AMERICAN JOURNAL OF PHARMACY
Volume 61, #5, May, 1889

Botanical Medicine Monographs and Sundry

GERANIUM MACULATUM.

Contribution from the Chemical Laboratory of the
Philadelphia College of Pharmacy.-No. 51.
By HENRY J. MAYERS, PH. G.

The object in investigating this drug was to ascertain the proximate constituents and determine if it, as has been stated, contains so much as 17 per cent. tannin.

Dr. Edward Staples (A. J. P., 1829) p. 171) found tannic and gallic acids, red coloring, resin, mucilage and a crystallizable vegetable principle.

H. K. Bowman (A. J. P., 1869, p. 193) obtained from two samples 13.41 and 17.25 per cent. of tannin respectively.

For the quantitative analysis the drug was procured from a reliable source in fine powder, and 50 grams taken for the first extractions.

1. TREATMENT WITH PETROLEUM ETHER.—This solvent extracted 0.228 per cent.; wax and fat, 0.210 per cent. ; volatile oil, a trace.

The wax and fatty matter were of a yellow color, solid at ordinary temperatures, melted at 60˚C. Soluble in stronger ether, chloroform and hot 95 per cent. alcohol; the last solvent deposited the wax on cooling, which was of a white color and not crystallizable.

II. TREATMENT WITH STRONGER ETHER.—The drug freed from the previous solvent was exhausted with successive portions of stronger ether.

Total amount dissolved, 0.46 per cent.; resin soluble in alcohol, 0.25 per cent.; gallic acid, 0.21 per cent.

The resin was of a dark brown color and a bitter taste.

The ethereal extract was evaporated and treated with water, the resin separated by filtration and the aqueous filtrate agitated with ether. On separating the ethereal layer and setting aside for 24 hours, crystals of gallic acid of a yellowish color were found to cover the bottom of the beaker. The solution of these crystals in hot water gave no reaction with pure ferrous sulphate, a blue-black precipitate with ferric chloride, no precipitate with tartar emetic or gelatin, and a green color with potassium hydrate changed to red by acids; no tannin was found in the ethereal extract.

III. TREATMENT WITH ABSOLUTE ALCOHOL.—Total amount extracted, 11.40 per cent.; tannin, 2.48 per cent.; decomposed tannin (phlobaphene), 8.92 per cent.; small amounts of sugar and a crystalline principle not estimated.

The aqueous solution of the alcoholic extract gave the following reactions: Solution of ferric chloride, blue-black precipitate; solution of ferrous sulphate, no change; solution of tartar emetic, dark precipitate; solution of gelatin, white flocculent precipitate.

Definite portions of this aqueous solution gave with lead acetate and copper acetate almost exactly the same amount of tannin—2.48 per cent. Petroleum ether and ether extracted from this aqueous solution, made alkaline, a small quantity of a white crystalline body soluble in stronger ether, from which it was recrystallized. This is probably the "crystallizable vegetable principle" mentioned by Staples.

IV. TREATMENT WITH DISTILLED WATER.—Total amount dissolved, 9.54 per cent.; mucilage, 1.12 per cent.; dextrin, 2.58 per cent.; sugar, 5.84 per cent.

V. TREATMENT WITH DILUTE ALKALINE SOLUTION.—Total, 7.52 per cent. ; mucilage, 4.64 per cent.; albuminoids, 2.88 per cent.

Dilute acid and chlorine water extracted small quantities, which left, after deducting ash, 57.09 per cent. of cellulose. In separate portions of the drug the moisture was found to be 5.02 per cent., the ash 8.75 per cent.

The amount of tannin found was so low as to demand verifying, which was undertaken by exhausting 10 grams of the drug with boiling water. This decoction, with gelatin and alum solution, indicated 4.25 per cent. This discrepancy not being satisfactory, another portion of the whole drug was purchased, and powdered. In this lot, by the gelatin and alum process, 11.53 per cent. were obtained. These differences in the amount of tannin may be explained by supposing that the two lots of drug were collected at different times in the year, or the first lot, coming from stock kept in the powdered state, had changed; the quantity of phlobaphene, as may be noticed, being excessive.

RESIN FROM FLOWER BUDS OF POPULUS TREMULOIDES.

By ROBERT GLENK.

On macerating the coarsely-cut fresh buds with alcohol, a dark amber-colored tincture was obtained, which on concentration by evaporation and pouring into water precipitated a yellowish brown resin with a strong hop-like odor, and melting at 51°C.

It is soluble in glacial acetic acid, acetic ether and amyl alcohol only slightly soluble in chloroform, ether, carbon disulphide, turpentine and benzol.

In alcoholic solution it has an acid reaction. On adding 1 drop of tincture of chloride of iron to 3 cc. of an alcoholic solution (1-50), a dark green color is produced, and the

addition of a solution of chlorinated soda to the alcoholic solution produces a jet black color. It is Completely soluble in KOH, 5 per cent., to a brown red solution, and is reprecipitated on the addition of an excess of acid. On oxidizing the solution in 2 per cent. caustic potash a peculiar play of colors was noticed from an emerald to a dark green, then to violet, and after five minutes to a deep carmine red, with a distinct odor of oil of bitter almonds, (due probably to cinnamic acid or some anthracene derivatives).

The resin is not entirely soluble in an excess of water of ammonia even on warming; on filtering and evaporating the filtrate, part of the resin is reprecipitated, while a portion remains soluble in water, and on addition of a neutral solution of ferric chloride to the aqueous solution a brown precipitate is produced which on addition of dilute hydrochloric acid is changed to a light yellow color.

On adding to 1 grain of the powdered resin I cc. of fuming nitric acid, a dark green solution is formed, afterward changing to dark brown, reprecipitated on adding water. With H_2SO_4 specific gravity, 1.82, a dark red solution is formed which is precipitated on adding water. With HCl specific gravity, 1.160, no change; and with a solution of bromine in chloroform (1-20) no change was observed.

Heated on platinum foil the resin burns and leaves but a minute residue of Na_2CO_3.

ON TINCTURES.

Abstracts from Theses.

Tinctura Cantharidis.—Rob. A. Hatcher proposes maceration for preparing this tincture. He found that if prepared by percolation a small amount of cantharidin may remain behind in the powder, which can be extracted by the process of Mortreux, viz. : exhausting with chloroform, treating the extract with carbon disulphide, and crystallizing the undissolved portion from chloroform.

Tinctura Catechu composita.—F. B. Quackenbush observed a difficulty in percolating the mixed powders of catechu and cinnamon; if much finer than No. 40, as directed by the Pharmacopoeia , the powder would form a solid cake which could not be properly exhausted with the requisite menstruum. This was, however, accomplished by passing the powder through a sieve several times while moistening it.

Tinctura Ferri chloridi.—Griffith R. Lewis again directs attention to the reducing action of alcohol upon ferric chloride, and suggests that the alcohol be replaced by water as previously suggested by Professor Attfield. The generation of ferrous salt was shown qualitatively, no quantitative determinations having been made.

Tinctura Kino was found by F. B. Quackenbush to filter very slowly if prepared according to pharmacopoeial directions; but after prolonging the maceration to five days, the subsequent filtration was accomplished in less than one-fourth the time.

Tinctura Nucis Vomicae.—Of twelve samples of this tincture examined by Edmund H. Watkins, one was whitish and opaque; two were of a distinct reddish tint, while the others varied from a light yellow to dark yellow. The percentage of extract obtained on evaporation was 3/4, 1 1/2, 2 (three samples), 2 1/4 (two samples), 2 1/2 (two samples), 2 3/4, 3 and 3 3/4. The alcoholic strength of the menstruum was not determined, nor was it ascertained whether the extracts corresponded with that of the Pharmacopoeia.

Tinctura Opii.—Arthur M. Leine examined twelve samples, by evaporating the alcohol, shaking with ether, filtering, precipitating with ammonia, washing with ether and drying. One sample obtained from a country grocery store, yielded only .28 per cent. of morphine. The remaining samples yielded respectively 1.4, 1.2, .96, .80, 76, 70, .68, 65, .60, .54 and .46 per cent. of morphine. The weakest samples appear to have been made of half strength for the purpose of retailing.

Tinctura Opii deodorata.—Wm. H. S. Bateman proposes a modification of the pharmacopoeial process as follows: Percolate powdered opium, 10 parts, with stronger ether 28 parts; dry the powder; digest it for two hours at 175˚F. (80˚C.) with water 40 parts; repeat this operation twice; mix the expressed liquids, evaporate to 60 parts; filter; wash the filter with water to obtain 80 parts of filtrate and add alcohol 20 parts.

Tinctura Scillae produces a precipitate which may be prevented, according to F. B. Quackenbush, by putting quite a quantity of cotton in the neck of the percolator.

Tinctura Vanillae.—The labor of powdering the vanilla is much lessened by the use of a small proportion of coarse sand previously sifted and washed. F. B. Quackenbush believes that maceration brings out the flavor better than percolation, and that the longer the maceration proceeds, the more delicate will be the aroma of the tincture.

ABSTRACTS FROM THE FRENCH JOURNALS.

Translated for the AMERICAN JOURNAL OF PHARMACY.

THE USE OF COLD IN THE PREPARATION OF EXTRACTS.-In a communication to the *Société Chimique*, M. Adrian describes his process, which may be stated as follows: The ordinary vegetable preparation (maceration or decoction) is filtered with pressure and placed in a cooling machine where it is subjected to a temperature of —10˚ C., [+14˚ F.]. The congealed blocks are then crushed and placed in a rapidly acting essorage apparatus which separates, in a solid state, about 75 per cent. of the water, deprived of nearly all of its soluble principles. The fluid extract thus obtained is again congealed at a lower temperature and the rest of the previous process repeated. The product consists of a highly concentrated syrupy extract equal to 12 to 15 per cent. of the original liquid, which may now be evaporated to any desired degree in vacuo. These extracts are not so dark in color as those made by the usual processes, they give clearer solutions, and they present in the highest degree the organaleptic character of the substances which have furnished them. The editor of *L'Union Pharm*. (*March*) from which these details are taken, will soon present the

results of experiments and analyses made upon, extracts made by this process.[1]

RAISIN WINE.—M. Palangié recommends the following formula: Corinth raisins, 25k.; sugar, 4k.; fresh grapes, 1k.; tartaric acid, 25 gm. Exhaust the raisins with three waters; press and unite all the liquors in a cask. Dissolve the sugar and tartaric acid in water and boil for a few minutes; add this to the other liquors, with water to make a hectoliter; then add the grapes, previously bruised, and keep the mixture at a temperature of 77˚F. In 48 hours from the beginning of fermentation the air in the cask must be renewed, and this must be repeated daily until fermentation ceases. The wine should stand for a month before bottling.—*Jour. de Phar. el de Chim*., March 15.

MINUTES OF THE PHARMACEUTICAL MEETING.

APRIL 16, 1889.

The meeting was called to order and Mr. Alonzo Robbins was elected chairman. The minutes of the last meeting were read and no corrections being called for they were approved.

The registrar exhibited a sample of East Indian Red Bark, sent to the curator of the museum by Messrs. Gilpin Langdon & Co., of Baltimore, and containing 6.22 per cent. total alkaloids, of which 3.8 per cent. is quinine. A manuscript recipe book, commenced by Mr. Robert Shoemaker, about fifty years old, was presented to the library by Messrs. Wiley & Harris.

Mr. Moerk read a paper upon *olive oil*, giving a comparison of American and European made oils. The paper elicited a good deal of discussion. Prof. Sadtler suggested that oils having different saponification numbers might also show different forms of crystallization under the microscope. No such comparison had been made. Referring to a sample of Lucca oil in Florence flasks, which Mr. Moerk had found to give a brown, but not a red color, with sulphuric acid, Prof Maisch stated that some years ago he had examined a number of commercial samples in Florence flasks, which were sold as Lucca oil, and found them to give a decidedly red color with the reagent.

Dr. Lowe exhibited three specimens of *dragon's blood* which differed in color, and when treated with alcohol left different amounts of insoluble matter; he thought the drug as found in commerce seemed to contain less resin and more vegetable fragments, than formerly.

Mr. Beringer read a paper on *expressed oil of almonds*. He had observed that the soap of an oil adulterated with peanut oil produced with hydrochloric acid a green color; after considerable experimenting he found this result would only occur when sesame and peanut oil were both present.

[1] The process of preparing extracts by cold was described by Professor Alfonso Herrera of Mexico, in AMER. JOUR. PHAR. 1877 pp. 437-440. Mr. Adrian's improvements consist in the use of a centrifugal apparatus for separating the concentrated solution from the ice, and in finally evaporating in vacuo. Prof Herrera proposed such preparations to be called opopycnols.—Editor.

Prof. Maisch alluded to the subject of the *cleansing of mortars*, which had been alluded to at the March meeting, and read a paper upon the subject by Mr.H.M.Wilder. The general subject of cleansing different implements led to the remark that scale pans of a fine scale should always be protected by papers, so that they would not be soiled by the material weighed. Mr. Procter spoke of the use of strong sulphuric acid for the cleaning of mortars; after all parts of the mortar had been well covered with the acid, this is poured into another; this is continued till all the mortars had been treated alike; the result would pay for the trouble, the mortars being nice and bright. Mr. Boring found a very efficient cleanser in a mixture of sal soda and caustic lime with sufficient water; after standing some hours the mortars are left bright, both inside and out. The use of bichromate of potassium with sulphuric acid was also mentioned as being useful for the removal from mortars of substances not attacked by sulphuric acid or by alkalies.

Mr. Boring bad found starch in the commercial powdered *slippery elm bark*; that it should not be present he satisfied himself by chipping some bark up and testing it with iodine, no starch being indicated. A member stated that ground elm bark could be obtained in the market free from starch.

The subject of *saffron* was discussed. An article was supplied as pure, but an examination proved that it was not saffron, though a specimen of the spurious article had not been retained. Attention was directed to new adulterations recently noticed by Mr. Adrian in Paris, and by Mr. Holmes in London, and which consisted in impregnating true saffron with various salts and with coloring matters; fixed salts may be detected by the increased amount of ash left on incineration, which for true saffron should be between 5 and 6 per cent.; but ammonia salts and organic compounds could not thus be detected. The tinctorial power of commercial saffron may afford a convenient way for testing the purity of saffron, if tests for the absence of coal tar and similar colors can be devised, as has been recently shown by Mr. Barnard S. Proctor for Bismarck brown, the yellow solution of which is turned deep brown and turbid by a little tincture of iodine, which has scarcely any effect upon an infusion of saffron.

There being no further business, on motion adjourned.

T. S. WIEGAND,

Registrar.