les affections de l'oeil.

Journ. de Pharm. et de Chem., 18, p.449; (Disp. U.S.A., 9ed., p.823; Ibid., 10ed., p.822; Ibid., 11ed., p.864; Ibid., 12ed., p.942; Ibid., 13ed., p.980; Ibid., 14ed., p.1029;

Gives directions and formulas for using Tannic acid as an application in opthalmic affections.

Debanque, _____ 1852

De l'iode rendu soluble dans l'eau.

Journ. de Pharm., et de Chim., 53, p.34. (Am. Journ. Pharm., 24, p.171.)

Iodine is rendered soluble in ~~ley~~ Syrup of Orange peel to which Tannin has been added.

King, J. 1852

Tannin.

Am. Dispens., 1ed., p.21; Ibid., 6ed., p.57; Ibid., 8ed., p.59; Ibid., 10ed., p.59; Ibid., 15ed., p.59; Ibid., 16ed., p.59; Ibid., 18ed., p.94.

Tannic acid is discussed as to its history, method of preparation, and physical and chemical properties.

Lepage, P.H. 1853

Du Chloroforme Comme Agent Dissolvant.

Journ. de Chim. Med., s3, V.7, p.450. (Am. Journ. Pharm., 24, p.148.)

Discusses the solubility of tannin in chloroform.

Robiquet, E. 1853

Recherches sur la fermentation gallique.

Journ. de Pharm. et de Chim., 23, p.246. (Disp. U.S.A., 11ed., p.862; Ibid., 12ed., p.940; Ibid., 13ed., p.978; Ibid., 14ed., p.1017; Ibid., 15ed., p.115;

Describes the action of pectase as a ferment on a solution of Tannic Acid.

Sandrack, B. 1853

Uber die Bereitung der Gerbsäure.

Arch. der Pharm., 22, p.256. (Am. Dispens., 6ed., p.57; Ibid., 8ed., p.59; Ibid., 10ed., p.59; Ibid., 15ed., p.59; Ibid., 16ed., p.59; Am. Journ. Pharm., 25, p.446.)

Discusses and describes his method of preparing Tannic acid.

Calvert, F.C. 1854

On the Action of Gallic and Tannic Acids on Iron and Alumina Mordants.

British Assoc. Adv. Sci. Reports, 24, p.65. (Am. Journ. Pharm., 27, p.82; Chem. Gaz., 12, p.440.)

Found that tannic acid produced a black dye with

iron mardants, while gallic acid produces no black dye with iron. Gallic acid dissolves the hydrate of alumina and has the property of separating alumina mardants from the cloth on which they are fixed,

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Cap, A. & Garot, N. 1854

Deuxiéme mimaire sur la glycerine et ses applications à l'art medical: Tannin et tannates.

Journ. de Pharm., et de Chim., 59, p.89. (Am. Journ. Pharm., 27, p.159.)

Gives method used to determine the solubility of tannic acid in glycerin.

Pettenkoffer, M. 1854

Vorläufige Mittheilung über das Vorkammen der Gerbsäure in den Holzplanzen und deren Zusammenhang mit der Holzbeldung.

Neues Repert, 3, p.74. (Chem. Gaz., 12, p.369; Am. Journ. Pharm., 27, p.53.)

Describes the occurrence of tannic acids in woody plants and discusses their connection in the formation of wood.

Roubiquet, E. 1854

Note sur la constitution moleculaire du tannin et de l'acide gallique.

Journ. de Pharm. et de Chem., 26, p.31. (Disp. U.S.A., 11ed., p.863; Ibid., 12ed., p.941; Ibid., 13ed., p.979; Ibid., 14ed., p.1018; Ibid., 15ed., p.117; Am. Journ. Pharm., 27, p.51;

When tannic acid is transformed to gallic acid a molecular change results.

Socquet, M. & Guilliermond, A. 1854

Sur une nouvelle combinaison de l'iode.

Journ. de Pharm. et de Chem., 26, p.280. (Disp. U.S.A., 11ed., p.863; Ibid., 12ed., p.941; Ibid., 13ed., p.979; Ibid., 14ed., p.1018; Ibid., 15ed., p.116; Ibid., 16ed., p.118; Ibid., 17ed., p.101; Ibid., 18ed., p.101; Ibid., 19ed., p.81; Ibid., 20ed., p.77.)

An iodized solution of Tannic acid has the ability to dissolve and hold in permanent solution more iodine.

Strechen, A. 1854

Sur la composition de l'acide tannique

Comp. Rond., 39, p.49. (Chem. Gaz., 12, p.370; Am. Journ.

Pharm., 27, p.49.) Disp. U.S.A., 11ed., p.862;

Discusses the molecular composition of tannic acid and the various tests he used.

Williams, J. 1854

On the Use of Benzole in the Preparation of Vegetable Alkaloids.

Chemist, 3ed., 1, p.142. (Am. Journ. Pharm., 26, p.342.)

In addition to isolating several alkaloids prepared by using benzole he also gives his method for preparing tannin from galls using benzine as the solvent.

Copney, W. 1855

Nitrate of Silver and Tannin in Pills.

Pharm. Journ., 15, p.65. (Am. Journ. Pharm., 27, p.413.)

Discusses the use and preparation of nitrate of silver and tannic acid in pills.

Calvert, F. Crace 1856

Sur la conversion de l'acide gallique en acide tannique dans les extracts de matiere tannate.

Journ. de Pharm. et de Chim., 63, p.31. (Am. Journ. Pharm., 28, p.455.)

Discusses the conversion of tannic into gallic acid in the extracts of tanning substances.

Kümmel, F. 1856

Ueber Entfärbung des Tannins.

Arch. der Pharm., 132, p.90. (Pharm. Journ., 15, p.120; Am. Journ. Pharm., 28, p.114.)

An aqueous solution of tannin may be decolorized if passed through animal charcoal.

Paul, B.H. 1857

Occurrence of Tannic Acid in Plants.

Pharm. Journ., 17, p.74. (Am. Journ. Pharm., 29, p.554.)

Discusses the occurrence of tannic acid in various parts of a number of plants.

Monier, E. 1858

Memoire sur la détermination du tannin des végétaux par les méthodes volumetriques.

Compt. Rondu., 46, p.577. (Nat. Dispens., 3ed., p.105; Proc. Am. Pharm. Assoc., 26, p.553)

Titrated tannin with a standardized potassium permanganate solution until a permanent red color was produced to estimate tannin.

Garnier, P. 1859

Du Tannin A Haute Dose Dans L'Anasarque Albumineuse.

Arch. Gen., s2, V.5, p.18; Dispens. U.S.A., 12ed., p.942; Ibid., 13ed., p.980.)

The use of tannic acid for dropsy in Bright's disease and the effects of a very large dose are discussed.

Hiller, A. 1859

Natron Tannicum.

Zeitsch. klin. Med., 6, p.489; (Nat. Dispens., 3ed., p.106; Ibid., 5ed., p.109.)

Tested tannate of soda in connection with albuminaria.

Luboldt, R. 1859

Über das Verhalten der Gerbsäure gegen Aether und Wasser.

Journ. f. Prak. Chem., 77, p.357, (Proc. Am. Pharm. Assoc., 10, p.158.)

States the 3 strata obtained with ether, tannin and water are 1. a solution of ether in hydrated tannin, 2. hydrated tannin in water containing some ether and 3. hydrated tannin in ether containing some water.

Müller, G. 1859

Quantitative Bestimmung des Gerbstoffgehalts in gerbstoffhaltigen Körpern, nach der prämerten reisschrift des Apotheker's Gustav Müller in Berlin.

Dingler's Polyt. Journ., 151, p.69. (Am. Journ. Pharm., 31, p.427; Nat. Dispens., 3ed., p.104.)

In the estimation of tannin, he recommends the use of alum with gelatin.

Becquerel, A 1860

Crayons cylindriques au tannin contre les maladies utérus

Pharm. Journ., 37, p.128. Disp. U.S.A., 12ed., p.942; Ibid., 13ed., p.980; Ibid., 14ed., p.1020; Ibid., 15ed., p.118.

The manner of administering Tannic Acid in diseases of the uterus is discussed.

Bolley, P. 1860

Das Verhalten der Galläpfelgerbsäure gegen Aether,--ein Mittel zum Nachweis eines Wassergehalts des letzteren.

Ann. den Chem., 115, p.63 (Pharm. Journ., 20, p.483; Am. Journ. Pharm., 33, p.219; Am. Drug. Circ., 5, p.106; Proc. Am. Pharm. Assoc., 10, p.158.)

Reports on the results of experiments on the behavior of tannin with ether in order to determine the water content of ether.

Kurzak,_____. 1860

Das Tannin als Gegenmittel des Strychnins.

Zeits. d. Aerzte zu Wein., 1860, p.160 (Pharm. Journ., 20, p.227; Proc. Am. Pharm. Assoc., 10, p.135.)

Considers tannic acid the most reliable antidote for strychnia.

Lubolt, R. 1860

Action du tannin sur l'ether et l'eau.

Journ. de Pharm. et de Chim., 70, p.155 (Am. Journ. Pharm., 32, p.322.)

Tannin has a great affinity for water and then when it has taken on as much as it can, dissolves in its own weight in ether forming a syrupy liquid. This substance is not affected by ether, but if enough water is added, the tannin forms a viscous mass with the 2 liquids.

Patze, _____. 1860

(Tannin in Poisoning by Stramonium)

Med. and Surg. Rep., 6, p.___. (Proc. Am. Pharm. Assoc., 10, p.135; Am. Drug. Circ., 4, p.315.)

(Used tannic acid in treating cases of poisoning caused by stramonium and solanum nigrum.)

Scoville, S. S. 1861

Tannic Acid as a Local Remedy in Diptheria.

Ohio Med. and Surg. Journ., 13, p.369. (Proc. Am. Pharm. Assoc., 10, p.135; Am. Drug. Circ., 5, pp. 113 and 190.

Used a solution of tannic acid, 10 to 20 grains to the ounce of water, in treating certain cases of diptheria.

Calvert, F. 1862

On Some Applications of Carbolic Acid, or Hydrate of Oxide of Phenyle.

Pharm. Journ., 21, p.319. (Am. Journ. Pharm. 34, p.161.)

Recommends use of carbolic acid as a preservative of tannin.

Graham, T. 1862

Diffusion liquide appliquée à l'analyse.

Journ. de Pharm. et de Chim., 73, p.196. (Am. Journ. Pharm., 34, p.315.)

Gives results of the dialysis of gallo-tannic acid.

Marriage, J. H. 1862

A Process for Estimating Tannic Acid in Galls.

Pharm. Journ., 21, p.509. (Am. Journ. Pharm., 34, p.429.)

Discusses his method for estimating tannic acid in galls using ammonio-sulfate of copper.

Stenhouse, J. 1862

On Some Varieties of Tannin

Pharm. Journ., 21, p.329. (Am. Journ. Pharm., 34, p.252.)

Discusses a number of varieties of tannin and their distinguishing properties.

Wagner, R. 1862

Sur l'huile et le tannin des pepins de raisin.

Journ. de Pharm. et de Chim., 73, p.431. (Am. Journ. Pharm., 34, p.89.)

Discusses grape seed as a source of tannic acid.

Leriche, _____. 1863

Du Tannin: De Son Emploi en Médecine comme succédané du Quinquina.

Journ. de Chim. Med., s4, V.9, p.635. (Proc. Am. Pharm. Assoc., 12, p.126; Am. Journ. Pharm., 35, p.512; Am. Drug. Cir., 8, p.89.)

Discusses the use of tannin as a substitute for Cinchona as an anti-periodic and a febrifuge.

Wilderstein, R. 1863

Zur Werthbestimmung gerbsäurehaltigen Materialien.

Zeit. Anal. Chem., 2, p.137 (Nat. Dispens., 3ed., p.105.)

(Used the depth of color produced by tannin on a standard solution of ferric citrate as a method of estimating the amount of tannin.)

Gerland, D. W. 1864

Quantitative Estimation of Tannin.

Chem. News, 12, p154. (Zeit. Anal. Chem., 2, p.419; Am. Journ. Pharm., 35, p.521; Proc. Am. Pharm. Assoc., 12, p.179.)

Estimated tannic acid in vegetable matters by using a standard solution of tartar emetic as a precipitant.

Mittenzwey, M. 1864

Beitrag zur volumetrischen Bestimmung der Gerbsäure, Gallussäure, sowie des Eisens, Mangans u.s.w.

Journ. Prakt. Chemie, 91, p.81. (Am. Journ. Pharm., 36, p.315; Proc. Am. Pharm. Assoc., 26, p.553.)

Gives a volumetric estimation of tannic acid by absorption, using oxygen.

5, p.455; (Nat. Dispens., 3ed., p.104.)

In the estimation of tannin, used ammoniun chloride when precipitating with gelatin.

Skey, W. 1866

(Tannin from Bituminous Coal)

Chem. News, 14, p. ____. (Proc. Am. Ph. Assoc., 15, p.150.

Observed, that when bituminous coal or lignite is heated with nitric acid, a dark brown substance is left on evaporation and a large portion of which is soluble in water. The water-soluble portion has a bitter and somewhat astringent taste and is readily precipitated by gelatine and albumen; soluble in alcohol, ether, and caustic lyes.

Wagner, R. 1866

Beitrage zur Kentniss und zur quantitativen Bestimmung der Gerbsauren.

Zeit. Anal. Chem., 5, p.1. (Dingler's Polyt. Journ., 183, p.227; Nat. Dispens., 3ed., p.104.)

In the estimation of tannin, recommends precipitation with alkaloids.

Wagner, R. 1866

Sur les différentes espèces de tannin et leur dosage quantitatif.

Bulle. Soc. Chim., 6, p.461. (Disp. U.S.A., 15ed., p.116; Ibid 16ed., p.117; Ibid., 17ed., p.100; Ibid., 18ed., p.100; Ibid., 19ed., p.80; Ibid., 20ed., p.76; Proc. Am. Ph. Assoc., 17, p.251; Jour. f. Prakt. Chemie, 21, p.595.)

Divides tannin into 2 classes, pathological and physiological, as to source.

Watts, J. 1866

A Critical Examination of the Various Published Processes for the Estimation of Tannin.

Pharm. Journ. 8, p.515, (Proc. Am. Pharm. Assoc., 15, p.237.) Yrbk. Brit. Pharm. Conf., 6, p.67.

Discusses several processes for the estimation of tannin including Monier's Process which uses potassium permanganate in the reaction; Commaile's Process which uses iodic and hydrocyanic acids; Handtke's Process which is a volumetric one and uses peracetate of iron to precipitate the tannin.

Adolphus, J. 1867

Glycerine

Med. and Surg. Rep., 16, p.26. (Am Journ. Pharm., 39, p.150.)

Reports the solubility of tannic acid in glycerin.

Maisch, J. M. 1867

Pharmacopoea Helvetica

Am. Journ. Pharm., 39, p.315.

Among the articles contained in the Swiss Pharmacopoea, discusses the use of ether and alcohol in the preparation of tannic acid.

Richardson, B. W. 1867

("Styptic Colloid". A New Styptic and Adhesive Fluid.)

Dental Cosmos, June 1867, p.___. (Am. Journ. Pharm., 39, p.367; Disp. U.S.A., 13ed., p.981; Ibid., 14ed., p.1020.)

(Describes a "styptic colloid" made by saturating ether with tannin and a colloidal substance as xyloidin or gun cotton. A little tincture of benzoin is added for an agreeable odor. This preparation can be applied with a brush and when in contact with the body, the ether evaporates and leaves tannin and gun cotton. This is a good dressing for wounds or burns.)

Van Tieghem, P. 1867

Sur la fermentation gallique.

Compt. Rend., 65, p.1091. (Proc. Am. Pharm. Assoc., 16, p.249; Zeit. Anal. Chem., 4, p.222.)

Transformation of tannic acid into gallic acid is not due to pre-existence of a soluble ferment. Tannic acid does not undergo change by simple contact with air. For tannic acid to undergo metamorphosis a development of a species of fungus is essential.

Vogel, A. Jr. 1867

Zur Bestimmung der Gerbsäure durch Leimlösung.

Neues Rep., 16, p.66. (Proc. Am. Pharm. Assoc., 15, p.237.)

A solution of glue, chlorhydric acid, and zinc sulphate is used in a volumetric determination of tannic acid.

Hereman, S. 1868

Scytodelphicum.

Paxton's Botanical Dictionary, new ed., p.510.

The following generic names have the same root word as Scytodelphicum, an early name for Tannic acid:

Seythymenia Agardh

Seytonema Agardh

Seytosiphon Agardh

seytos--leather

Bowman, H. 1869

Quantitative determination of the amount of tannin in various vegetable astringents.

Am. Journ. Pharm., 41, p.193. (Proc. Am. Pharm. Assoc., 17, p.252.)

Gives a quantitative method for determining the amount of tannin in various astringent vegetable drugs.

Schmidt, E. 1869

Uber Acidum tannicum und dessen Bereitungweise aus chinesichen Galläpfeln.

Arch. den Pharm., 184, p.213. (Proc. Am. Pharm. Assoc., 17, p.251.)

Chinese galls yield about 65% of pure white tannic acid obtained by maceration of the powdered galls with an ether-alcoholic solution, and then expressing the marc Distill the liquid from a retort in which the liquid is mixed with water. Evaporate the residual watery solution to dryness, redissolve it in one-half its weight of water, and heat on a steam bath and then cool.

Deinz, _____. 1870

Purification of Tannin

Drug. Circ., 14, p.162. (Proc. Am. Pharm. Assoc., 19, p.222.)

To free commercial tannin from the greenish resin which causes the peculiar odor, add to a solution of tannin in hot water some ether and shake vigorously. The mixture becomes clear after standing a few hours. Filter, and evaporate filtrate to dryness. The tannin treated so is colorless and forms a perfectly clear solution in water.

Hennig, R. 1870

Ein billiges gerbsäurematerial in Stelle der Galläpfel.

Pharm. Centrahl., 10, p.370. (Am. Journ. Pharm. 42, p.318.)

Recommends the use of Myrobalans for the preparation of tannin instead of nutgall, as the former is much cheaper.

Klever, J. W. 1870

Das Glycerin seit seiner Entdeckung, enhaltend das Geschichtliche, das Vorkommen, die Dorstellung, Prüfung und seine Verwendung.

Pharm. Zeits. f. Russl., 8, p.213. (Jahrb. f. Pharm., 31,

p.315; Am. Journ. Pharm., 42, p.222.)

In addition to the history of glycerin discusses the solubility of tannin in glycerin.

Rothe, O. 1870

Uber die Dorstellung des Tannins

Arch. der Pharm., 192, p.232. (Am. Journ. Pharm., 37, p.53; Dispens. U.S.A., 19ed., p.81; Ibid., 20ed., p.76; Proc. Am. Pharm. Assoc., 19, p.221; Yrbk. Brit. Pharm. Conf., 8, p.265.)

Points the advantages of his method of preparing tannin.

Schuster, _____. 1870

Treatment of Gonorrhoea with Tannin and Glycerin.

Lancet, 1870, V.2, p.516. (Pharm. Journ., 30, p.313; Proc. Am. Pharm. Assoc., 19, p.167; Yrbk. Brit. Pharm. Conf., 8, p.430.)

Proposed the use of tannin mixed with glycerin, as a substitute for caustic injections in the treatment of gonorrhea.

Griessmayer, V. 1871

Uber das Verhalten von Stäcke und Dextrin gegen Jod und Gerbsäure.

Ann. den Chem., 120, p.40. (Journ. Chem. Soc., 25, p.72; Yrbk. Brit. Pharm. Conf. 9, p.119.)

The addition of an excess of tannic acid to an iodine solution will discolor the latter. The tannic acid will also decolorize an iodized starch solution.

Neubauer, C. 1871

Über die quantitativen Bestimmung der Gerbstoffsgehalts der Eichenrinde.

Zeitschrift Anal. Chem., 10, p.1. (Nat. Dispens., 3ed., p.105.)

Showed that animal charcoal removes tannic and gallic acid completely from solutions but not pectin.

Rother, R. 1871

Tannin and Glycerin.

The Pharmacist, 4, p.249. (Am. Journ. Pharm., 44, p.74; Proc. Am. Pharm. Assoc., 21, p.133; Yrbk. Brit. Pharm. Conf. 9, p.332.)

Suggests as a convenient way for dispensing tannin. A solution of tannin in water, glycerin, and alcohol. The alcohol and water and tannin are heated until the tannin is dissolved and then the glycerin added. This forms a permanent solution.

Tessier, W. H. 1871

Des solutés iodo-tanniques et des mayena d'y déceler la présence de l'iode.

Journ. de. Pharm. et de Chim., 93, p.46. (Yrbk. Brit. Pharm. Conf., 9, p.118; Am. Journ. Pharm., 47, p.398; Dispens., U.S.A., 14ed., p.1018; Ibid.,15ed., p.116; Ibid., 16ed., p.118; Ibid., 17ed., p.101; Ibid., 18ed., p.101; Ibid., 19ed., p.82; Ibid., 20ed., p.77.)

Gives several methods for detecting iodine in solutions containing tannin.

Griessmayer, V. 1872

Neue Reaction auf Alkalin und vice versa auf Gerbsäure.

Zeits. f. Anal. Chem., 11, p.43. (Dispens. U.S.A., 15ed., p.116; Ibid., 16ed., p.118; Ibid., 17ed., p.101; Ibid., 18ed., p.101; Ibid., 19ed., p.82; Ibid., 20ed., p.77;Ibid., 21ed., p.63; Am. Journ. Pharm., 45, p.351.)

Gives directions for and reactions observed for tannin and free alkalies.

Hager, H. 1872

Eisenhaltige Gallusgerbsäure.

Pharm. Centralhalle, 13, p.153. (Am. Journ. Pharm., 44, p.260.)

Reports a tannin containing iron and the results of experiments with this tannin.

Heintz, M. 1872

Sur la purification du tannin.

Journ. d. Pharm. et d. Chim., 94, p.308. (Yrbk. Brit. Pharm. Conf., 9, p.187.)

The odor of commercial tannin is due to the presence of green resinous matter which may be removed with ether.

Schiff, H. 1872

Tannin; Sa Constitution.

Rep. de Pharm., 27, p.450. (Proc. Am. Pharm. Assoc., 21, p.361; Yrbk. Brit. Pharm. Conf., 9, p.188.)

Proved tannic acid is not a glucoside by reproducing tannic acid from gallic acid; whereby a substance was obtained which possessed all the properties of tannin but yielded no glucose. This was reconverted to gallic acid by treatment with water and hydrochloric acid. Analysis proved it contained less oxygen and hydrogen in proportions necessary to form water.

Loewe, J. 1873

Über reine Galläpfelgerbsäure.

Zeit. f. Anal. Chem., 11, p.365. (Am Journ. Pharm., 45, p.222.)

Reports the results of experiments which show the composition of pure gallatannic acid, and its relation to gallic acid.

Schiff, H. 1873

Untersuchungen über die Natur und Constitution der Gerbsäure.

Annal. der Chem. und Pharm., 170, p.43; (Am. Journ. Pharm., 46, p.234; Chem. News, 29, p.73; Disp. U.S.A., 15ed.,p.117; Ibid., 16ed., p.118; Ibid., 17ed., p.101; Ibid., 18ed., p.101; Ibid., 19ed., p.82.)

Maintains that tannin is not a glucoside; and glucose is an impurity.

Allen, A.H. 1874

Chemistry Applied to the Detection of Adulteration.---Tea.

Chem. News, 29, pp.167 & 189 Proc. Am. Pharm. Assoc., 26, p.552; 27, p.472;

Used a volumetric method for the estimation of tannin with a solution of lead acetate and a mixture of ammonia and potassium ferrocyanide as an indicator.

Maumené, E.J. 1874

Sur un procédé pour determiner le tannin daus les vins, et sur les stations expérimentales en Italie.

Bull. D. Soc. Chim., 22, p.41; (Chem. News, 30, p.188; Yrbk. Brit. Pharm. Conf., 12, p.51;

Uses potassium permanganate to determine the amount of the tannin in wine.

Mercadante, M. 1874

Sul comportamento dell'acido tanico nello strate coltivabile

Gazz. Chim. Italiana; 4, p.484. (Journ. Chem. Soc., 28,

p.905; Am. Journ. Pharm., 47, p.567;

Discusses the influence of tannin on growing vegetation and soil.

Muntz, A. & Ramspacker M. 1874

Dosage du Tannin.

Compt. Rend., 79, p.380. (Bull. Soc. Chim., S.2, V.22, p.241; Chem. News, 30, p.166; Am. Journ. Pharm., 47, p.131; Proc. Am. Pharm. Assoc., 23, p.388; 26, p.551; Yrbk. Brit. Pharm. Conf., 12, p.144;

A solution of tannin is filtered by pressure on aspiration through hide. The tannin is retained and the rest of the solution passes through the animal tissue.

Schiff, H. 1874

Über die Natur and Constitution der Gerbsäure.

Ann. d. Chemie, 175, p.165; (King's Am. Disp., 18ed., p.94; Am. Journ. Pharm., 47, p.208.)

Discusses the composition of tannic acid, and considers it isomeric with gallic acid.

Schiff, H. & Lowe, J. 1874

Über die Natur und Constitution der Gerbsäure.

Ann. der Chem., 175, p.165; (Am. Journ. Pharm., 25, p.223; 45, p.208; Disp. U.S.A., 15ed., p.117; Ibid., 16ed., p.118; Ibid., 17ed., p.101; Ibid., 18ed., p.101; Ibid., 19ed., p.82; Ibid., 20ed., p.77)

They confirm the correctness of Mulder's formula for tannic acid, considered to isomeric with gallic acid.

Schmidt, E. 1874

Procédé de dosage comparatif des substances tannate.

Bull. D. Soc. Chim., 21, p.256. (Chem. News, 30, p.16; Yrbk. Brit. Pharm. Conf., 12, p.368)

Used a comparative method for determining tanning materials using lead acetate.

Terreil, A. 1874

Nouvel appareit pour doser les tannins contenus dans les diverses matières astringentes employées la tanncrie.

Journ. Pharm. et de Chim., 98, p.445. (Proc. Am. Pharm. Assoc., 22, p.260; Yrbk. Brit. Pharm. Conf., 11, p.252.)

Determination of tannin based upon the absorption of oxygen by tannin in the presence of alkali; and from the quantity absorbed, determined by measuring in a graduated cylinder, the amount of the tannin is calculated.

Carpeni, A. 1875

Neue Tannin Bestimmung.

Dinglers' Polyt. Journ., 216, p.452. (Am. Journ. Pharm., 48, p.219. Yrbk. Brit. Pharm. Conf., 12, p.110;)

Gives a method for the estimation of tannin using an ammonical solution of zinc acetate to precipitate the tannin.

Oser, J. 1875

(Gerbsäurer der Eiche).

Wien, Anz., p.139. (Chem. Cent. Blatt., 46, p.517; Proc Am. Pharm. Assoc., 24, p.339.)

(Discusses the quenci-tannic acid obtained from the green oak leaves. Finds 2 errors in Loewenthal's method of determining tannic acid in oak bark: 1, the quantities of oxygen required by equal quantities of

querci-tannic and querci-gallic are not equal, and 2, the aqueous extract of the oak bark tannin contains considerable amount of other substances which are oxidized by potassium permanganate.)

Simpkin, S. J. 1875

Estimation of Tannic Acid.

Chem. News, 32, p.11. (Yrbk. Brit. Pharm. Conf. 13, p. 31;)

A solution of copper sulphate is used to precipitate tannin from sumach and divi-divi.

Etti, C. 1876

Uber die Gerbsäure aus don Hopfenzapfen.

Ann. der Chem., 180, p.223. (Chem. Central Blatt, 47, p.261; Proc. Am. Pharm. Assoc., 24, p.339)

Obtained a tannin from hops and tested its solubility in various solvents, and found that an aqueous solution of this tannin precipitated albumen, decolorized iodide of starch and was colored dark green by sesquichloride of iron and various other experiments showing it is closely related to tannic acid of oak bark, if not identical.

Jean, F. 1876

Note sur un nouveau procéde de titrage des matières astringentes.

Compt. Rend., 82, p.982. (Pharm. Journ. Trans., 36, p.172; Proc. Am. Pharm. Assoc., 25, p.296.)

Found that solutions of astringent principles, when added to an alkaline carbonate, absorb solutions of iodide readily. The absorption takes place exactly in direct proportion to the quantity of astringent matter used, and one part by weight of dry tannic acid absorbs four parts of iodine. He estimates tannin upon this reaction.

Kammerer, H. 1876

Über die Anwendung des Tannins bei der Wasseranalyse.

Journ. f. Prakt. Chem., 122, p.322. (Yrbk. Brit. Pharm., Conf., 14, p.43.)

Recommends the adding of tannin to water for the detection of albuminoid and other animal organic matter.

Maisch, J. M. 1876

On the Asserted Presence of Tannin in Gentian Root.

Am. Journ. Pharm., 48, p.117. (Yrbk. Brit. Pharm. Conf., 13, p.228.)

Performed various tests on the extracts of gentian to prove there were no tannins present.

Gautier, A. 1877

Sur l'oenotannin ou tannin du vin.

Bull. Soc. de Chim., 27, p.496. (Zeits. Oest. Apoth. Ver., 15, p.407; Proc. Am. Pharm. Assoc., 26, p.556.)

Obtained a tannic acid in pure and crystalline condition from wine. Tested its solubility in water, alcohol and ether; found it is not changed by ferrous salts, precipitated by ferric salts with a dark green color; that an exposure to air, the tannin is changed to a rose-red color and then to brown red and becomes insoluble.

Greene, F. V. 1877

On the Tannic Acid of Guarana.

Am. Journ. Pharm., 49, p.388. (Yrbk. Brit. Pharm. Conf., 15, p.70.)

Tested tannic acid of guarana with ferric salts, copper sulphate, lead acetate, and with various alkaloids and found that it does not react similarly to other tannins treated with the same reagents.

Johansen, E. 1877

Beiträge zur Chemie der Eichen-, Weiden- und Ulmenrinde.

Arch. d. Pharm., 209, p.210. (Am. Journ., 49, p.453.) Proc. Am. Pharm. Assoc., 26, p.555.

Discusses the tannins obtained from oak, willow, and elm barks.

Löwenthal, J. 1877

Uber die Bestimmung des Gerbstoffs.

Zeit. f. Anal. Chem., 16, p.33. (Proc. Am. Pharm. Assoc., 26, p.551; Yrbk. Brit. Pharm., Conf., 14, p.122.)

Estimates tannin in solutions by using a very dilute solution and adding a quantity of indigo to act as an indicator and to control oxidation of tannin. Uses gelatin to precipitate the tannin.

Proctor, H. C. 1877

On Some Methods of Estimating Tannins.

Chem. News, 36, p.58. (Proc. Am. Pharm. Assoc., 26, p.552.)

Discusses the various methods used in estimating tannin; Hammer's method using absorption by hide raspings in place of raw-hide filler; Davy's method with gelatin

and Fleck's method with copper acetate.

Eder, J. M. 1878

Uber die Bestimmung des Gerbstoffes und die Analys des Thies.

Dingler's Polyteck. Journ., 229, p.81. (Proc. Am. Pharm. Assoc., 27, p.472.)

Used a modification of Fleck's method for estimating tannin in tea by using a solution of copper acetate as a precipitant.

Watson, W. 1878

A Method for Distinguishing Gallic, Tannic and Pyrogallic Acids.

Pharm. Journ., 38, p.46. (Am. Journ. Pharm., 50, p.503.) Proc. Am. Pharm. Assoc., 27, p.473; Yrbk. Brit. Pharm. Conf., 16, p.79.)

Discusses his method for distinguishing between gallic, tannic, and pyrogallic acids.

Hager, H. 1879

Nötizen uber die Reaction des Ferrichloride auf Salicylsäure, Carbolsäure, Gallussäure, Gerbsäure.

Pharm. Centrahl., 20, p.393. (Chem. Centrallblatt, 50, p.823; Dingler's Polytechn. Journ., 235, p.407; Am. Journ. Pharm., 52, p.264; Yrbk. Brit. Pharm. Conf., 18, p.58.)

Describes the reaction of ferric chloride with tannic acid.

Heintz, E. 1879

(Tannic Acid and Iodized Starch.)

Pharm. Ztg., 23, p.481. (Am. Journ. Pharm., 51, p.489.)

(Describes the effect of tannic acid on iodide of starch.)

——— 1879

(Removal of Tannic Acid Stains.)

Pharm. Ztg., 24, p.565. (Am. Journ. Pharm. 51, p.559; Proc. Am. Pharm. Assoc., 28, p.316.)

(Tannic acid stains may be removed from white

goods by first moistening with iron sulfate solution, and then removing the ink stains formed with oxalic acid.)

Stille, A. and Maisch, J. M. 1879

Tannin.

Nat. Dispens., 1ed., p.84; Ibid., 2ed., p.86; Ibid., 3ed., p.103; Ibid., 5ed., p.106.

Tannic acid is discussed as to its botanical origin, varieties, method of preparation, physical and chemical properties, physiological action and medical uses.

Macugno, H. 1880

On the Tannic Acid of Sumack Leaves.

Chem. News, 41, p.63. (Yrbk. Brit. Pharm. Conf., 17, p.93.)

Estimated tannin in sumack with potassium permanganate.

Raabe, R. 1880

(Tannin from Rhatany.)

Pharm. Ztg. f. Russ., 19, p.577. (Proc. Am. Pharm. Assoc., 29, p.323.)

(Prepared tannic acid from rhatany by treating a decoction of the root with sodium chloride.)

Schering, E. 1880

Zur Herstellung von Gerbsäure.

Dingler's Polytechn. Journ. 237, p.480. (Am. Journ. Pharm., 52, p.547; Proc. Am. Pharm. Assoc., 29, p.322.)

Gives directions for his method of preparing tannic acid.

Hamlin, B. B. 1881

Color Reactions of Alkaloids, Etc.

Am. Journ. Pharm., 53, p.284.

Describes color reactions of tannin with sulfuric acid, an oxidizing agent, and with a solution of chlorinated lime.

Kohlrausch, O. 1881

O. Kohlrausch's neues Verfahren der Gerbsäure-Extract-Gewinnung mittels Dialyse.

Dingler's Polytech. Journ. 240, p.72. (Pharm. Journ. 41, p.363; Journ. Chem. Soc., 40, p.858; Proc. Am. Pharm. Assoc., 30, p.396; Yrbk. Brit. Pharm. Conf. 19, p.84.)

Extracted tannin from bark and wood of chestnut and oak by dialysis as he maintains since tannin used in tanning enters the skin by osmosis, so it similarly leaves the plant cells through the permeable membrane.

Loewe, J. 1881

Uber die Gerbsäure der Eichenrinde.

Zeits. f. Anal. Chem., 20, p.208. (Am. Journ. Pharm., 53, p.401.) Proc. Am. Pharm. Assoc., 30, p.396; Yrbk. Brit. Pharm. Conf., 19, p.81.)

Found that quérci-tannic acid of oak-bark is not a glucoside and occurs in two forms, one easily soluble in water and one difficultly soluble.

Remont, C. 1881

Sur le dosage du tannin.

Journ. Pharm. et Chem., 112, p.230. (Chem. News, 44, p.81; Proc. Am. Pharm. Assoc., 30, p.396.)

Determined the tannin in substances by using gelatin to precipitate the tannin with a little bit of sulfuric acid to aid the precipitation.

Handtke, R. 1882

Titrirmethode zur quantitativen Bestimmung der Gerbsäuren.

Journ. f. Prakt. Chem., 82, p.345. (Nat. Dispens., 3ed., p.105.)

Used ferric acetate to precipitate tannin in the estimation of the latter.

Kramer, C. 1882

Astringent Drugs.

Am. Journ. Pharm., 54, p.388. (Proc. Am. Pharm. Assoc., 31, p.96.)

Gives a list of astringent drugs and the percentage of tannin each one contains.

Lehman, M. 1882

Sur le dosage de l'acide tannique.

Journ. Pharm. et de Chem., 113, p.357. (New Rem., 11, p. 150; Chem. News, 45, p.58; Proc. Am. Pharm. Assoc., 30, p.397; Yrbk. Brit. Pharm. Conf., 18, p. 62.)

Uses gelatin in determining the tannin content of a sample with a saturated solution of ammonium chloride to make the separation of the precipitate rapid and distinct.

Lewin, L. 1882

(Tannic Acid and Albumen.)

Pharm. Post., 15, p.427. (Am. Journ. Pharm., 54, p.118; Proc. Am. Pharm. Assoc., 30, p.451.)

(Gives directions for combining tannin with albumen to obviate the unpleasant effects of taking tannin internally.)

Ribbert, H. 1882

Über den Einfluss der Gerbsäure auf die Albuminurie.

Central bl. f. d. medic. Wissensch., 20, p.36. (Med. and Surg. Rep., 47, p.160; Am. Journ. Pharm., 55, p.50.)

Contends that the amount of albumin excreted in albuminaria is reduced by administering tannin in the form of sodium tanniate.

Sirnand, F. 1882

Zur Gerbstoffestimmungsmethode nach Löwenthal.

Dingler's Polyt. Journ., 244, p.391. (Journ. Chem. Soc., 42, pp. 12, 37; Am. Journ. Pharm., 54, p.600; Proc. Am. Pharm. Assoc., 31, p.264; Yrbk. Brit. Pharm. Conf., 20, p.67.)

Made a number of tannin estimations according to Löwenthal's improved method using potassium permanganage. Found the percentage of tannin, found varied in the same material, higher results being obtained when a larger quantity of material was used.

Etti, C. 1883

Zur Geschichte der Eichenrindegerbsäuren.

Monatsch. f. Chem., 4, p.512. (Journ. Chem. Soc., 44, p.994; Am. Journ. Pharm., 56, p.135; Yrbk. Brit. Pharm. Conf., 21, p.87.)

Discusses the 2 forms of tannin found in oak-bark.

Gardiner, W. 1883

On the general occurrence of Tannins in vegetable cells and a probable view of their physiological significance.

Proc. Cambridge Philosophical Soc., 4, p.388. (Pharm. Journ., 43, p.588; Proc. Am. Pharm. Assoc., 32, p.298.)

In determining tannin in vegetable cells, used a solution of ammonium molybdate in concentrated ammonium chloride which gives a yellow precipitate.

Obtained tannin from hemlock, and oak barks and compared their reactions to various reagents.

Etti, C. 1884

Über des Verhalten von Tannin und Eichenrindegerbsäure gegen verschiedene Reagenzien.

Ber. d. d. chem. Gesell., 17, p.1820. (Jour. Chem. Soc., 46, p.1355; Yrbk. Brit. Pharm. Conf., 22, p.87.)

Discusses the behavior of nut gall tannin and oak bark tannin toward acetic anhydride, solutions of caustic alkalies and heating with dilute sulfuric acid.

Guyard, A. 1884

Note sur l'action de l'air sur les dissolutions de tannin et sur le dosage des tannins.

Bull. d. Soc. Chim., 41, p.336. (Yrbk. Brit. Pharm. Conf., 22, p.87.)

Shows that the action of air on solutions of tannin result in the formation of gallic acid is probably due to the influence of organisms or enzymes.

Schweissinger, O. 1884

Jodgalläpfeltinctur als Reagens.

Pharm. Zeit., 29, p.831. (Chem. News, 51, p.114; Am. Drug., 14, p.89; Proc. Am. Pharm. Assoc., 33, p.240.)

Observed that when a solution of tannin and an alcoholic solution of iodine are mixed, a rose color is produced if 2 drops of this mixture are added to spring water. All salts which have an alkaline reaction act the same way to the solution.

(Allen, A.) 1885

Determination of Milk Sugar.

Commercial Organic Analysis, 2ed., 1, p.283. (Dispens. U.S.A., 16ed., p.117; Ibid., 17ed., p.100; Ibid., 18ed., p.102.)

Tannin is an indefinite mixture of digallic acid and a glucoside which yields glucose when acted upon by dilute acids.

(Allen, A.) 1885

Constitution of Natural Tannins.

Chemical Organic Analysis, 2ed., V.3, p.77. (Dispens. U.S.A., 17ed., p.100; Ibid., 18ed., p.100; Ibid., 19ed., p.80; Ibid., 20ed., p.76; Ibid., 21ed., p.63.)

Classifies tannins as to the products they yield when treated with various chemical substances.

Durien, E. 1885

Note sur un nouveau procédé de dosage volumitreque du tannin.

Journ. de Pharm. et de Chim., 121, p.374. (Am. Journ. Pharm., 58, p.120; Proc. Am. Pharm. Assoc., 34, p.593; Yrbk. Brit. Pharm. Conf., 23, p.111.)

Estimates tannin volumetrically, using a solution of calcium hypochlorite and the French Pharmacopoeia solution of ferric chloride as a color indicator.

Maben, T. 1885

Commercial Tannin.

Pharm. Journ., 44, p.850. (Am. Journ. Pharm., 57, p.342; Proc. Am. Pharm. Assoc., 33, p.296.)

Discusses the 9 tannins he tested as to appearance, molecular weight, solubility, methods of estimation, and the amount of other organic matter present.

B. E. 1886

Zur Gerbstoffbestimmung, ein Vorschlag.

Ztschr. fur Analyt. Chem., 25, p.527; Yrbk. Brit. Pharm.,

Conf., 24, p.127.

Uses iron alum and sodium acetate in the estimation of tannin.

England, J. 1886

On a New Process for Estimating Tannin Volumetrically.

Am. Journ. Pharm., 58, p.120.

Describes his method of estimating tannin volumetrically using chlorinated lime and ferric chloride.

Moll, J. W. 1886

Nouvelle Réaction du tannin.

Journ. d. Pharm. et d. Chim., 123, p.559. (Yrbk. Brit. Pharm. Conf., 24, p.129.)

Steeps sections of vegetable tissues in a saturated solution of copper acetate to detect the presence of tannin.

Notzli, F. 1886

Über Untersuchung non Gerbstoffen.

Dingler's Polyt. Journ., 259, p.177. (Journ. Chem. Soc., 50, p.496; Am. Journ. Pharm., 58, p.349.)

Discusses the methods of Proctor, Simond and Löwenthal in estimating tannin.

Rademaker, C. J. 1886

Polygonum Hydropiper.

Am. Journ. Pharm., 58, p.375.

Gives his reasons why he believes the active principle of this drug is neither gallic nor tannic acid.

Raymond, F. & Arthaud, J. H. 1886

Note Sur l'action therapeutique du tannin dans le traitment de la tuberculose.

Soc. Biol. Memoires, 38, p.489.(Quart. Therap. Rev., 5, p.9; AM. Journ. Pharm., 59, p.156. Proc. Am. Pharm. Assoc., 35, p.302, Yrbk, Brit. Pharm. Conf., 24, p.287.)

Discusses the results of the action of disulfide of carbon, iodoform, and tannic acid on tuberculaus patients.

Saul, J. E. 1886

New Test for Tannic Acid.

Pharm. Journ., 46, p.387. (Yrbk. Brit. Pharm. Conf., 24, p.127.)

Tests for tannin by using an alcoholic thymal solution, the color is rose if tannin is present.

Vamacka, A. 1886

(Eine ätherischke Tanninlösung).

(Pharm. Rundschaie (Vien)), 12, p.773; Am. Journ. Pharm., 58, p.611.)

(An ethereal solution of tannin is the best application for burns.)

Bottinger, C. 1887

Ueber Eichenholzgerbsäure.

Ber. d.d. Chem. Gesell., 20, p.761. (Yrbk. Brit. Pharm. Conf., 24, p.60;)

Oak tannin is a "methyl salt of digallic acid".

Bottinger, C. 1887

Ueber die Gerbsäure des Eichenholzes.

Ann. der Chem., 238, p.366, (Proc. Am. Pharm. Assoc., 35, p.302; Arch. de Pharm., 225, p.542;)

Describes oak-wood tannin as a thick, brown, semi-

liquid mass which forms a brown solution with water and a yellowish-gray precipitate remains; the solution is not precipitated by bromine. When treated with a glacial acetic acid, an acetyl tannin forms which yields tannic acid by being heated in a closed test tube.

Hutton, T. J. 1887

A Note on Tannic Acid as a Surgical Dressing.

(Journ. Am. Med. A soc., 8, p.487. Nat. Disp., 5ed., p.109.)

Concludes that tannin is a good dressing for burns.

Villon, M. 1887

Nouveau procédé de dosage du tannin.

Bull. d. Soc. Chim, 47, p.97. (Chem. News, 55, p.168; Yrbk. Brit. Pharm. Conf., 24, p.128;)

Uses a liquid containing a weight of lead acetate equal to 3 to 5 times that of the tannin, to get a precipitate which is of constant composition and is not dissociated by water.

Vincent, C. & Delachanal, M. 1887

Sur un acide tannique contenu dans les baies de sarbier.

Bull. d. Soc. Chim., 47, p.492. (Journ. Chem. Soc., 52, p.950; Chem. News, 56, p.24; Yrbk. Brit. Pharm. Conf., 24, p.59; Ibid, 25, p.37.)

Obtained from the juice of the ripe mountain-oak berries a tannin closely allied to morintannic and caffetannic acids.

Vomacka, A. 1887

(Tannin mit Natriumbikarbonat).

(Pharm. Rundschau, (Wien) 13, p.447; Am. Journ. Pharm. 59, p.560.)

(Gives directions for making a solution of tannin and sodium bicarbonate.)

(Editor.) 1887

Ethereal Solution of Tannin.

Am. Drugg., 16, p.125. (Proc. Am. Pharm. Assoc., 36, p.541.)

An ethereal solution of tannin of syrupy consistency

is the latest remedy for burns. It soothes pain immediately and after the ether evaporates, a pliable non-elastic coating remains which is superior to collodrion.

1887

(Unstable Tannin Solution.)

Rundschau, Prog., 13, p.447. (Proc. Am. Pharm. Assoc., 36, p.541;)

(An unstable mixture of the solutions of tannin and water and sodium bicarbonate and water is remedied by first boiling them to expell the carbon dioxide.)

Hinsdale, S. J.

1888

A colorometric Method for Estimating Morphine and Tannin.

Proc. N. C. Pharm. Assoc., 9, p. 75.

Uses a solution of potassic ferricyanide and liquor ferri chloridi to get color reactions with compounds containing morphine.

This method is used for estimating morphine in mixtures provided they are free from tannin.

Hinsdale, S. J. 1888

Estimation of Tannin in Teas, Nutgalls, and Other Vegetable Substances.

Proc. N. C. Pharm. Assoc., 9, p. 76. (Am. Drug., 17, p. 161; Proc. Am. Pharm. Assoc., 37, p.683;)

Uses a solution of potassium ferrocyanide and liquor ferri chloride, a solution of gallo-tannic acid and an infusion of either tea or nutgall or substances to be tested. Estimates the amount of tannin present by the color resulting from comparative experiment.

Richardson, B. W. 1888

Tannin Wool.

Med. News, 52, p.411. (Nat. Dispens., 5ed., p.109;)

Recommends tannin wool, made by soaking cotton in water at 140° F., saturated with tannin and drying the product, for treating ozaena and other diseases attended with fetid odors.

Alison, A. 1889

Du Tannin Dans Le Traitement de la Grippe.

Archives gen., S.7, V.2, p.159. (Nat. Dispens, 5ed., p.109.)

Discusses effect of tannin when used to combat influenza.

B. E. 1889

Tannin gegen Brandwunden.

Pharm. Ztg., 34, p.630. (Am. Journ. Pharm. 61, p. 608.)

Recommends the use of tannin in cases of severe burns and scalds to relieve pain quickly and cause rapid healing.

Etti, C. 1889

Tannic Acid,--Varieties from Oak Barks.

Pharm. Journ., 49, p.424. (Proc. Am. Pharm. Assoc., 38, p.662; Yrbk. Brit. Pharm. Conf., 27, p.75.)

Obtained from oak barks of different origin a series of 3 tannic acids and also from the bark of red beech and from hop strabeles. Gives a formula for each, also their color reaction with ferric chloride.

Harper, D. 1889

On the Tannic in Indian and Ceylon Teas.

Chem. News, 60, p. 311. (Yrbk. Brit. Pharm. Conf., 27, p.75;)

Estimated the tannin of several samples of tea by precipitation with lead acetate.

Houzé, E. 1889

The Tannin Treatment of Phthisis in Brussels.

Lancet., 1889, V.1, p.493. (Nat. Dispens., 5ed., p.109.)

Discusses the use of tannin as an astringent for treatment of chronic bronchitis, whooping cough, and phythisis, as practiced in Brussels.

Kraus, G. 1889

Grundlinien zu einer Physiologie des Gerbstoffs.

Biedecker Centralle, 18, p.330. (Journ. Chem. Soc., 56, p.917; Am. Journ. Pharm, 61, p.567; Proc. Am. Pharm. Assoc., 38, p. 662.)

Discusses the formation of tannin in the leaves of plants and the use of tannin in the leaves.

Proctor, S. B. 1889

Tannin; its Solubilities etc.

Am. Journ. Pharm., 61, p.534; Proc. Am. Pharm. Assoc., 38, p. 662.)

Recorded a number of experiments dealing with solubility of tannin in ether, water, alcohol, and other solvents.

Rawson, S. G. 1889

On Some New Tests For Tannic And Gallic Acids.

Chem. News, 59, p. 52. (Am. Journ. Pharm., 61, p.181. (Proc. Am. Pharm. Assoc., 37, p.685; Yrbk. Brit. Pharm. Conf., 26, p. 108;)

Discusses some new tests for tannic and gallic acids with gelatin, ammonia, chlorine and ammonia.

White, J. T. 1889

Estimation of Tea Tannin.

Chem. News, 59, p.261. (Proc. Am. Pharm. Assoc., 37, p. 684.)

Finds that a solution of aluminum acetate is a very good precipitant for tannice in tannin estimation of tea.

Bottinger, C. 1890

Über eine neue Reaction des Tannins.

Ann. der Chem., 256, p.341, (Chem. Rpt., 14, p.152; Am. Journ. Pharm., 62, p.342; Proc. Am. Pharm. Assoc., 39, p.606; Ibid., 40, p.422; Drug. Circ. and Chem. Gaz., 35, p.228; Yrbk. Brit. Pharm. Conf.,27, p.128.)

Describes the reaction of tannin when boiled with phnylhydrozine and then a solution of sodium hydroxide added carefully.

Gantler, F. 1890

Über die Bestimmung der Gerbsäure im Gerbmaterialen.

Zeit. Anal. Chem., 29, p.462. (Chem. News, 66, p.182; Proc. Am. Pharm. Assoc., 41, p.814; Yrbk. Brit. Pharm. Conf., 27, p.130.)

Determined tannin in a solution by the hide-power method, using potassium permanganate.

Guenez, E. 1890

Dosage volumétrique du tannin.

Compt. Rend., 110, p.532. (Proc. Am. Pharm. Assoc., 38, p.663; Chem. News, 61, p.195; Yrbk. Brit. Pharm. Conf., 27, p.128.)

Recommends the use of a boiling solution of potassium-antimony tartrate mixed with a suitable aniline color for a rapid determination of tannin.

Hinsdale, S. J. 1890

Colorimetric Method For Estimating Tannin in Barks, etc.

Am. Journ. Pharm., 62, p.119. (Yrbk. Brit. Pharm. Conf., 27, p.130.)

Same as the one read to the N. C, Pharm. Assoc. except that the amounts are changed.

Uses a solution of potassium ferricyanide and ferric chloride and another solution of tannin to estimate the percent of tannin in oak bark and by comparing the colors resulting.

Kraemer, H. 1890

Tannin of Quercus Alba

Am. Journ. Pharm., 62, p.236. (Yrbk. Brti. Pharm. Conf., 27, p.75.)

Prepared tannin from Quercus Alba by extraction with alcohol and studied the properties of the tannin obtained.

Lange, V. 1890

Ein seltener Fall von Idiosynkrasie gegen Tannin bei ausserlichem Gerbrauch.

Therap. Nomatsch., 4, p.141. (Nat. Dispens., 5ed., p.109.)

Describes unusual effects of tannic acid when it was applied to the skin.

Maltscheffsky, P. 1890

Sur le dosage du tannin dans le thé.

Journ. d. Pharm. et.d. Chim., 131, p.270. (Yrbk. Brit. Pharm. Conf., 28, p.133.)

Precipitated tannin with copper acetate and titrated the excess of copper with potassium ferrocyanide.

Moullade, A. 1890

Sur un nouveau procede de dosage du tannin par l'iode.

Journ. Pharm. et de Chim. 131, p.153. (Yrbk. Brit. Pharm. Conf., 28, p.132; Proc. Am. Pharm. Assoc,, 40, p.1030.)

Estimates tannin by means of iodine. The iodine solution contains iodine and potassium iodide.

Spence, J. N. 1890

Notes on Gallotannic and Gallic Acids.

Journ. Soc. Chem. Ind., 9, p.1114. (Dispens. U.S.A.;

17ed., p.101; Ibid., 18ed., p.101; Ibid., 19ed., p.82; Ibid., 20ed., p.77; Ibid., 21ed., p.63; Proc. Am. Pharm. Assoc., 40, p.1031.

Reviews recent tests for distinguishing between gallo-tannic acid and gallic acid.

Villan, A. 1890

Fabrication des tannin decolores.

Bull. Soc. Chim., s.3, V.3, p.784. (Chem. News, 62, p.195; Proc. Am. Pharm. Assoc., 39, p.606.)

Recommends a method for obtaining colorless tannins from tanning materials by the 3 following operations; 1. liximation of the tanning material or extraction of tannin with water; 2. precipitation of tannin as insoluble tannate with zinc sulfate and 3. separation of the tannin from the precipitate by decomposing it with dilute sulfuric acid and then separating the zinc by adding a solution of sulfide of barium.

Baemes, M. 1891

(Test for Tannin.)

Manit. de la Pharm., 1891, p.1006. (Am. Journ. Pharm., 64, p.77; Proc. Am. Pharm. Assoc., 40, p.421, 1031; Yrbk. Brit. Conf., 29, p.109.)

(Used a solution of sodium tungstate and sodium acetate as a reagent for tannin and obtained a straw-colored precipitate.)

Cunningham, T. S. 1891

Tannic Acid.

Am. Journ. Pharm., 63, p.251.

Submitted a thesis on Tannic acid at the Philadelphia College of Pharmacy.

Guignet, C. E. 1891

Transformation de l'acide gallique et du tannin en acide benzoïque.

Compt. Rend., 113, p.200; Am. Journ. Pharm., 64, p.79; Yrbk. Brit. Pharm. Conf., 29, p.64.)

Heated tannin and obtained gallic acid and then heated it with zinc powder and ammonia solution to convert the gallic acid to benzoic acid.

Hinsdale, S. J. 1891

Method of Manipulation in Determining Tannin in Barks etc. by Precipitation with Gelatin.

Proc. N. C. Pharm.,Assoc., 12, p.52. (West Drug., 13, p.445; Proc. Am. Pharm. Assoc., 40, p.422.)

Estimates tannin by using a solution of dry gelatin, alum, and water to precipitate the tannic acid.

Klinger, A. and Beyard, A. 1891

Über die Canaigrewurzel ein neues Gerbmaterial und über Gerbstoffbestimmung.

Zeit. Angew. Chem., 1891, p.513. (Zeit. Anal. Chem., 31, p.468; Proc. Am. Pharm. Assoc., 41, p.814.)

Came to the same conclusion concerning Gantler's method of determining tannin as do Von Schroeder and Passler, namely that the consumption of the permanganate by tannin in iron solution after tannin has been precipitated by hide-power can not be neglected.

Kokosinsk, E. 1891

Bestimmung des Gerbstoffes im Hopfen.

Zeit. d. ges. Brauwesen, 13, p.571. (Chem. Central. Blatt, 62, I, p.377; Journ. Chem. Soc., 60, p.870; Am. Journ. Pharm., 63, p.490.)

Discusses the estimation of tannin in hops based on the properties of tannin of absorbing iodine in the presence of alkaline carbonates.

(Riedel, J. D. 1891

Eine neue Darstellungeweise des Tannins

Pharm. lentralc, 32, p. 419. (Am. Journ. Pharm., 63, p.462; Proc. Am. Pharm. Assoc., 40, p.421, 1031.)

Extracted tannin from substances by first using a solvent to dissolve the fats, waxes and resins and then removed the tannin from the extracted material with water.

Vogel, J. H. 1891

Beiträge zur Analyse des Zuckers und Tannins im Wein.

Zeit. f. ang. Chem., 4, p.44. (Journ. Chem. Soc., 60, p.1557; Am. Journ. Pharm., 64, p.95; Proc. Am. Pharm. Assoc., 40, p.421.)

Determined the amount of tannin in wine by diluting a sample with water, and adding indigo-carmine, containing sulfuric acid, and titrating the solution with potassium permanganate.

Zoelfell, G. 1891

Über die Gerbstoffe der Algarobilla und der Myrobalanin.

Arch. der Pharm., 229, p.123; (Proc. Am. Pharm. Assoc., 39, p.605.)

The tannin of Algarobilla is a mixture of 2 tannins; one a glucoside of gallic acid, the other a tannic acid proper.

The tannin of Myrobilla is also a mixture of the 2 tannins mentioned above but in somewhat different proportions.

The tannins were separated by precipitation with lead acetate, and purified by precipitation with sodium chloride and solution in acetic ether.

Baccarini, P. 1892

Contribute alla conosunza dell'apparecchio albuminoso tannico delle Leguminose.

Malpighia, 6, p.255. (Pharm. Journ., 52, p.830; Proc. Am. Pharm. Assoc., 41, p.815.)

Made a study of the structure and distribution of the tannin-receptacles in a large number of Leguminosae.

Barnouvin, H. 1892

(Jod-Tannin.)

Repert. de Pharm., s.3, V.4, p.350. (Proc. Am. Pharm. Assoc., 41, p.578; Pharm. Centrlhl., 23, p.528.)

Prepares a solution of iodized tannin by adding to a solution of tannin, a solution of iodine in such pro-

portions that there is no reaction with starch. The solution is evaporated to a thick syrupy consistency and dried to form crystals which are soluble in water and alcohol.

Fleury, G. 1892

Sur le dosage du Tannin.

Journ. d. Pharm. et d. Chim., 134, p.449. (Am. Journ. Pharm., 64, p.406; Proc. Am. Pharm. Assoc., 41, p.814.)

Uses powdered albumin to test for tannin. The albumin is mixed with the liquid containing tannic and allowed to stand until there is no color with perchloride of iron.

Mafat, F. E. 1892

Index of Plants Capable of Yielding Tanning Material.

Journ. Soc. Chem. Ind., 11, p.621. (Pharm. Jour., 52, p.145; Am. Journ. Pharm., 64,p.526; Proc. Am. Pharm. Assoc., 41, p.814; Yrbk. Brit. Pharm. Conf., 30, p.146.)

Gives a list of plants capable of yielding tanning material including the botanical origin, habitat, and amount of tannin yielded by each plant listed.

Meier, H. F. 1892

Glycerole of Tannin.

West. Drug., 14, p.300. (Proc. Am. Pharm. Assoc., 41, p.425.)

The dark colored stratum on the surface of the glycerole of tannin is caused by chlorophyll derived from the galls.

Morner, C F. 1892

Zur Kenntniss des Verhaltens der Gallus- und Gerbsäure im Organismus.

Zeit. Physiol. Chem., 16, p.255. (Am. Journ. Pharm., 64, p.438.)

Discusses the behavior of tannic and gallic acids after they have been introduced in the animal system.

Moripungo, G. 1892

(Estemation of Tannin by Specific Gravity.)

Zeits. Nahr. Unters Hygiene, 6, p.145. (Chem. Zeit. Rep., 16, p.154; Proc. Am. Pharm. Assoc., 40, p.1030.)

(Estimates tannin by determining the specific

gravity of its solutions. The powdered substance is boiled with water, cooled, brought to a definite volume and filtered. From there a table previously marked out the amount of tannin can be determined.

Suchomel, A. 1892

Keratinirte Tanninpillen.

Pharm. Post., 25, p.797. (Proc. Am. Pharm. Assoc., 41, p.440.)

Gives directions for making tannic acid pills and recommends a keratin coating for them. The coating solution is prepared by dissolving "keratin (pepsin parat.)" in concentrated acetic acid.

Trimble, H. 1892

Tannins: The preparation and Purification of Tannic Acid.

The Tannins, 1ed., whole book. (Nat. Dispens., 5ed., p.107; Am. Dispens., 18 ed., 3 rev., no.1, p.95.)

Discusses the discovery of the Tannins, General Characters, The Detection and Estimation of the Tannins, Sources, History, The Preparation and Purefication of Tannic Acid, The Properties of Tannic Acid, The Composition and Constitution of Tannic Acid.

(Editor.) 1892

Michrochemical Tests for Tannins.

Pharm. Journ., 52, p.361. (Proc. Am. Pharm. Assoc., 41, p.609.)

Discusses the reagents that can be used to give suitable reactions for microscopic examination for tannins. Lists iron salts, potassium bichromate, ammonium molybdate, copper acetate, sodium tungstate and Nessler's fluid, a solution of potassio-mercuric iodide as being suitable reagents.

Dingler, G. L. 1893

Tests for Tannin.

Am. Jour. Pharm. 65, p.257.

Submitted a thesis in the above subject at the Philadelphia College of Pharmacy.

Fösling, A. 1893

Fortschnitte auf dem Gebiete der Gerberei und der Gerbematerialen.

Chem. Zeit., 17, p.1770. (Proc. Am. Pharm. Assoc., 42, p. 1087.)

Discusses progress in tanning and in tanning materials.

Gawalowski, A. 1893

Gerberei, Gerbmaterialien.

Brstowski's Handwortenbuch fur Pharmocie, V.1, p.720. (Zeit. Anal. Chem., 32, p.618; Proc. Am. Pharm. Assoc., 42, p.1086.)

(Describes a method of estimating tannin in materials by using copper acetate as a precipitating agent.)

Mielke, G. 1893

Formation and Functions of Tannins.

Pharm. Jour., 54, p.355. (Proc. Am. Pharm. Assoc., 43, p.976.)

Traces the formations of tannin in plants, through phenals, phenol-alcohols, and aldehydes. The tannin is important in vegetable economy and an indispensable material for the production of liquifying substances.

Schroeder, V., & Barter, A. 1893

Zur Extraction der Gerbmaterialen.

Dingler's Polyt. Jour., 289, p.113. (Chem. Ztg. Rep., 17, p.232; Proc. Am. Pharm. Assoc., 42, p.1087.)

Records the results of an experiment on the extraction of tannin in pine by boiling with water and discusses the records obtained.

Sisley, P. 1893

Sur la préparation du tannin pur et le dosage du tannin.

Bull. Soc. Chim., s.3, V.9, p.755. (Chem. Rep., 17, p.278; Proc. Am. Pharm. Assoc., 42, p.1087.)

Describes his method of preparing pure tannin of as light a color as possible.

Snyder, H. 1893

Notes on Löwenthal's Method for the Determination of Tannin.

Journ. Am. Chem. Soc., 15, p.560. (Proc. Am. Pharm. Assoc., 42, p.1088.)

Discusses the various possible sources of error in estimation of tannin by titration with potassium permanganate, as the Löwenthal method.

Trimble, H. 1893

Mangrave Tannin.

Pharm. Journ., 52, p.627. (Proc. Am. Pharm. Assoc., 41, p.815.)

Discusses the preparation and purification, properties, and composition of mangrave tannin. It was a light reddish-yellow porous mass, soluble in water,

alcohol, and commercial ether.

Trimble, H. & Peacock, J. 1893

Canaigne Tannin.

Am. Journ. Pharm., 65, p.161.

Discusses the preparation, purification, and chemical behavior of tannin obtained from canainge.

Trimble, H. & Peacock, J. 1893

The Preparation of the Oak Tannins with Special Reference to the Use of Acetone as a Solvent.

Am. Journ. Pharm., 65, p.435. (Drug. Circ., 37, p.250; Proc. Am. Pharm. Assoc., 41, p.110; Dispens. U.S.A., 18ed., p.99; Ibid., 19ed., p.80; Ibid., 20ed., p.76; Ibid., 21ed., p.62; Ibid., 22ed., p.57.)

Discusses the use of acetone as a solvent for extracting tannin instead of ether, acetic acid, or water.

Beckiewics, _____ 1894

(Tannin an Intestinal Antiseptic)

_____, ___, p.___. (West. Drugg., 16, p.182; Proc. Am. Pharm. Assoc., 42, p.778.)

(In cases of gastro-intestinal catarrh, the adminis-

tration of 5 grains of tannin, 3 times daily diminished the number of bacteria greatly.)

Bell, T. W. 1894

Poisonous Effect of Tannic Acid.

Drug. Circ., 38, p.11. (Proc. Am. Pharm. Assoc., 42, p.1088.)

Cites a case where a patient had an attack of asthma from treatment of tannic acid, but considers it an idiosyncracy of the patient as there is no other record of any poisonous effects from tannic acid.

Harms, H. 1894

Tannin of Rubus Villosus.

Am. Journ. Pharm., 64, p.584.

Discusses the estimation of and preparation and purification of the tannin of Rubus Villosus and describes its reaction with acids and alkalies.

Vulpius, G. 1894

Uber Acidum tannicum.

Pharm. Centralhl., 35, p.710. (Chem. and Drugg, 46, p.159; Proc. Am. Pharm. Assoc., 43, p.976; Yrbk. Brit. Pharm. Conf., 32, p.89.)

Finds none of the commercial tannic acids react when tested for gallic acid with potassium-cyanide solution.

Haussmann, F. W. 1895

Pharmaceutical Notes: Preparations of Tannin and Gallic Acid.

Am. Journ. Pharm., 67, p.85.

States that in some preparation containing tannin, a precipitate occurs regardless of care in compounding and it is due to the presence of minute traces of iron.

Lindet, L. 1895

Sur l'oxydation du tannin de la pomme a cidre.

Compt. rendu., 120, p.370. (Proc. Am. Pharm. Assoc., 43, p.977.)

The oxidation of the tannin of the apple is due to the action of diastase in the tissue of the fruit.

Proctor, B. S. 1895

Pharmaceutical Testing.

Pharm. Jour., 55, p.456. (Yrbk. Brit. Pharm. Conf., 23, p.91.)

Uses a solution of tincture of ferric chloride and a solution of ammonium acetate to estimate the tannin in

gargles and lotions.

Parker, J. G. 1895

The Effect of Different Temperatures in the Extraction of Tanning Materials.

Jour. Soc. Chem. Ind., 14, p.635. (Proc. Am. Pharm. Assoc., 44, p.794; Am. Jour. Pharm., 67, p.629.)

Give a table of results of experiments with the view to determine what ratio the tannin in various tanning materials bears to the coloring matter, and how the tannin is affected by extracting at different temperatures.

Schutzer, _____. 1895

(Tannin of Palmetto)

Chem. Ztg., 19, p.167. (Proc. Am. Pharm. Assoc., 43, p.977.)

Obtained an extract from palmetto which contains from 11 1/2 to 12% of tannin, and claims it has valuable tanning properties.)

Trimble, H. 1895

Report on Tannin from an Exudation of Pterocorpus Draco Linne, and Known in Jamaica as Dragon's Blood.

Am. Journ. Pharm., 67, p.516.

Discusses the difficulty of extracting the tannin from the gum present and also the use of acetone as the best solvent.

Bastin, E, and Trimble, H. 1896

A Contribution to the Knowledge of Same North American Coniferae: Hemlock Tannin.

Am. Journ. Pharm., 69, p.94.

Discusses the occurrence, Preparation, properties and composition of tannin of hemlock bark.

De Graffe, B. 1896

Tannins of Some Ericaceal

Am. Journ. Pharm., 68, p.313 (Dispens. U.S.A., 18ed., p.99; Ibid., 19ed., p.80; Ibid., 20 ed., p.76; Ibid., 21ed., p.62; Proc. Am. Pharm. Assoc., 44, p.795.)

Recorded her investigations on plant of Ericaceae todetermine the character of the tannins.

Merck, C. E. 1896

Uber die Kondensation der Gerbstoffe mit Formaldehyd.

Chem. Centrlhl., 67, p.560. (Yrbk. Brit. Pharm. Conf.,

34, p.227.)

Prepared a number of compounds by condensation of tannin with formaldehyde.

(Editor.) 1896

Galls.

Drugg. Circ., 40, p.37.

Two commercial galls are distinguished as follows:

aleppo- blue or black color.

smyrna- greenish cast.

Gerber, C. 1897

Rôle des tannins dans les plantes et plus particulierement dans les fruits.

Compt. Rendu., 124, p.1106. (Am. Journ. Pharm., 69, p.624; Yrbk. Brit. Pharm. Conf., 35, p.77.)

Discusses the function of tannin in plants, especially in fruits.

Perkin, A. G. 1897

The Yellow Colouring Principles of Various Tannin Matters.

Transactions, Chem. Soc. Journ., 71, P.II, p.1131. (Am. Journ. Pharm., 69, p.622.)

Describes experiments in studying the yellow coloring matter found with tannin in plants, and to determine their relationship by the characteristics of their decomposition products.

Walden, P. 1897

Über das optische Verhalten des Tannins.

Ber. d. d. Chem. Gesell., 30, p.3151. (Zeit. Angew. Chem., 1898, p.94; Proc. Am. Pharm. Assoc., 46, p.1045; Pharm. Ztg., 43, p.82.)

Investigated the optical behavior of tannin and decided that tannin is not a simple body but a mixture.

Yocum, J. H. 1897

The Determination of Tannin By Means of Hide-Power.

Journ. Soc. Chem. Ind., Pt. 2, 16, p.419. (Dispens. U.S.A., 20 ed., p.77; Ibid., 21ed., p.64; Proc. Am. Pharm. Assoc., 45, p.698; Yrbk. Brit. Pharm. Conf., 35, p.119.)

Maintains that hide-power methods are the most practical and useful in the estimation of tannin.

Harnack, E. 1898

Über die nach Tannin und Gallussäure fütterung im Harm ausgeschneiden Substanzen.

Zeit. Physio. Chem., 24, p.115. (Am. Journ. Pharm., 70, p.207.)

When small doses of tannic or gallic acids are administered to men and dogs, the quantity of gallic acid in the urine is very small.

Leyde, A. 1898

(Color Reaction of Gold Chloride with Tannin.)

Chem. Ztg., 22, p.1085. (Proc. Am. Pharm. Assoc., 46, p.724.)

(Observed that when solution of gold chloride is added to very dilute solution of tannin, a red coloration is produced.)

Seyda, A. 1898

Klienere analytische Mittheilungen.

Chem. Ztg., 22, p.1085. (Yrbk. Brit. Pharm. Conf., 36, p.109.)

When a solution of gold chloride is added to a very weak solution of tannin, a purple or purplish-red coloration is produced.

Vignon, L. 1898

Dosage du tannin.

Journ. Pharm. et Chim., 147, p.372. (Pharm. Zeit., 43, p.791; Proc. Am. Pharm. Assoc., 47, p.724; Yrbk. Brit. Pharm. Conf., 36, p.109.)

Recommends untwisted silk in preference to either gut-strings or powdered hide for estimation of tannin in aqueous solutions.

Kock, C. 1899

Proximate Analysis of Bark of Pinus Echinata, Miller.

Am. Journ. Pharm., 71, p.170.

Discusses the several constituents isolated, among them tannin, which is a reddish brown and has an astringent taste and gives various colored precipitates with lead acetate, bromine water, lime water and ferric chloride.

Wilson, H. 1899

Chloral-Tannin.

Pharm. Journ., 63, p.148. (Proc. Am. Journ. Pharm., 48, p.80.)

Describes a condensation product of tannin and chloral which was prepared at the request of a physician.

Specht, L. and Lorenz, F. 1900

Neue Gerbstoffbestimmung.

Chem. Ztg. 24, p.170. (Pharm. Ztg., 45, p.266; Proc. Am. Pharm. Assoc., 48, p.803.)

Recommend the use of tartar emetic and sofranin for precipitating tannin.

Kebler, L. F. 1901

Medicinal Tannin.

Am. Drugg., 39, p.344. (Proc. Am. Pharm. Assoc., 50, p.1028.)

Gives a table of the medicinal tannin available at the time of writing including per cent of moisture and per cent of water soluble matter in the tannin.

Pursel, R. C., and Graham, W. R. 1901

Tannin Commercial.

Am. Journ. Pharm., 73, p.556. (Proc. Am. Pharm. Assoc., 50, p.1029.)

Assayed a sample of commercial tannin which was offered at an abnormally low price and found it contained finely powdered galls.

Calmette, A. 1902

Umwandlung von Tannin in Gallussäure.

Zeit. f. angew. Chem., p.259. (Am. Journ. Pharm., 74, p.446; Proc. Am. Pharm. Assoc., 51, p.947.)

Tannin can be converted to gallic acid by introducing a pure culture of a fungus, aspergilus gallomyces.

Kebler, L. F. 1902

Adulteration of Drugs: Tannic Acid, Commercial.

Am. Journ. Pharm., 74, p.14. (Proc. Am. Pharm. Assoc., 50, p.1029.)

Observed that powdered Chinese nut galls have been supplied for tannic acid. This substitution is very easily detected.

Ruoss, M. 1902

Die quantitative Bestimmung der Gerbsäure durch Ferrisalze.

Zeit. Anal. Chem., 61, p.717. (Chem. News, 90, p.149; Proc. Am. Pharm. Assoc., 53, p.807.)

The German Commission for the Unification of the Methods for the Estimation of Tannin in 1883 adopted the Lowenthal-von Schroeder process, in which a solution of

tannin is filtered through powdered skin, and a solution of ferric sulfate is used to precipitate the tannin.

Glücksmann, C. 1904

Zur Kentniss und Wertbestimmung des Tannins.

Pharm. Post, 37, p.429. (Pharm. Ztg., 49, p.758; Proc. Am. Pharm. Assoc., 53, p.808.)

Suggests a method for the valuation of commercial tannins by using a solution of formaldehyde and strong hydrochloric acid.

Pozzi-Escot, M.E. 1904

Reactions colorées de l'acide molyhdique.

Ann. de Chim. Anal., 9, p.90. (Pharm. Jour., 72, p.548; Proc. Am. Pharm. Assoc., 52, p.927.)

Finds that a solution of molybdis acid or of a molybdate is a very sensitive reagent for tannin; giving an orange-yellow color. The reaction only occurs in neutral solution and is not affected by the presence of iron.

Strauss, E. and Gschwendner, B. 1906

Beitrage zur Kentniss einiger Gerbstoffe.

Zeit. Angew. Chem., p.1121. (Proc. Am. Pharm. Assoc., 55, p.916; Pharm. Journ., 77, p.489.)

Prepared andinvestigated the tannins of the bark of Quebracho colorada, bark of Maletto, tea, and sumach.

(Editor) 1907

Bismutin bitannicum.

Pharm. Ztg., 52, p.180. (Proc. Am. Pharm. Asso., 55, p.918.)

Bismutin bitannicum, a mixture of solutions of the tannin salt and a normal bismuth salt, is recommended as a remedy for chronicintestinal catarrh and is believed and is believed useful also in treatment of weeping eczemas.

It is manufactured by Chemische Fabrik von Heyden in Dresden-Radebeul.

Koebner, M. 1908

Zur Bestimmung des Gerbstoffes in Weizsweinen.

Chem. Zeit., 32, p.77. (Proc. Am. Pharm. Assoc., 56, p.378.

Recommends using a solution of tartaric acid, ferric chloride solution and an excess of ammonia in the estimation of tannin in white wines.

Stoecklin, E. 1908

Sur une nouvelle peroxydase artificielle.

Compt. Rendu., 147, p.1489. (Pharm. Journ., 82, p.611; Proc. Am. Pharm. Assoc., 57, p.371.)

Prepared a tannate of iron from equal parts of tannin and ferric sulfate in water, which forms with hydrogen preoxide a very energetic oxidizing agent capable of transforming ethylalcohol to aldehyde and of oxidizing many phenols.

Iljen, L. F. 1909

Uber die Zusammensetzung des Tannins.

Ber. d. deutsch. Chem. Gesell., 42, p.1731. (Pharm. Ztg. 45, p.442; Proc. Am. Pharm. Assoc., 57, p.370.)

The determination of the purity of tannin is done by the optical rotation. After the tannin is prepared by repeated precipitation from its acetic ester-ethyl alcohol solution by chloroform.

Miall, P. 1909

Treatment of Ingrowing Toenail.

Brit. Med. Jour., 1909, V.2, p.247. (Yrbk. Brit. Pharm. Conf., 47, p.190.)

A solution of tannin in water, 8-6, is applied

morning and night on the ingrown toe-nail.

(Allen, A.) 1911

Classification and Constitution of Natural Tannins.

Com. Org. An., 4ed., V.5, p.3. (Dispens. U.S.A., 22ed., p.58.)

Classifies tannins as to products they yield when heated with various substances.

Nierenstein, M. 1911

Uber die quantitative Bestimmung der Gerbstoffe bezw. des Tannins mittels Caseins.

Chem. Ztg., 35, p.31. (Pharm. Journ., 86, p.499; Proc. Am. Pharm. Assoc., 59, p.467.)

Recommends the use of casein in the estimation of tannin in barks and fruits.

Feist, K. 1912

Zur Tanninfrage.

Arch. d. Pharm., 250, p.668. (Yrbk. Am. Pharm. Assoc., 1, p.405.)

Obtained tannin from Turkish nutgalls, purified it by the chloroform-benzene-ether method. The tannin obtained hydrolyzed with sulfuric acid and yielded gallic acid and some dextrose.

Fischer, E. & Freudenberg, K. 1912

Über das Tannin und die Synthese ähnlichen Stuffe.

Ber. d. d. Chem. Gesell., 45, p.915. (Pharm. Journ. 89, p.233; Yrbk. Am. Pharm. Assoc., 1, 405.)

Prepared from glucose and gallic acid, a substance closely related to tannin. Pentagallolylglucose, having tanning properties, was obtained.

Hartwich, C. & Wichmann, A. 1912

Drei bolivianische Gerbsrinden.

Schweiz. Wschr. f. Chem. u. Pharm., 50, p.353. (Yrbk. Am. Pharm. Assoc., 1, p.201.)

Report on the Bolivian tanning barks. The bark of Byrsonima cydonioefolia contains 20% tannin; the bark of Piptadenia macrocarpa contains 18.3% tannin and a third bark of unknown botanical origin contains 5.6% tannin.

Gives illustrations showing structure of the 3 barks.

Feist, K. & Haun, H. 1913

Vergleichende Untersuchungen über die Konstitution des Tannins aus türkischen und chineseschen Galläpfeln.

Arch. d. Pharm. 251, p.468. (Yrbk. Am. Pharm. Assoc., 2, p.413.)

Discusses tannin beginning with an outline of the chemical history and a critical review of modern ideas concerning its structure, showing difficulties in arriving at a satisfactory conclusion concerning its composition.

Tschinch, A. 1913

Die Gerbstoffzellen des Kalmusrhizoms.

Schweiz. Wsch. f. Chem. u. Pharm., 51, p.269. (Yrbk. Am. Pharm. Assoc., 2, p.164.)

Discusses microchemical reactions of tannin-bearing cells of calamus and reports the results of experiments of the tannin with potassium dichromate, ferric chloride, Braemer's reagent, ferric allum and 0.05% naphthylene blue solution.

Votocek, E. 1913

Einfaches Reagens für den Nachweis von Holzschliff in Papier.

Chem. Ztg., 37, Pt. 2, p.897. (Pharm. Jour., 92, p.165; Yrbk. Am. Pharm. Assoc., 3, p.472.)

The tannin in tea appears to possess many of the properties of phoroglucin, and may be used as a cheap and easily obtained substitute for it in the testing of papers for the presence of wood pulp.

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von Wisselingh, C. 1913

Uber die Physiologische Bedeutung der Gerbstoffe.

Compt. Rendu. XI Intern. Pharm. Cong., p.956. (Yrbk. Am. Pharm. Assoc., 3, p.584.)

Found that tannin takes part in the formation of the cell wall of Spinogyra. Examination showed that the tannin content varied with the development of the cell wall, the farther the sidewise outgrowth of the cell wall, the more the tannin content diminished.

Fischer, E. & Freudenberg, K. 1914

Über das Tannin und die Synthese ähnlichen Stoffe.

Ber. d. d. Chem. Gesell., 47, p.2485. (Apoth. Ztg., 29, p.835; Yrbk. Am. Pharm. Assoc., 3, p.584.)

Determined the composition of Turkish tannin and found it contained ellagic acid in a soluble form, gallic acid as the galloyl group combined with dextrose and free gallic acid.

Moore, E. J. 1914

Recent Synthetic Studies in the Tannin Groups.

Journ. Ind. Eng. Chem., 6, p.450. (Yrbk. Am. Pharm. Assoc., 3, p.584;)

Discusses the attempts to synthesize tannic acid. The results show that the structure oftannin is typified by the pentagallate ofglucose.

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van Wissekingh, C. 1914

Ueber den Nachweis des Gerbstoffes in der Pflanze undueber seine Physiologische Bedentung.

Beihefte Botan. Centralbl., 32, p.155. (Pharm. Journ., 97, p.391; Yrbk. Am. Pharm. Assoc., 5, p.397; Pharm. Weekblad., 52, p.349; Chem. Abstr., 10, p.2361;)

Considers a 1% solution ofantipyreni or a 1:1000 solution of caffeine the most suitable regeants for the micro-detection of tannin in cell-contents.

Von Stockert, K. R. & Zellner, J. 1914

Chemische Untersuchung über Pflanzengallen.

Zeit. f. Physical. Chem., 90, p.495. (Drug. Anc., 58, p.620; Pharm. Journ., 93, p.223; Pharm. Zeitung, 59, p.485.)

Finds that proportion of water in galls is greater than in other parts of the plant; that the amount of water-soluble material is usually greater in the galls, owing chiefly to the greater quantity of tannin.

(Editor.) 1916

(Tannin a Substitute for Iodine.)

Chem. & Drugg., 88, p.438. (Yrbk. Am. Pharm. Assoc., 5, p.398;)

Many German medical papers recommend a 5% solution of tannin in alcohol as an admirable substitute for tincture of iodine.

Bennett, H. G. 1917

(Hide-Powder Estimation of Tannin.)

Journ. Soc-Leather Trades Chem., 1, p.8. (Chem. Abstr., 12, p.319; Digest of Comments on U.S.P., 1918, p.156;)

(Discusses his studies of improvements in the hide-powder method for estimating tannin.)

Benson, H. K. & Jones, F. M. 1917

Tannin Content of Pacific Coast Trees.

Journ. Ind. & Eng. Chem., 9, p.1096. (Digest Com. U.S.P., 1918, p.155; Yrbk. Am. Pharm. Assoc., 6, p.451;)

Describes experiment to determine tannin content of some of the trees of the Pacific coast and found that Western larch, and yellow pine yielded tannin of a good quality in considerable quantity. The other trees studied were Alder, dogwood, cottonwood, and western Hemlock.

Lauffmann, R. 1917

Method of Detecting Tannin.

Journ. Soc. Leather Trades Chem., 2, p.59. (Digest of Comments on U.S.P., 1918, p.156;)

Describes the detection of tannin in compounds by using formaldehyde as the precipitant.

Schell, E. 1917

(A Critical Study of The Commercial Determination of Tannin.)

Journ. Soc. Leather Trades Chem., 1, p.103; (Chem. Abstr., 12, p.320; Digest C.C. U.S.P., 1918, p.156;)

(Discusses the difficulty of the filter-bell and

shake methods for determining tannin along with the hide-powder method, as due to the colloidal nature of both substances and also the absorption and adsorption of both vegetable and mineral matters.)

Fischer, E. & Bergmann, M. 1919

Über das Tannin und die Synthese Ahnlicher Stoffe.

Ber. d. deut. Chem. Gesell., 52, p.829. (Journ. Soc. Chem. Ind., 38, p.429a; Yrbk. Am. Pharm. Assoc., 8, p.542;)

Prepared various products resembling and possessing some of the properties of Chinese tannin and the glucogallin from Chinese rhubarb.

Freudenberg, K. 1919

Über Gerbstoffe: Hamameli-Tannin.

Ber. d. deut. Chem. Gesell, 52, p.177. (Journ. d. Pharm. et d. Chim., s.7, V.20, p.329; Yrbk. Am. Pharm. Assoc., 8, p.542; Yrbk. Brit. Pharm. Conf., 57, p.90;)

Finds that hamamelis tannin is digalloylhexose yielding on hydrolysis with tannase, gallic acid and laevo-gyrate sugar.

Hanzlik, P. J. 1919

A Good Styptic?

Journ. Am. Med. Assoc., 72, p.577. (Yrbk. Am. Pharm. Assoc., 8, p.182.)

Discusses the use of styptics and astringents, and finds tannin quite effective.

Nierstein, M. 1919

The Tannin of the Knopper Gall.

Journ. Chem. Soc., 115, p.1174. (Journ. Pharm. et Chim., s.7, V.1, p.365; Yrbk. Am. Pharm. Assoc., 9, p.320;)

Studied the tannin obtained from Quercus Cerris and found it yields glucose and ellagic acid when hydrolyzed with sulfuric acid.

(Editor.) 1919

Albutannin.

Journ. Am. Med. Assoc., 73, p.1363. (Yrbk. Am. Pharm. Assoc., 8, p.125; Ibid., 9, p.172;)

Albutannin, a compound of tannin and albumin, first introduced as tannalbin is used in diarrhea, particularly that of children.

Leech, P. N. 1920

The Digestion of the Tannin Compounds Used as Intestinal Astringents by Artificial Digestive Mixtures.

Journ. Am. Med. Assoc., 75, p.1120. (Yrbk. Am. Pharm. Assoc., 9, p.649;)

A study of tannin compounds described in New and Non-official Remedies, and of some recently introduced American products to determine the action gastric juice has on them.

Freudenberg, K. & Walpuski, H. 1921

Der Gerbstoff der Edelkastanie.

Ber. d. deut. Chem. Ges., 54, p.1695. (Pharm. Zentralh., 63, p.242; Yrbk. Am. Pharm. Assoc., 11, p.301;)

The tannin of chestnut is not affected by tannase or other hydrolyzing agents, it has an acid reaction and is practically insoluble in ethyl acetate.

1921

Gathering Gall Nuts in Asiatic Turkey.

Pharm. Era, 54, p.5.

Describes the gathering and method of drying galls

in Asia Minor. Describes the galls which yield 50% of tannin, those which yield 40% of tannin and those which are not exported but used in local tanneries.

Atkinson, E, & Hazelton, E. 1922

A Qualitative Tannin Test.

Biochem. Journ. 16, p.516. (Journ. Chem. Soc., 122, p.793; Yrbk. Am. Pharm. Assoc., 11, p.372; Ibid., 12, p.342; Analyst., 48, p.38; Yrbk. Brit. Pharm. Conf., 60, p.202;)

A piece of gold-beater's skin is pinned on the surface of paraffin wax, soaked in water and then covered with an aqueous extract of the material to be tested. After 15 minutes, it is washed, treated with a 1% ferric chloride solution. If the skin is stained, the presence of tannin is indicated.

Freudenber, K. & Scilasi, W. 1922

Zur Kentniss des Chinesischen Tannins.

Ber. d. deut. Chem. Ges., 55, p.2813. (Yrbk. Am. Pharm. Assoc., 11, p.300;)

Discusses the properties of Chinese tannic obtained by extraction from Chinese nutgalls with hot water, neutralizing with sodium carbonate, exhausing with ethyl-acetate, washing and evaporating the extract in a vacuum.

Schulte, M. J. 1922

De Bepaling van het Looistofgehalte van Gercesmeddelen.

Pharm. Weekblad., 59, p.412. (Yrbk. Am. Pharm. Assoc., 11, p.395;)

Describes a special method for determining the tannin in medicinal preparations. A similar process may be applied in case of Ratany root but not for Cinchonca bark.

Thomas, A. W. 1922

Vegetable Tannin.

Journ. Ind. & Eng. Chem., 14, p.829. (Yrbk. Am. Pharm. Assoc., 11, p.301;)

A review of recent progress in the chemistry of vegetable tannins and tanning.

Menaud, P. 1923

Method for the Quantitative Determination of Tannin in Plant Tissue..

Journ. Agric. Res., 26, p.257. (Analyst, 49, p.193; Yrbk. Am. Pharm. Ass., 13, p.398; Journ. Soc. Chem. Ind., 43, p.B.226; Yrbk. Brit. Pharm. Conf., 61, p.213.)

Describes a test for estimation of tannin in plant tissues using a reagent containing sodium tungstate, arsenious oxide and water.

Peacock, J. C. et Peacock, B. L. 1923

The Tannin of Wild Cherry Bark.

Am. Journ. Pharm., 95, p.613. (Yrbk. Am. Pharm. Assoc., 12, p.296; Yrbk. Brit. Pharm. Conf., 60, p.222.)

Tried several methods for extracting tannin from wild cherry bark, using cold water, acetic ether, and hot water. Also found that the tannin contains benzoic acid.

Atkin, W. R. 1924

(Effect of Hydrogen Ion Concentration on Tannin Analysis.)

Journ. Soc. Leather Trades Chem., 8, p.425. (Analyst.,

49, p.493: Yrbk. Am. Pharm. Assoc., 13, p.398;)

Points out the effect of varying the hydrogen-ion concentration in the analysis of tannin of quebracho extract, mangrove, chestnut and oak.

Fawrell, O. A. 1924

Substitute for Nut Gall.

Am. Journ. Pharm., 96, p.435.

Tells how todistinguish a nutgall from an acorn, which is oftentimes substituted for nutgall in the market.

Jordan, C. J. & Ware, A. H. 1924

The Identification and Classification by Chemical Methods of Drugs containing Tannin: I--Application of the "Goldbeater's Skin Test."

Chem. & Drugg., 101, p.183. (Yrbk. A. Ph. A., 13, p.347: Yrbk. Brit. Pharm. Conf., 61, p.651;)

Discusses the value of the goldbeater's skin test in identifying and classifying the drugs containing tannin.

Mitchell, C. A. 1924

Osmium Tetroxide as a Reagent for the Estimation of Tannins and their Derivatives.

Analyst, 49, p.162. (Yrbk. Am. Pharm. Assoc., 13, p.399;)

Recommends a solution of osmium tetroxide be used for a colorimetric method of estimation of tannins in tea, sawdust, hops, and coffee.

Price, P. H. 1924

The Gold-Beater's Skin Test for Tannins.

Analyst, 49, p.25. (Yrbk. Am. Pharm. Assoc., 13, p.363; Yrbk. Brit. Pharm. Conf., 61, p.213;)

Studied the gold-beater's skin test for tannin as to the swelling, tanning, washing and staining of the membrane.

Ware, A. H. 1924

An Apparently Specific Test for Tannins.

Analyst, 49, p.467. (Yrbk. Am. Pharm. Assoc., 13, p.361; Yrbk. Brit. Pharm. Conf., 62, p.158;)

Describes a test for tannins using a solution of iron and ammonium acetate.

Ware, A. H. 1924

The Identification by Chemical Methods of Drugs containing Tannins.

Chem. & Drugg., 101, p.186. (Yrbk. Am. Pharm. Assoc., 13, p.346; Yrbk. Brit. Pharm. Conf., 62, p.378;)

Discusses various chemical tests used to identify drugs containing tannin and gives a classification of the drugs containing tannin in groups according to their reactions to the tests.

Davidson, E. C. 1925

Tannic Acid In the Treatment of Burns.

Surg., Gynec. & Obstet., 41, p.202. (Am. Journ. Pharm., 98, p.371; Yrbk. & Quart. Journ. Brit. Pharm. Conf., 1, p.272.)

Recommends the use of a saturated aqueous solution of tannic acid as a dressing for burns.

Lowe, S. & Lange, F. 1925

Erfahrungen mit der Cyankolireaktion bei einigen Markenpraparaten der Gerbstoff gruppe.

Arch. der Pharm., 263, p.107. (Yrbk. Am. Pharm. Assoc., 14, p.355;)

Found that Young's cyanide reaction for tannins gave varying results with different preparations, chiefly because of the hydrogen ion concentration.

Peacock, J. C. & B. L. 1925

The Tannin of Rhus Glabra.

Am. Journ. Pharm., 97, p.463.

Extracted the tannin from sumac berries with hot water and then with acetic ether. After purification its properties are the same as those of the Tannic Acid of the U.S.P. Color tests were made with the tannin with ferric chloride and ferric acetate.

Bancroft, F. W. & Rogers, C. S. 1926

The Treatment of Cutaneous Burns.

Annals of Surgery, 84, p.1. (Yrbk. Am. Pharm. Assoc.,15, p.208; Yrbk. Brit. Pharm. Conf., 63, p.260;)

Recommends a 2.5-5% solution of tannic acid for cutaneous burns.

Forbes, W. B. 1926

An Examination of Commercial Tannic Acid by Comparative Methods.

Pharm. Journ., 116, p.225; (Yrbk. Am. Pharm. Assoc., 15, p.320;)

Discusses the composition of commercial tannic acids and uses many methods for testing as Lowenthal's method, precipitation by ackaloids and absorption by hide powder.

Carrell, W. D. 1927

Tannic Acid Treatment of Varicose Ulcers.

Journ. Am. Med. Assoc., 89, pt. 2, p.1902. (Yrbk. & Quart. Journ. Brit. Pharm. Conf., 1, p.146;)

Used a 2.5% solution of tannic acid in the treatment of varicose ulcers.

Seymour-Jones, F. L. 1927

The Beginnings of Leather Chemistry.

Journ. Chem. Educ. 4, p.831.

Discusses the early history of tannic acid as to isolation, Seguin's experiments with it, methods of analysis and the chemistry.

Francois, M. 1928

Dosage des matières tannantes par la procedre de peau chromé.

Journ. d. Pharm. et de chim., s.8, V.7, p.114;(Yrbk. & Quart. Journ. Brit. Pharm. Conf;)

Uses powdered "chrome skin" for the determination of tannin.

Gordon, R. M. 1928

Treatment of Burns by Tannic Acid.

Lancet, 106 V.1, p.336. (Yrbk. & Quart. Journ. Brit. Pharm. Conf., 1, p.272;)

Uses a 2% solution of tannic acid for treatment of burns on a child.

Krishna, S. Ram. N. 1928

Bestimmung der Gerbsäure.

Ber. d. deu. Chem. Gesellschft., 61, p.771. (Pharm. Zentralhl., 69, p.569; Yrbk. Am. Pharm. Assoc., 17, p.1096; Yrbk. & Quart. Journ. Brit Pharm. Conf., 1, p.611;)

Use a solution of titanium chloride in the estimation of tannin.

Rae, J. 1928

A New Colorimetric Test for Tannic Acid.

Pharm. Journ., 120, p.539. (Yrbk. Am. Pharm. Assoc., 17, p.1096;)

Uses a 10% solution of ammonium molybdate for a colorimetric test for tannic acid, a reddish brown color results.

Wilson, W. C. 1928

Treatment of Burns and Scalds by Tannic Acid.

Brit. Med. Journ., 1928, V.2., p.91. (Pharm. Journ., 121, p.244; Yrbk. Am. Pharm. Assoc., 17, p.904; Dispens. U.S.A., 22ed., p.59; Yrbk. & Quart. Journ. Brit. Pharm. Conf., V.2, p.668;)

Recommends a 2.5% solution of tannic acid for treatment of burns and scalds as scarring is less marked and analgesia is promoted.

Fear, C. M. 1929

The Alkaloid Test For Tannins.

Analyst, 54, p.316. (Yrbk. Am. Pharm. Assoc., 18, p.419; Yrbk. & Quart. Journ. Brit. Pharm. Conf., 2, p.413;)

Gives the results of experiments on precipitating tannin with various alkaloids.

Pharm. Journ., 120, p.539. (Yrbk. Am. Pharm. Assoc., 17, p.1096:)

Uses a 10% solution of ammonium molybdate for a colorimetric test for tannic acid, a reddish brown color results.

Linde, O. & Teufer, H. 1929

Zur Gerbstoffbestimmung in Drogen.

Pharm. Zentr., V.70, pp.54 & 71. (Dispens. U.S.A., 22ed., p.59: Yrbk. Am. Pharm. Assoc., 18, p.447; Yrbk. & Quart. Journ. Brit. Pharm. Conf., 2, p.433:)

Compare several methods for determination of tannic acid.

Michel-Durand, E. 1929

Influence du traitement à l'alcohol sur l'extraction du tannin des végetáux.

Comnt. Rendu., 189, p.1306. (Yrbk. & Quart. Journ. Brit. Pharm. Conf., 3, p.117:)

A preliminary treatment of boiling acorns with alcohol renders the tannin almost insoluble in anhydrous acetone, but very soluble in a mixture of acetone and water.

Oberhard, J. G. & Schalberowa, A. V. 1930

Eine Methode zur Bestimmung kleiner Mengen von Gerbstoffen.

Pharm. Ztg., 75, p.970. (Yrbk. Am. Pharm. Assoc., 19, p.286; Yrbk. & Quart. Journ. Brit. Pharm. Conf., V.4, p.245;)

Give a method for estimating small quantities of tannin by using filter paper immersed in gelatin and then treated with ferric chloride.

Rosencratz, H. 1930

Gerbsäure in der Diagnostick und Therapie von Magenrund Zwölffingerdarmenkrankungen.

Mediziniaches Klinik, 26, p.381; (Dispens. U.S.A., 22ed., p.59: (Yrbk. & Quart. Brit. Pharm. Conf., V.3, p.689;)

Suggests the use of tannic for relieving the effects of peptic ulcers.

Sieger, S. J. 1932

Therapeutic Value of Tannin.

Surg. Gynecol. Obstet., 55, p.455. (Squibbs Abstr. Bull., 5, p.1303; Yrbk. Am. Pharm. Assoc., 21, p.428;)

Discusses the therapeutic use of solutions of

tannin, especially in treatment of burns.

Hoch, J. H. 1933

Tannin Spot. Tests.

Journ. Am. Pharm. Assoc., 22, p.121. (Yrbk. Am. Pharm. Assoc., 22, p.263: Dispens. U.S.A., 22ed, p.58; Yrbk. & Quart. Journ. Brit. Pharm. Conf., 6, p.612;)

Finds that 5% ferric sulfate, 1% ferric acetate, 1% sodium carbonate, 5% copper acetate and 1% potassium cyanide were the most sensitive reagents in the tannin spot-test.

Mitchiner, P.H. 1933

The Treatment of Burns and Scalds.

Lancet, 111, p.233. (Yrbk. Am. Pharm. Assoc., 22, p.169; Yrbk. & Quart. Journ. Brit. Pharm. Conf., 6, p.294;)

Discusses reasons of failure of old methods of treating burns. Reccommends the use of a 2% solution of tannin, sprayed on the burned area or applied by compresses.

Ware, A. H. & Smith, V. 1933

The Precipitation of Alkaloids by Tannin and the Use of Antipyrine in the Detection of Tannins.

Yrbk. & Quart. Journ. Brit. Pharm. Conf., 6, p.454.

Discusses the use of alkaloids in precipitating tannin from solution and the use of antipyrine in place of cinchonine salts for the detection of tannin.

Wells, D. B. 1933

Tannic Acid Treatment for Burns.

Science Supplement, 77, no.2008, p.8; (Journ. Am. Med. Assoc., 101, p.1136; Dispens. U.S.A., 22ed., p.59;)

Describes a three-hour bath in tannic acid for treatment of severe burns. This treatment relieves pain so areas can be thoroughly cleaned and thus prevent infection. This method is successful in burns from gasoline explosions, extensive scalds, and ignited clothing.

Gillot, P. 1934

Titrage volumétrique des tannins par le mélange chromique.

Bull. Sci. Pharmcol., 41, p.137; (Dispens. U.S.A., 22ed., p.59;)

Describes a volumetric method for the determination of tannin.

Gillot, P. 1934

Contribution à l'étude de quelque tanins.

Bull. Sci. Pharmcol., 41, p.257; (Dispens. U.S.A., 22ed., p.59;)

Gives a method for differentiating quantitatively pyrocatechal and pyrogallol yielding tannins.

Latimer, E. 1934

Treatment of Decubitis with Tannic Acid.

Journ. Am. Med. Assoc., 102, p.751. (Dispens. U.S.A., 22ed., p.59;)

Describes the use of tannic acid for preventing and curing bed sores.

Bliss, R. R. 1935

Tannic and Picnic Acids in Burns.

Drug & Cosmetic Ind., 37, p.177. (Pharm. Abstr., 1, 352;)

Suggests an ointment of 5% tannic acid, 0.5% picnic acid and 0.2% benzocaine for the treatment of burns.

Miller, F. C.

1937

Tannic Acid in Analysis.

Chem. Analyst, 26, No.2, p.38.

Tannic acid is used qualitatively for detection of titanium, iron, columbium, tantalum, silver, gold, uranium and mercury as metals, and vanadates, molybdates, tungstates and phosphates, among acid radicals by color of precipitate formed.

LIST OF BOOKS CONSULTED

Coxe, J. R. (The) Am(erican) Dispens(atory) 1ed., 1806; 4ed., 1818; 6ed., 1825; 7ed., 1827; 8ed., 1830; 9ed., 1831.

King, J. (The) Am(erican) Dispens(atory) 1ed., 1852; 6ed., 1864; 8ed., 1872; 10ed., 1875; 15ed., 1881; 16ed., 1889; 18ed., V.2, 1898.

Stelle, A. & Maisch, J. (The) Nat(ional) Dispens(atory) 1ed., 1879; 2ed., 1879; 3ed., 1884; 5ed., 1894.

Thacher, J. (The) New Am(erican) Dispens(atory) 1ed., 1810; 2ed., 1813; 4ed., 1821.

Wood, G. B. & Bache, F. (The) Dispens(atory) (of the) U(nited) S(tates of) A(merica). 2ed., 1834; 3ed., 1836; 4ed., 1838; 5ed., 1843; 6ed., 1845; 7ed., 1847; 8ed., 1849; 9ed., 1851; 10ed., 1854; 11ed., 1858; 12ed., 1869; 13ed., 1871; 14ed., 1879; 15ed., 1883; 16ed., 1892; 17ed., 1894; 18ed., 1899; 19ed., 1907; 20ed1, 1918; 21ed., 1926; 22ed., 1937.

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(The) Am(erican) Journ(al of) Pharm(acy). V.1-109: 1825-1937.

Pharm(aceutical) Abstr(acts), V.1-2: 1935-1936.

(The) Proc(eedings of the) Am(erican) Pharm(aceutical) Assoc(iation) V.1-59: 1851-1911.

Y(ear)b(oo)k (of the) Am(erican) Pharm(aceutical) Assoc(iation) V.1-23: 1915-1934.

(The) Y(ea)rb(oo)k (of the)Brit(ish) Pharm(aceutical) Conf(erence) V.4-64: 1867-1927.

Y(ea)rb(oo)k (and) Quart(erly) Journ(al of the) Brit(ish) Pharm(aceutical) Conf(erence), V.1-10: 1928-1937.

UNITED STATES PHARMACOPOEIA (O-XI)

(1820-1930)

NATIONAL FORMULARY (I-VI)

(1888-1935)

HISTORY

of

TANNIC ACID

U.S.P., - 1840, Prep. P. 62

Acidum Tannicum

Tannic Acid

(Tannin)

Take of Galls, in powder

Sulphuric Ether, each, a sufficient quantity.

Put into a glass adapter, loosely closed at its lower end with carded cotton, sufficient powdered/ Galls to fill about one half of it, and press the/ powder slightly. Then fit the adapter accurately/ to the mouth of a receiving vessel, fill it with the/ Sulpfuric Ether, and close the upper orifice so as/ to prevent the escape of the ether by evaporation/. The liquid which passes separates into two un/-equal portions, of which the lower is much smaller/ in quantity and much denser than the upper./ When the ether ceases to pass, pour fresh portions/ upon the Galls, until the lower stratum of liquid/ in the receiver no longer increases. Then sepa/rate this from the upper, put it into a capsule, and/ evaporate with a moderate heat to dryness. Last/ly, rub what remains into powder.

The upper portion of liquid will yield by dis/tillation a quantity of ether, which, when washed/ with water, may be employed in a subsequent/ operation.

Tannic Acid is of a yellowish-white colour, of a strongly/ astringent taste, decomposed and entirely dispersed when/ thrown on red-hot iron, very soluble in water,

and less soluble/ in alcohol and in ether. Its solution of gelatin a white flocculent precipitate, with/ the salts of the sesquioxide of iron a bluish-black precipitate,/ and with solutions of the vegetable alkalies, white precipitates/ very soluble in Acetic Acid.

U.S.P. - 1850, Prep. P. 68

Acidum Tannicum

Tannic Acid

Take of Galls, in powder,

Ether, each, a sufficient quantity,

Put into a glass adapter, loosely closed at its/ lower end with a corded cotton, sufficient powdered/ Galls to fill about one half of it, and press the/ powder slightly. Then fit the adapter accurately/ to the mouth of the receiving vessel, fill it with/ Ether, previously washed with water, and close/ the upper orifice so as to prevent the escape of the/ Ether by evaporation. The liquid which passes/ separates into two unequal portions, of which the/ lower is much smaller in quantity and much/ denser than the upper. When the Ether ceases to/ pass, pour fresh portions upon the Galls, until the, lower stratum stratum of liquid in the receiving vessel no/ longer increases. Then separate this from the/ upper, put it into a capsule, and evaporate with a/ moderate heat to dryness. Lastly, rub what re/mains into powder.

The upper portion of liquid will yield by dis/tillation a quantity of ether, which, when washed/ with water

may be employed in a subsequent/ operation.

Tannic Acid is of a yellowish-white colour, and of a strongly/ astringent taste. It is decomposed and entirely dispersed when/ thrown on red-hot iron. It is very soluble in water, and less/ soluble in alcohol and in ether. Its solution reddens litmus/ produces with solution of gelatin a white flocculent precipitate, with the salts of the sesquioxide of iron, a bluish-black preci/pitate very soluble in acetic acid.

U.S.P., - 1860, Prep. P. 80

Acidum Tannicum

Tannic Acid

Take of Nutgall, in fine powder,

Ether, each, a sufficient quantity.

Expose the Nutgall to a damp atmosphere for/ twenty-four hours and then mix it with sufficient/ Ether, previously washed with water, to form a/ soft paste. Set this aside, covered closely, for six/ hours; then, having quickly enveloped it in a/ close canvas cloth, express it powerfully between/ tinned plates, so as to obtain the liquid portion./ Reduce the resulting cake to powder and mix it/ with sufficient Ether, shaken with one-sixteenth/ of its bulk of water, to form again a soft paste, and/ express as before. Mix the liquids, and expose/ the mixture to spontaneous evaporation until it/ assumes a spongy consistence; then spread it on/ glass or tinned plates, and dry it quickly in a dry/ing closet. Lastly,

remove the dry residue from/ the plate with a spatula, and deep it in a well/stoppened bottle.

Tannic Acid, thus obtained, has a yellowish-white colour, and/ strongly astringent taste. It is decomposed and entirely dissipated/ when thrown on red-hot iron. It is very soluble in water, and/ less so in alcohol and ether. Its solution reddens litmus, and pro/duces with of gelatin a white, flocculent precipitate, with/ the salts of sesquioxide of iron a bluish-black precipitate, and/ with solutions of the alkaloids white precipitates, very soluble/ in acetic acid.

U.S.P., - 1870, Prep. P. 73

Acidum Tannicum

Tannic Acid

Take of Nutgall, in fine powder,

Ether, each, a sufficient quantity.

Expose the Nutgall to a damp atmosphere for twenty-four/ hours, and then mix it with sufficient Ether, previously/ washed with water, to form a soft paste. Set this aside/ covered closely, fore six hours, then having quickly envel/oped it in a close canvas cloth, express it powerfully between/ tinned plates, so as to obtain the liquid portions. Reduce/ the resulting cake to powder, and mix it with sufficient/ Ether, shaken with one-sixteenth of its bulk of water, to/ form again a soft past, and express as before. Mix the/ liquids, and allow the mixture to evaporate spontaneously/ until it assumes a sirupy

consistence; then spread it on/ glass or tinned plates, and dry it quickly in a drying closet./ Lastly remove the residue from the plates with a spatula,/ and keep it in a well-stoppered bottle.

Tannic Acid has a yellowish-white colour, and strongly astringent/ taste. It is decomposed and entirely dissipated when thrown on red-/hot iron. It is very soluble in water, and less so in alcohol and ether./ Its solution reddens litmus, and produces with solutions of gelatin a/ white flocculent precipitate; with the salts of sesquioxide of iron a/ bluish-black precipitate; and with solutions of the alkoloids white/ precipitates, very soluble in acetic acid.

U.S.P., - 1880, Prep. P. 23

Acidum Tannicum

Tannic Acid

$C_{14}H_{10}O_9$ (chiefly) 322 $C_{28}H_{10}O_{18}$-322

Light yellowish scales, permanent in the air, having a faint peculiar odor, a/ strongly astringent taste and an acid reaction. Soluble in 6 parts of water and in 0.6/ part of alcohol at 15°C (59°F); very soluble in boiling water and in boiling al/cohol; also soluble in absolute alcohol/ freely in diluted alcohol; moderately in washed ether, and almost insoluble in/ absolute ether, chloroform, benzol, and benzin. Where heated on platinum foil, it/ is completely volatilized. With solution of ferric chloride, Tannic Acid forms a/ bluish-black ink.

In aqueous solution it causes precipitates with alkaloids, gelatin,/ albumen, gelatinized starch, and solution of tartrate of antimony and potassum/ (distinction from gallic acid.)

Preparations: Collodium Styptecum. Trochesci Acidi Tannici. Unguentum Acidi/ Tannici.

U.S.P., - 1890, Prep. P. 24

Acidum Tannicum

Tannic Acid

$HC_{14}H_9O_9$ = 321.22

(Gallotannic Acid Digallic Acid)

An organic acid obtained from nutgall.

A light-yellowish, amphorous powder, usually cohering in form of glistening/ scales or spongy masses, odorless, or having a faint characteristic odor, and a/ strongly astringent taste; gradually turning darker when exposed to air and/ light.

Soluble, at 15°C (59°F), in about 1 part of water, and in 0.6 part of alcohol;/ very soluble in boiling water, and in boiling alcohol; also in about 1 part of/ glycerin, with the intervention of a moderate heat, freely soluble in diluted/ alcohol, sparingly in absolute alcohol; almost insoluble in absolute ether,/ chloroform, benzol, or benzin.

When heated on platinum foil, the Acid is gradually consumed without/ leaving more than 0.2 per cent of ash.

Tannic Acid has an acid reaction upon litmus paper.

The addition of a small quantity of ferric chloride T.S. to an aqueous solution/ of the Acid produces a bluish-black color or precipitate.

On adding to an aqueous solution (1 in 100) of Tannic Acid a small quantity/ of calcium hydrate T.S., a pale bluish-white, flocculent precipitate is produced/ which is not dissolved on shaking (difference from gallic acid) and which/ becomes more copious and of a deeper blue by the addition of a moderate/ excess of calcium hydrate T.S., while a large excess of the latter imports a/ pale pinkish tint to the solution.

The aqueous solution of the Acid produces precipitates with most alkaloids/ and bitter principles, and with test-solutions of gelatin, albumin, and starch/ (distinction from gallic acid).

On dissolving 2 Gm. of Tannic Acid in 10 Cc. of boiling water, and allowing/ the liquid to cool, no turbidity should be produced on diluting 5 Cc. of the/ solution with 10 Cc. of alcohol (absence of gum and dextrin), or with 10Cc. of/ water (absence of resin).

Preparations: Collodium Stypticum. Glyceritum Acidi Tannici. Trochesci/ Acidi Tannici. Unguentum Acici Tannici.

U.S.P., - 1900, Prep. P. 25

Acidum Tannicum

Tannic Acid

$HC_{14}H_9O_9 = 219.66$

A monobasic organic acid ($C_{13}H_9O_7.COOH$), obtained from nut-/gall.

A light yellowish amorphous powder, gradually turning darker when ex/posed to air and light, usually cohering in the form of glistening scales or/ spongy masses, odorless, or having a faint, characteristic odor, and a strongly/ astringent taste.

Soluble in about 0.34 part of water and in about 0.23 part of alcohol at/ 25°C. (77°F.); very soluble in boiling water, and in boiling alcohol; also in/ about 1 part of glycerin, with the application of a moderate heat; freely solu/ble in diluted alcohol, sparingly in absolute alcohol; almost insoluble in abso/lute ether, chloroform, benzene, or petroleum benzin.

When heated on platinum foil, the Acid is gradually consumed, leaving not/ more than 0.2 percent of ash.

An aqueous solution of Tannic Acid reddens blue litmus paper.

The addition of a small quantity of ferric chloride T.S. to an aqueous solution/ of the Acid produces a bluish-black color or precipitate.

On adding to an aqueous solution (1 in 100) of Tannic Acid a small quantity/ of calcium hydroxide T.S., a pale bluish-white, flocculent precipitate is pro/duced which is not dissolved on shaking (difference from gallic acid), and/ which becomes more copious and of a deeper blue by

the addition of a/ moderate excess of calcium hydroxide T.S., while a large excess of the latter/ imparts a pale pinkish tint to the solution.

The aqueous solution of the Acid produces precipitates with most alkaloids,/ and glucosides, and with test solutions of gelatin, albumin, and starch (distinc/tion from gallic acid).

If 2 Gm. of Tannic Acid be dissolved in 10Cc. of boiling water, and the liquid/ allowed to cool, no turbidity should be produced on diluting 5 Cc. of the solu/tion with 10 Cc. of alcohol (absence of gum or dextrin), or with 10 Cc. of water/ (absence of resinous substances). Average Dose.- 0.5000 Gm = 500 milligrammes (7 1/2 grains).

U.S.P., - 1910, Prep. P. 26

Acidum Tannicum

Tannic Acid

Acid. Tan.-Gallotannic Acid. Tannin

A tannin usually obtained from nut-galls. Preserve it in well-closed/ containers, in a cool place, protected from light.

Tannic Acid occurs as a yellowish-white to light brown, amorphous powder,/ gradually turning darker when exposed to air and light, usually cohering in/ the form of glistening scales or spongy masses; odorless, or having a faint, characteristic odor, and a strongly astringent taste.

One Gm. of Tannic Acid dissolves in 1 mil. of glycerin with the application/ of a moderate heat; very soluble in water and alcohol at 25° C. and in boiling/ water and

boiling alcohol; freely soluble in diluted alcohol, slightly soluble in/ dehydrated alcohol and almost insoluble in ether, chloroform, benzene, or petroleum benzine.

An aqueous solution of Tannic Acid (1 in 20) is acid to litmus.

The addition of a small quantity of ferric chloride T.S. to an aqueous solu/tion of the Acid produces a bluish-black color or precipitate.

An aqueous solution of Tannic Acid produces precipitates with nearly all/ alkaloids and glucosides, and with solutions of gelatin, albumin, and starch.

Tannic Acid does not lose more than 12 per cent of its weight when dried/ to constant weight at 100° C.

Incinerate about 1 Gm. of Tannic Acid in a platinum dish; not more than/ 0.6 percent of ash remains.

Dissolve about 2 Gm. of Tannic Acid in 10 mils. of hot distilled water, the solu/tion is not more than slightly turbid, and no turbidity is produced on diluting/ 5 mils. of the cooled and filtered solution with twice its volume of alcohol (gum/ or dextrin) or with twice its volume of distilled water (resinous substances).

Preparations-Glyceritum Acidi Tannici Trochisci Acidi Tannici Unguentum/ Acidi Tannici.

Average Dose-Metric, 0.5 Gm.- Apothecaries, 8 grains.

U.S.P., - 1920, Prep. P. 28

Acidum Tannicum

Tannic Acid

Acid Tan. - Gallotannic Acid, Tannin

A tannin usually obtained from nutgall.

Description and physical properties--An amorphous powder, glistening scales,/ or spongy masses, varying in color from yellowish-white to light brown. It is/ odorless, or has a faint, characteristic,oder, and a strongly astringent taste.

Tannic Acid is very soluble in water, acetone, and alcohol. It is freely/ soluble in diluted alcohol and slightly soluble in dehydrated alcohol. It is/ almost insoluble in benzene, chloroform, ether, and in petroleum benzin. One Gm. Of Tannic Acid dissolves in about 1 Cc. of warm glycerin.

Tests for identity--The addition of a small quantity of ferric chlorid T.S., to an/ aqueous solution of the Acid produces a bluish-black color or precipitate.

An aqueous solution of Tannic Acid produces precipitates in solutions of/ most of the alkaloids and glucosides, and also in solutions of gelatin, albumin,/ and starch.

Tests for purity--Tannic Acid loses not more than 12 per cent of its weight when/ dried to constant weight at 100°C.

Ash: not more than 0.5 per cent.

Dissolve 2 Gm. of Tannic Acid in 10Cc. of hot distilled water: the solution is/ not more than slightly turbid, and no turbidity is produced upon diluting/ separate 5 ec. portions of the cooled and filtered solution with 10Cc. of alcohol/ (gum or dextrin), or with 10 Cc. of distilled water (resinous substances)

Preserve in well-closed containers, in a cool place, protected from light.

Preparations--Glyceritum Acidi Tannici, Trachisci Acidi Tannici, Unguentum/ Acidi Tannici.

Average Dose--Metric, 0.5 Gm.--Apothecaries, 8 grains.

U.S.P., - 1930, Prep. P. 29

Acidum Tannicum

Tannic Acid

Acid. Tan.--Gallatannic Acid, Tannin

A tannin usually obtained from nutgall.

Description and physical properties--An amorphous powder, glistening scales/ or spongy masses, varying in color from yellowish-white to light brown. It is/ odorless, or has a faint characteristic odor, and a strongly astringent taste.

Tannic Acid is very soluble in water, in acetone, and in alcohol. It is/ freely soluble in diluted alcohol and slightly soluble in dehydrated alcohol./ It is almost insoluble in benzene, in chloroform, in ether, and in petroleum/ benzin. One Gm. of Tannic Acid dissolves in about 1cc. of warm glycerin.

Tests for identity--The addition of a small quantity of ferric chloride T.S. to/ an aqueous solution of Tannic Acid produces a bluish-black color or pre-/cipitate in the mixture.

An aqueous solution of Tannic Acid produces precipitates in solutions of/ most of the alkaloids, and also in solutions of albumin, of gelatin, and of/ starch.

Tests for purity--Tannic Acid loses not more than 12 percent of its weight when/ dried to constant weight at 100°C.

Ash: not more than 0.5 percent, page 439.

Dissolve 2 Gm. of Tannic Acid in 10 Cc. of hot distilled water; the solution/ is not more than slightly turbid. Cool and filter the solution and divide it/ into 2 equal portions. One portion is not rendered turbid by the addition/ of 10 Cc. of alcohol (gum or dextrin); the other portion is not rendered turbid/ by the addition of 10 Cc. of distilled water (resinous substances).

Storage--Preserve Tannic Acid in well-closed containers, in a cool place and pro-/tected from light.

Preparations--Glyceritum Acidi Tannici, Unguentum Acidi Tannici.

Average Dose--As antidote, Metric, 1 Gm.--Apothecaries,/ 15 grains.

SUMMARY OF
UNITED STATES PHARMACOPOEIA (O-XI)
(1820-1930)
and
NATIONAL FORMULARY (I-VI)
(1888-1935)
DATA
of
TANNIC ACID

When Official:

U.S.P. 1840; '50; '60; '70; '80; '90; 1900; '10; '20; '30.

Official Latin Title:

Acidum Tannicum, U.S.P. 1840; '50; '60; '70; '80; '90; 1900; '10; '20; '30.

Official English Title:

Tannic Acid, U.S.P. 1840; '50; '60; '70; '80; '90; 1900; '10; '20; '30.

Official Abbreviation:

Acid. Tan., U.S.P. 1910; '20; '30.

Official Synonym:

Tannin, U.S.P. 1840; 1910; '20; '30.

Gallotannic Acid, U.S.P. 1890; 1910; '20; '30

Digallic Acid, U.S.P. 1890.

Scientific Name:

Official Method of Preparation:

U.S.P. 1840; '50, '60, '70.

Official Description:

U.S.P. 1880; '90; 1900, '10, '20, '30.

Official Dose:

0.5 Gm., U.S.P. 1900, '10, '20.

1 Gm., U.S.P. 1930.

7 1/2 grains, U.S.P. 1900.

8 grains, U.S.P. 1910, '20.

15 grains, U.S.P. 1930.

Official Preparations:

Collodium Stypticum, U.S.P. 1880; '90.

Trochisci Acidi Tannici, U.S.P. 1880; '90; 1910; '20.

Unguentum Acidi Tannici, U.S.P. 1880; '90; 1910; '20; '30.

Glyceritum Acidi Tannici, U.S.P. 1890; 1910; '20; '30.

APPROVED BY: W.O. Richtmann.

Prof. of Pharmacognosy