SOLUTION OF MAGNESIUM CITRATE—SUGGESTED IMPROVEMENT IN METHOD OF MANUFACTURE.*

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The principal purpose of this paper is to discourage the too frequent use of home made formulæ for this preparation, which in most instances, bring the ultimate product into conflict with the Pure Food and Drug Act, as being a certain form of adulteration, and to prove by practical demonstration that it is possible by a slight modification in the details of manipulation to make a practically stable preparation using the U. S. P. formula.

I might say, at this point, that in my estimation the use of home made formulæ is brought about by the notorious instability of this preparation if made according to the method prescribed by the U. S. P., it being almost impossible to make a solution which will remain perfectly clear under the most ideal conditions for more than three days.

While it is desirable to manufacture this preparation fresh when wanted, still there are many disadvantages in doing so, and since the only deterioration which would seriously affect its therapeutic efficiency are the precipitation which takes place and the formation of a mold, both of which can be prevented, there is no reason why the solution may not be made up in reasonable quantities.

In many localities the sales of "Citrate" are so great that it will make this discussion seem almost unnecessary, but even here we have to take into consideration the possibility of having the customer purchase a bottle and then decide that its use will not be necessary for several days.

It would hardly be reasonable to expect the laity to understand why a preparation which was clear and sparkling when it was purchased, should deposit an inch of "some white powder." Their first conclusion being that they had narrowly escaped an untimely death, and immediately deciding that the pharmacist was incapable. I have had more than one such experience.

Unfortunately a great number of the patrons of every store are ignorant people and in many instances these individuals will not come back for an explanation, but will do all in their power to prevent their fellows from patronizing that particular store.

There has been much written and said about sterilizing the solution. I know a pharmacist who sterilizes every bottle of this solution which leaves his store, he having provided himself with the facility for doing this on a large scale. This, of course, is an ideal method, but it is not only time consuming but is not always practicable for if not done carefully, this process has a tendency to produce a preparation which is darker in color than the U. S. P. article, due perhaps to the carmelization of a small amount of sugar.

In collecting a few samples and persuading the clerks to tell me the method of manufacture used in the store where purchase was made, I found no less than four different formulæ, any of which were good in themselves, but were *not* U. S. P. Upon questioning, I learned that in all cases the employer had tried the

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U. S. P. formula, but found it impossible to make a stable preparation or one which would last more than two or three days.

I also found a number of pharmacists using the U. S. P. formula modified by substituting one-half the quantity of light calcined magnesia, and carbonating at the time of dispensing.

February 9 I had our Junior class prepare the solution, using the official formula with the modification which I am about to suggest, and also the official formula unmodified. In both cases I used a very poor grade of magnesium carbonate, and tap water, and did not attempt sterilization in any way. The preparations were both carbonated and subjected to the variable temperature of the laboratory.

After standing less than sixteen hours, the solution made by the U. S. P. method had become cloudy, and precipitated to the extent which you observe, after standing twenty-four hours.

The solution by the other method is, as you see, almost clear at the present time, and would be entirely so if it were not for the formation of a very small amount of mold.

The modification which I suggest and the method by which this comparatively stable preparation has been prepared is:

To place the citric acid and magnesium carbonate in a suitable container and add about two-thirds of the required amount of water. After the reaction has taken place and the solution is free from turbidity, the syrup of citric acid is added and enough water to make the required amount, after which the whole is filtered, placed in bottles, and carbonated.

It is obvious that if a preparation made with commercial materials will remain permanent for a month, then it should be possible to make a beautifully sparkling solution which will remain clear indefinitely by taking the precaution to use the best grade of materials and distilled water.

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THE CONTENTED DRUGGIST.

Contentment is a fine thing. It is the basis of happiness. The man who can be content with his lot does not need a very large lot. He will not have a very large one. The druggist who is so contented that he is satisfied to let well enough alone will find that as the cost of living increases it will become necessary for him to do without many things that he has previously regarded as necessities. Contentment is not a business getting quality. Live wires are not contented. They are restless. Ambition and contentment do not journey along together through life. If you want the kind of happiness that comes with contentment you can have it, but only at the expense of your business success.—*The Spatula.*