

Pharmacopœia should recognize African and Jamaica gingers, and possibly also the Cochin variety. It is believed that the drug strength of the tincture of the U. S. P. IX, 200 grams of drug to 1000 cubic centimeters of tincture, is the proper strength for medicinal purposes for which it is used.

If this drug strength be retained the alcoholic strength of the menstruum can with safety be reduced to a menstruum of 850 volumes alcohol to 150 volumes water. Sample No. 7 made by this menstruum completely extracted the drug and the tincture has remained perfectly clear for more than a year. A tincture so made will have an alcoholic content of about 75 to 77 per cent. by volume, thus reducing the alcohol to what is necessary as a solvent.

If, however, the drug strength be doubled in accordance with Treasury Decision No. 3092 then it will be necessary to adopt alcohol as the menstruum.

It is doubtful if it will be necessary to state either the residue or the water-soluble solids therein because if the Pharmacopœia recognizes the use of varieties of ginger other than the Jamaica, there will be a variation in these constants, and, at the most, these statements are of doubtful value as standards.

COMMENTS ON EXTRACT AND FLUIDEXTRACT OF GENTIAN.*

BY K. A. BARTLETT.

The U. S. P. IX directs that Extract of Gentian be made by percolation with cold water, and that the Fluidextract of Gentian be made with a menstruum of diluted alcohol. It is obvious that with this great difference in the menstruums, the finished products are going to contain different constituents. If the alcoholic menstruum is necessary to extract the active principles of gentian it would seem that, to be consistent, this menstruum should be used on the extract as well as on the fluidextract in spite of the higher cost. If, on the other hand, the aqueous menstruum extracts gentian equally as well, it would appear to be the simpler and more economical method.

Records available show that a fluidextract made by the U. S. P. IX formula (Repercolation Method) will average 40 Gm. of extractive in 100 cc. Upon making an extract by the official method the average yield is 32%. The straining of the partially concentrated percolate as directed by the official formula for the extract does not entirely remove the precipitated matter. Therefore the 32% contains some of this precipitate, so that the actual water-soluble extractive would be somewhat less. By taking a definite weight of this extract, dissolving it in water, filtering, washing the precipitate, and reducing the combined filtrates to a constant weight, we find that 70% of the extract is water-soluble matter not precipitated by boiling. This with relation to the drug is about 22½%.

A review of the literature shows several articles dealing with the extraction of gentian. Water acidulated with sulphuric acid (1 oz. to the gallon) was tried and found unsatisfactory.

William Weber states that gentiopicrin, $\frac{1}{10}$ of 1%, is the active constituent, and is easily soluble in water and alcohol. He suggests therefore that a weaker menstruum might be just as good.

* Section on Practical Pharmacy and Dispensing, A. Ph. A., Asheville meeting, 1923.

Henry Greenish and Walter Henry Senton suggest for the extraction of gentian cold water by means of two successive infusions, then concentrate, strain, etc., as with the present extract.

George M. Beringer states a method for the fluidextract using water at 60° C. by means of successive macerations and expressions.

In order to determine what sort of fluidextract would be produced with an aqueous menstruum the following formula was tried:

Gentian, Ground (No. 20 Powder) 1000 Gm.

Water (Cold) q. s.

Moisten the drug with sufficient water and macerate over night.

Pack in a percolator and cover with water. Percolate adding water as needed until the drug is exhausted. Concentrate the percolates by boiling to 2000 cc., then strain and wash the precipitate with water. Concentrate filtrate and washings to 800 cc. and when cold add

Alcohol 200 cc.

Allow to stand 24 hours and filter. Wash filter with

Water q. s. ad 1000 cc.

A preparation made according to the above formula has been under observation for over two years. The 20% alcohol is sufficient for preservation and very little precipitation has taken place. The total solids are 20 Gm. per 100 cc. which checks closely with the water-soluble portion of the extract. The slight variation is no more than can reasonably be expected in two different lots of drug.

It is not the intention of the writer to recommend either menstruum, but rather to point out that there must be a difference in the finished preparations. It is logical to assume that the two preparations are expected to have the same active constituents in their relative ratios to the drug and therefore that either one menstruum or the other should be used for both preparations.

REFERENCES.

PROC. A. PH. A., Vol. 21, p. 169.

Ibid., Vol. 39, p. 290.

Ibid., Vol. 50, p. 717.

Proc. N. J. Pharm. Assn., 1905, pp. 74, 76.

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The foregoing paper was briefly discussed by George M. Beringer and F. W. E. Stedem. The latter asked whether there was any gelatinization of the completed preparation. The author answered that there was not. Mr. Beringer was pleased to note that this work was being done; he had been using warm water instead of cold, because thereby, in his opinion, the medicinal value of the drug was preserved. Further attention should be given to this subject as presented in Mr. Bartlett's paper. Samples of the preparations were exhibited by the author.