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Botanical Medicine Monographs and Sundry

OLEORESIN OF MALE FERN.

By Wm. G. GREENAWALT, PH. G.

“Ethereal oil of male fern deposits a sediment. Is this, or the overlying oil, the active portion?” About six years ago this question appeared in the list of queries published by the American Pharmaceutical Association, and thereafter appeared in each successive list for the next two or three years, when it was finally dropped without any investigation having been made.

In the fall of 1885, my attention was called to the query, and I determined to investigate and if possible find which is the active portion. The U. S. P., and all the literature I could find on the subject, concedes to the sediment active properties, directing it to be shaken up with the oil before administration.

The first thing to be done was to separate the sediment from the oil, and for this purpose various liquids were tried, in order to select the best. Chloroform dissolved both oil and sediment, forming a clear liquid. Deodorized benzine and absolute alcohol both seemed to answer very well with the small portion tried; but anxious to know whether there was a difference, I experimented further, and found that after dissolving the oil and decanting, then washing the sediments with the respective liquids until the washings were nearly colorless, and then drying the sediments, that the quantity of sediment from the benzine was much greater than the yield from the alcohol, had more color, and seemed to consist principally of resinous matter, with a few white specks mixed with the brown powder. The quantity of sediment from the absolute alcohol was comparatively small, and consisted largely of the white portion, with a small quantity of the brown powder.

The quantity of the oil from the benzine was correspondingly smaller, as the yield of sediment was larger than that from the absolute alcohol, and consisted principally of the oil, while that from the alcohol deposited after standing several weeks quite a quantity of resin, which I found to be insoluble in benzine, thus explaining the larger yield of sediment from the benzine.

As I desired to separate the sediment I concluded from the above, that deodorized benzine would be the better liquid, and prepared several doses in this manner.

But, after doing all that I could do myself, I experienced a good deal of trouble, owing to the difficulty in getting a physician to aid me who would be willing to experiment with his patient. However, after several disappointments I was enabled to try the virtue of

the overlying oil through the kindness of Mr. Frank Greenawalt, then a medical student in our town, who administered the dose of oil on the 19th of June, 1887. The dose was taken at 6 o'clock A. M., the patient having taken no nourishment the previous evening other than a glass of milk, and a glass of milk in the morning. At 8 o'clock, an ounce of castor oil was given, and between the hours of 12 o'clock noon, and 4 o'clock P. M. about 15 feet of tapeworm, with the head, was passed.

This was certain evidence, that there is virtue in the oil ; but now the trouble was to test the sediment, and I experienced the same difficulty as before, but finally, after waiting nearly two years, I had an opportunity to try it, through the kindness of Dr. P. Brough Montgomery, who administered the dose of sediment on the evening of February 8th, 1889, the patient having fasted during the day. The next morning a dose of castor oil was taken, and that day 14 yards of tapeworm were passed.

This would show that both the sediment and the overlying oil possess active properties, the sediment being as active as, if not more so, than the oil, and that it could be separated from the nauseating oil and administered. with the same result, as from a dose of the oil and resin. It has the additional advantage of greater convenience, as the capsules could be filled and kept in stock.

NOTE BY THE EDITOR.—Although some works of reference give the dose of filicic acid as a taenifuge, and all works direct the oleoresin of male fern to be dispensed with the sediment, references to actual experiments are rarely met with. Bernatzik and Vogl (*Arzneimittel-Lehre*, p. 7), state: "Carlbloom (1866) declared filicic acid to be the therapeutically active substance of male fern, and recommended it as a remedy for cestoda in powder form (dose 0.12 gm.); but it appears to be not the sole active principle, since Rulle (1867) found the impure filicic acid (from the ethereal extract) more active than the pure acid."

A NEW MEDIUM FOR MOUNTING STARCHES AND POLLENS.

By A. P. BROWN, PH. G.

Having occasion to mount a variety of starches for examination under the microscope, I have been looking for a suitable medium that would best show the structure and at the same time preserve the specimen. The students of the class in microscopy at the Philadelphia College of Pharmacy are desirous of preserving the different starches that are given to them for examination during the course; but until recently I have not been able to give them, for mounting for starches, pollens and similar vegetable substances, a medium that would have the advantage of showing the structure of the specimen after it had been finished and preserved for future reference. Balsam of fir makes starches too transparent. Glycerin is good, but it is almost impossible to find a cement that would hold it, on account of its solvent properties. Carbolic acid and water in time dry out. Cosmolin has been recommended, but it is too greasy and it has the same fault as glycerin; it is almost impossible to find a cement that will hold it.

A short time ago Mr. Charles Bullock spoke to me of a new medium he had been using

to mount vegetable tissues; it struck me as being the very article for mounting starches in. I prepared some and found it to answer the purpose admirably; it is as follows:

Selected Gum Arabic	2 ounces
Glycerin	
Distilled Water, of each	1 1/2 fluidounces
Thymol	1 grain

These are all placed in a wide-mouth bottle, which is corked carefully to exclude dust, and placed in a warm situation. It takes several days to effect a perfect solution, the mixture being stirred up occasionally. When all is dissolved strain through linen, and set aside the liquid about a week longer to get rid of air bubbles and to allow any small particles that may have passed through the strainer to settle to the bottom; or it can be filtered through absorbent cotton by using a funnel for hot filtration, which consists of a double tin case holding water, kept at the required temperature by a spirit lamp placed under the projecting arm. A glass funnel fits inside of the hot water bath, a plug of absorbent cotton is placed in the funnel, and the solution is passed through it. After filtration it is best preserved in compressible tubes.

To mount starches or pollens, a clean slide is breathed on and then dusted over with the starch or pollen to be mounted; the surplus is removed by gently tapping the slide against any hard substance—a table, for instance. Enough of the starch will adhere to the slide, and will be nicely distributed over the field. A drop of the mounting medium is now placed on the slide carefully and the cover placed over it. If there are any air bubbles in the mounting medium when placed on the slide they should be carefully picked out with a mounting needle. If the medium is kept in a compressible tube there is not much danger of air bubbles on squeezing out a drop; or if there are any, they will be on the surface, and can be readily removed with a mounting needle. The slide can then be finished immediately by running a ring of any kind of cement around the edges of the cover glass, and the mount is permanent.

The medium can be colored blue by adding a small quantity of aniline blue, although it is not necessary, as the structure of the starches can be plainly seen. They should be examined by central and oblique illumination, and with the polariscope, to give the student interested in this subject an idea of the beauty of starches and pollens.

ABSTRACTS FROM THE FRENCH JOURNALS.

Translated for the AMERICAN JOURNAL OF PHARMACY.

HYSTERICONIA BAYLAHUEN.—Prof. Dujardin-Beaumetz received samples of this plant from Chile, where it is thought to have special action in certain gastro-intestinal troubles (especially in chronic, hemorrhagic recto-colites), indigestion, flatulent dyspepsia etc. He gave the samples to Dr. Baillé who gives the results of his studies in the *Bull. gén. de thérap.*, February 23d. A close analogy was found to exist between this plant and *Grindelia robusta*, though Dr. B. writes that he has not been able to find the substance (analogous to saponin), cited by Mr. Henry Clark in the AM.

JOURN. PHAR., Sept. 1888, and called by him grindelin. Dr. B. made a tincture of hysteronica by macerating 100 gm. of the plant in 500 gm. of strong alcohol for 10 days; dose 15 to 35 drops. Doses of 20 drops appear to have given excellent results in two cases of chronic bronchitis. The action seems to be similar to that of other balsamics but it is better tolerated. Its action was excellent in obstinate diarrheas which had not been benefitted under opium and sub-nitrate of bismuth; also in the late and persistent diarrhea of phthisical subjects. Dr. B. thinks it acts as "a kind of antiseptic dressing upon the intestinal surfaces." It exerted a notable amelioration in two cases of cystitis. It also gave good results as a dressing for open wounds, and in two cases of varicose ulcer. The author favors the use of an infusion of 1 part of the plant in 150 parts of water.

OLEANDRINE AND NEREINE.—In a recent article (*Nouv. rem.*, Feb. 8), on the comparative value of the extracts and the alkaloids of plants, Dr. Bardet writes thus : "I am surprised that Prof. Sée should consider as settled the question of the similarity of oleandrine to digitalein, and of nereine to digitalin. I do not know if M. Sée has ever possessed these substances, but I have sought for them in the market for a year without being able to procure them. I have, with M. Adrian, tried to get a defined active principle from oleander, but we have not succeeded in getting more than a very active extract. In fact, oleandrine and nereine have no practical existence. Like many of the alkaloids, they are purely scientific products, found once, and sometimes sought for afterwards in vain. Druggists will perhaps dispense a substance obtained by an indicated process for oleandrine, but it will be no more than an unknown residuum."

TOXIC POWER OF DIGITALIS.—At a meeting of the *Société de Biologie*, M. Roger said: "The toxicity of digitalis diminishes very notably when the product of maceration is concentrated by the waterbath. Thus, a 5 per cent. maceration, which is toxic in doses of 2 cgm., no longer kills save in doses of 1.8 gm., when it is concentrated by 4 per cent. If reduced by 6.6 per cent., 3 gm. would be required to produce the same toxic effect."—*Nouv. rem.*, Feb. 24.

GLEANINGS FROM THE GERMAN JOURNALS

BY FRANK X. MOERK, PH. G.

Cherry-gum and glue as substitutes for gum arabic in making emulsions have been experimented with by F. Stokowetzki who finds that cherry-gum used in the proportion of 1 part gum to 2 parts oil makes a very thick emulsion; in the proportion 1 to 8 a watery emulsion results and, hence, easily separates; the proportion 1 to 4 gives the consistence of a good emulsion; the partial solubility of the gum gives the emulsions an unelegant appearance due to the presence of the suspended particles of bassorin; but by pouring through a fine sieve the coarse particles are removed and a more attractive preparation results. The addition of sodium bicarbonate to such an emulsion causes an immediate separation with formation of a brown color. Glue gives emulsions in the proportion 1 to 2 of excellent appearance, not to be distinguished from those made with acacia and not affected by sodium bicarbonate. The odor of the glue is masked but not so the taste; while it is probable that the taste of the glue by careful preparation may be remedied, it is doubtful if the substitute should be used,

especially for persons having digestive troubles.—*Pharm. Ztschr. f. Russl.*, 1889, 84.

Sealing-wax, indifferent to alcohol.—5 parts beeswax, and 1 part each carnauba-wax and paraffin are melted together and heated with 5 parts red-lead and 2 parts prepared chalk, with constant stirring, until the mixture becomes thick.—*German patent, Rdsch.*, 1889, 176.

Genuine raspberry—syrup can be distinguished from manufactured preparations by treating, 1., 2cc. of the syrup with 4cc. dilute hydrochloric acid and a few fragments of zinc. It becomes colorless after a few hours, but genuine syrup by agitation and exposure to the air reassumes the original color, while imitations will not; 2., after decolorizing by use of sodium sulphite and adding nitric acid, if genuine, the red color reappears.—H. W. Bettink, *Pharm. Ztg.*, 1889, 99.

Capsaicin according to A. Meyer is present exclusively in the placenta of *Capsicum annum*, the other portions of the fruit being entirely free from it. The placenta of 5000 gm. red pepper weighed 110 gm. which contained 0.9 per cent. capsaicin or for the whole fruit 0.02 per cent. The isolation was effected by extracting with boiling ether, evaporating, mixing with oil of sweet almonds (to retain the red coloring matter), extracting with 70 per. cent. alcohol, evaporating, dissolving in solution of potassium hydrate free from carbonate, filtering and passing into the filtrate CO₂ to saturation; after standing some days the capsaicin crystallizes out and is purified by washing with water and cold benzin.—*Pharm. Ztg.*, 1889, 130.

NOTES ON CASCARA SAGRADA.¹

By H. D. FUGE.

The characters of the dried bark as described in the British Pharmacopoeia are fairly characteristic, and enable it to be readily distinguished from the various substitutes which have of late tended to manifest themselves on the market; but since a recent bark possesses properties which have a tendency to produce vomiting and epigastric pain, it would seem advisable to add to the official directions that the bark should be kept for a definite period before being employed for purposes of pharmacy.

A curious fact may be mentioned in connection with the nomenclature of cascara sagrada and its preparations. The extracts are officially (in *Brit. Ph.*) described as *extractum cascarae sagradae* and *extractum cascarae sagradae liquidum*. No mention of the drug occurs, however, in what from popular use might be termed its natural position, i. e., as cascara sagrada (the English and Latin terms being identical), but one has to turn to *Rhamni Purshiani Cortex*, there to find that the title cascara sagrada is given merely as a synonym; apparently the same element of uncertainty was present in arranging the position of the drug, as appears in the selection of *menstrua* for its exhaustion.

1. *Extractum Cascarae Sagradae*.—This is directed to be prepared by exhausting the

¹ Read before the School of Pharmacy Students' Association; reprinted from *Phar. Jour. and Transact.*, March 9th, p. 736.

bark in No. 40 powder with proof spirit, by a process of maceration and percolation, with subsequent evaporation of the percolate until of a suitable consistence.

The official sanction might well be given to the recovery of the greater part of the spirit by distillation.

Pills made with this extract have the disadvantage of “falling,” which can only be remedied, so far as I am aware, by varnishing them.

II. *Extractum Cascarae Liquidum*.—This is prepared by the repeated boiling of 16 ounces of the bark with distilled water until exhausted; the strained liquor so obtained being evaporated to 12 fluid ounces, 4 fluid ounces of rectified spirit added when cool, and the product filtered and made up to 16 fluid ounces by the addition of distilled water. The process of filtration requires considerable patience even on the small scale.

The solvents ordered in the preparation of these extracts differ, the one being spirituous the other aqueous. As doubts have been expressed as to the efficiency of water in effecting solution of the principles of cascara, I decided to try whether the bark was thoroughly exhausted in the preparation of the official liquid extract.

A weighed quantity of the bark was treated as described in the Pharmacopoeia until the last liquor was free from color and taste; the residual cascara was dried, then macerated and percolated with spirit. Upon evaporating the percolate a considerable amount of extractive matter remained, which upon being tested physiologically was found to possess the characteristic laxative properties of the drug.

With a view of finding a process for completely extracting the bark a number of formulae were tried; the following has produced the best preparation in my hands² :—

Cascara sagrada in No. 40 powder	20 ounces.
Rectified spirit	
Distilled water	of each a sufficiency.

Mix together equal quantities of the spirit and water. With this menstruum moisten the bark, pack tightly in a percolator, pour on more of the liquid and allow it to macerate for forty-eight hours; then proceed to percolate, adding more of the menstruum as necessary, until exhaustion is complete; reserve the first fifteen fluid ounces; evaporate the remainder to the consistence of soft extract and dissolve in the reserved portion ; finally make up to 20 fluid ounces by the further addition of the diluted spirit.

The chief objections to the employment of cascara sagrada is its unpleasant and intense bitterness. Two methods are employed to get over this difficulty:

1. The addition of some agent calculated to mask the bitter taste of the liquid extract.

In the Conference Formulary we have two examples of this kind, viz., *syrupus*

² The National Formulary directs diluted alcohol as the menstruum.

cascarae sagradae (1 part of liquid extract in 5), and elixir cascarae sagradae (2 parts liquid extract in 5); the latter deposits largely on keeping.

A preparation which does not precipitate on dilution, and, in my opinion, is less nauseous than the above, may be made by mixing equal proportions of the liquid extracts of cascara sagrada and liquorice, a few minims of spirit of chloroform being added to each dose.

III. *Tasteless Extracts*—The suggestion that an extract of cascara sagrada devoid of bitterness might be prepared by the indirect agency of magnesia was due to Grazer of San Francisco (*vide Pharm. Journ.*, vol. xv., p. 745).

(1) An extract prepared as directed by him was found to possess very little medicinal value.

(2) An extract prepared by adding magnesia to the powdered bark and proceeding as in the official liquid extract likewise gave very poor results.

(3) The modified formula as given by Mr. Wright at the meeting of the Conference, was next tried.³ This, I consider, yields a much better preparation both pharmaceutically and medicinally; doses about twice as large as are indicated in the case of the official liquid extract should be employed.

(4) An equally good preparation may be made in a less complicated manner by adding magnesia to a spirituous percolate of the bark, the excess being subsequently filtered out before evaporation is completed.

As a result of a number of physiological experiments, made with “tasteless extracts,” prepared in accordance with most of the published formulae, the following conclusion has been arrived at: “That although they possess some degree of medicinal activity, they in no case possess the full physiological value of the ordinary liquid extracts.”

The precise nature of the action of the magnesia I have as yet been unable to ascertain. Upon evaporating a portion of the extract to dryness and incinerating, a considerable amount of magnesium oxide was left behind; from this it might be expected that the bitterness would be again developed on acidifying the extract. This, however, is not the case; nor does the residual magnesia separated during the preparation of a tasteless extract as above described become bitter on treating with a slight excess of dilute acid.

It is stated in the important paper on cascara sagrada by Meier and Webber (*AMER. JOUR. PHAR.*, 1888, page 87), that the resins contained in the bark are not bitter; the fact that the resinous matter precipitated by the addition of acid to a tasteless extract is not bitter would point to this conclusion.

I have not, however, succeeded in obtaining a product free from bitterness by repeated precipitation of the resin from a strong alcoholic solution with water.

³ Mix cascara sagrada, powder No. 40, 1 pound, magnesia, 2 ounces, and water, 1 1/2 pints; macerate for 12 hours, dry, powder and with proof spirit prepare 16 fluidounces of fluid extract.

NOTES ON EGYPTIAN OPIUM AND SOME OTHER DRUGS OF THE CAIRO BAZAARS.⁴

By WILLIAM MARTINDALE.

During a recent visit to Egypt I was much interested, as everyone is who visits the place, by the picturesque appearance of the Cairo Bazaars, and, having made inquiry at a wholesale drug house, regarding the cultivation of Egyptian opium, Signor Bossi, the manager, kindly went with me through the native drug bazaar, and acted as an interpreter.

He said that opium was collected, and the poppy cultivated for its production, at Akmim (the ancient Panopolis), on the right bank of the Nile, about 320 miles above Cairo, and a little of inferior quality at Assiout (or Siout, the ancient Lycopolis) on the left bank, about 250 miles up. It was offered to them at times, but was not dealt in by his house, because it was so much inferior to Smyrna opium. It is used by the natives, and is sold in the bazaars to which he accompanied me.

The piece of Akmirn opium which I bought is a hard flat cake, about four inches in diameter by one inch in thickness. It has the mark of a leaf adhering to it, and is rough and irregular in appearance.

The Assiout opium is in segments of a cake, much softer than the other and is very inferior and adulterated in quality. Mr. Salter has examined some of each, and finds the crude samples to contain as follows:

Akmim. opium, 7.24 per cent. of morphine.

Assiout opium, 0.6 per cent. of morphine.

Owing to my limited time, and not having booked a passage beforehand, I was unable to proceed any distance up the Nile, else I should have visited Assiout, the terminus of the railway, at which passengers join the Nile steamers for the quick trips up to Luxor and Assouan. Akmim is nearly opposite to Sohag, one of the landing stations of the boats, about seventy miles above Assiout.

I exhibit two specimens of the Egyptian poppy capsules, showing the incisions from which opium has been obtained. I saw poppy heads, on stalks, tied in bundles of about a dozen, exposed for sale. These were not incised, but had been freed from seeds, which are used separately as food.

Soap root is much used for cleaning silks and other fabrics. It is not collected in Egypt, but is principally imported from Syria, where, I was informed by Said Gawadd, a Syrian pharmacist, it grows abundantly. There appears to be more than one kind of it in use. One is said to be obtained from *Gypsophila Struthium*, and to contain saponin, but Mr. Holmes thinks, from the appearance of the starch, that the sample of root which I exhibit, is obtained from some leguminous plant. It is very

⁴ Read before the Pharmaceutical Society of Great Britain, at an Evening Meeting in London, Wednesday, March 13; reprinted from PHAR. JOUR. AND TRANS., March 16, p. 743.

mucilaginous, but appears to contain little saponin.

I noticed in one part of the bazaar, a row of deep narrow granite mortars fixed in front of the shop, and on one occasion two Arabs were powdering some soap root, with iron pestles a little more pointed than those in use with us, pounding alternately in the same mortar, like a couple of blacksmiths. An array of primitive sieves was seen in the interior.

I exhibit some roots, one end of which is made fibrous, to serve the purpose of a toothbrush. These are the roots of *Capparis Sodada*. They are used like the Jamaica chewsticks. They have a slightly salt and agreeable flavor.

I noticed that styrax bark, from *Liquidambar orientale*, was frequently exposed for sale; it is in small agglomerated pieces of a reddish-brown color, and is mentioned by Hanbury under the name of *Cortex Thymiamatis*. It has an agreeable odor, and is used for burning as a perfume. It is from this bark that the liquid styrax has been pressed.

From a dealer in perfumes I bought some incense sticks, which are about 4 to 6 inches in length and three-eighths of an inch in diameter. The burning material is rolled around a fine wooden spill, like the wick of a candle. Their composition is similar to that of our fumigating pastilles, and apparently includes styrax and cascarilla barks. I also obtained from him some perfume tablets for burning, which he much prized. They are gilded, and contain much resin, probably mastiche, frankincense and styrax. He also supplied me with a little mastiche for burning, some cascarilla bark, and a resinous substance which he valued highly, it having been brought from Mecca. This, on comparison with a specimen in the Museum, proves to be Palembang benzoin.

The pods of *Acacia arabica*, of which I obtained a small specimen, contain a quantity of astringent matter, and are used for dyeing, striking a black color with iron.

Henna, the powdered leaves of a species of *Lawsonia*, is also largely exposed for sale, and the stained finger-nails of many of the women and children give evidence of its use.

The fruits of *Zygophyllum coccineum*, which have an aromatic odor and a bitterish acrid taste, are used, I was informed, as a remedy for ophthalmia, which, in various forms, is very prevalent among the natives. They are said to have been used by the old Arabian physicians, and Mr. Holmes finds that the leaves of *Zygophyllum simplex*, which has much smaller fruits, are also used by the Arabs in eye diseases.

I also show some large pods of *Albizzia Lebbek*. This is commonly known as an acacia, and is much cultivated about Cairo and Ismailia. If its roots have access to any moisture from irrigated soil, it grows to the height of 40 or 50 feet. It thrives in a climate where no rain falls, and where few other trees, except palms, grow to any height. There is an avenue of these trees all the way from Cairo to the Pyramids of Ghizeh, a distance of about 8 miles. This tree is said by Martius to yield a gum allied to gum senegal, but I did not see such an exudation on any of the trees I examined.

The seeds of *Arachis hypogaea*, known as *Pistache de terre*, ground nuts, beans of Soudan (Soudani “*foulé*”), are hawked about most of the streets of Cairo, and are considered to possess aphrodisiac properties.

Signor Bossi informed me that little or no senna now passes through Cairo. It finds its way into European commerce principally through Tripoli, and the same remark applies itself to gum arabic, which finds its way principally from the Red Sea ports to Trieste.

In conclusion, I may mention that there appear to be no restrictions on the practice of pharmacy in Egypt. There is no pharmacist holding the English qualification in business in Cairo, but there are pharmacies in the hands of French, Germans, Greeks and Syrians, at most of which English is spoken.

10, *New Cavendish Street, W.*

Rhus aromatica has been found useful in incontinence of urine in children as well as in old people. Dr. Max employed the tincture of the bark, of which he gave from 20 to 50 drops daily.—*L' Union Md.*