

FLUIDEXTRACT OF GLYCYRRHIZA.*

BY ANTHONY ARMENTANO.

Fluidextract of Glycyrrhiza has always been a source of much trouble and annoyance on account of the fact that precipitation has been so copious and has continued for so long a time, and filtration has always been so slow and difficult, and had to be resorted to a second or third time as the fluidextract aged.

Precipitation has always been copious whenever ammonia water has been a part of the extracting menstruum, no matter what proportions of alcohol, water and glycerin have been used, and seems to be the disturbing factor, probably by its saponification or solution of inert material consisting chiefly of a resinous body, which, upon the aging of the finished fluidextract is thrown out of solution and causes difficulty in filtration. In every case when alcohol has been used in the extracting menstruum this difficulty has perhaps been increased.

The present official method consists of extracting the drug with a mixture of ammonia water and chloroform water and alcohol is added to the concentrated percolate in sufficient quantity to throw out a portion of inert matter and to preserve the product. The finished fluidextract is directed to be set aside seven days, the clear liquid decanted and the balance filtered and the filter washed with enough of a mixture of alcohol and water in proper proportion to make up the original volume. Here is where the difficulty arises, and one filtration never suffices.

Various methods of exhausting glycyrrhiza with water have been tried. The method of the British Pharmacopoeia is to treat the drug by maceration and expression, repeated once, with cold chloroform water. This produces a preparation of good flavor and is easily filtered but does not exhaust the drug. Repeated maceration and expression will accomplish this, but the volume of water required is so great as to consume too much time when conducted on a large scale and requires great care to prevent souring.

Experiments were conducted using water at 150° F. to exhaust the drug. This was a great improvement, but it was finally found that the best results were obtained by the use of boiling water. The drug should not be boiled with the water, but the water should be at the boiling point when the drug is mixed with it and should be boiling when poured upon the drug contained in a percolator.

For convenience in describing the exact method used for making a fluidextract as above referred to it will be assumed that it is required to make a lot of ninety-six pints.

Moisten 100 pounds of coarsely ground glycyrrhiza with 100 pints of boiling water. Cover tightly and macerate overnight. Pack in a percolator in which the diaphragm is perfectly covered with good filter paper and about three inches in depth of clean sand distributed evenly over it. The drug should be firmly but not tightly packed. A diaphragm should be placed upon the top of the drug and weighted down with large pebbles or other convenient device.

Boiling water should now be poured upon the drug and the percolate allowed to run about 100 pints per day until the drug is exhausted. About 500 pints will be sufficient.

If the percolate cannot be evaporated at once, one-half percent of chloroform should be agitated with it to preserve it, but the best practice is to evaporate as soon as possible. It is

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necessary also in making the preparation in large quantities to sprinkle the drug with a little chloroform when packing and to use a little more each day.

The percolate should be evaporated *in vacuo* or on a water bath to 76 pints, cooled, 20 pints of alcohol added and allowed to stand 24-48 hours, and filtered. Product 96 pints.

An assay of this fluidextract as to the glycyrrhizin content and total extractive gives results equal to those of a fluidextract made by the official process.

A sample is submitted of a fluidextract made May 26, 1919, and filtered on the day made to determine how much precipitation would occur under the most favorable circumstances.

One item of interest is that the fluidextract filters very rapidly and leaves very little residue on the filter.

To a sample of the same lot of fluidextract was added a few drops of ammonia water. This caused an increased precipitation without corresponding advantage and was discarded.

It must be borne in mind that in making this preparation in quantities of 1000 mls the physical conditions will be somewhat different as, for instance, the drug will become quite cold in macerating overnight, and this small amount will not keep as hot as a larger volume will, so a larger amount of percolate will have to be run out.

The initial easy filtration and the subsequent freedom from precipitation recommend this process and product as all that can be desired.

LABORATORIES OF
E. R. SQUIBB & SONS.

ABSTRACT OF DISCUSSION.

MR. RAUBENHEIMER: It has always been my opinion that in order to extract the glycyrrhizic acid from the licorice, we use ammonia water. From my own experience, I find the addition of a small amount of ammonia water to any licorice preparation always improves that preparation; I have no trouble whatsoever with any precipitation.

MR. HEARN:¹ The method I use, and it has been very satisfactory, is the percolation of the drug with thirty percent alcohol and then a consequent driving off of the alcohol, bringing up the liquor left in the still to the volume required. Percolation with 30 percent alcohol extracts the licorice, and leaves the inert material in the drug without any precipitation. Frothing is avoided, as there will be no frothing until all the alcohol has been distilled off.

DREUW'S PASTE OR OINTMENT OR VIENNA PASTE.*

BY OTTO RAUBENHEIMER.

The announcement of the paper "Ointment Difficulties," by William Gray, for the second session of the Section on Practical Pharmacy and Dispensing, prompts me to write this short paper on the day previous, namely, on Wednesday, August 27, 1919. The subject herewith presented is of great importance to the practical pharmacist, as it presents three different kinds of "Ointment Difficulties," *i. e.*, 1, as to proper formula; 2, as to method of dispensing; 3, as to confusion of names.

¹ This is the name reported by the Secretary of the Section and also by the reporter.

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