

solution within three hours; the others were not soluble in the alkaline solution in three and one-half hours.

This seemed to prove that treatment of the capsules for 30 seconds by a one percent formaldehyde solution, at ordinary temperature, produces a satisfactory enteric capsule. But two years later, or three years after the capsules were so treated, they were found to be entirely insoluble in either the acid or alkaline liquids after nineteen hours. In the alkaline solution the capsules swelled and softened, but none broke. Those treated for 15 seconds acted similarly.

The inevitable conclusion is that the treatment of gelatin capsules with formaldehyde solution for enteric purposes has only a limited value.

For general prescription practice its value is limited by the fact that the capsules either do not become enteric for several days after treatment, or else become insoluble and unfit for use after three or four days.

If it be practical to prepare the capsules two weeks in advance of their use, then all that is needed is to immerse them in a one percent aqueous formaldehyde solution for 30 seconds, drain them quickly and dry them, then store for two weeks before using. Capsules so treated should not be employed after about a year, because they become wholly insoluble.

Within these limits the capsules have proved satisfactory both by tests *in vitro* and by chemical use. But it should not be forgotten that on long standing the capsules become wholly unfit for use.

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THE EXTEMPORANEOUS PREPARATION OF CAMPHOR LINIMENT.

ROBERT WOOD TERRY.

Having noticed the article entitled, "A Medley," by George M. Beringer, Jr., in the August issue of the Journal, I would like to call your attention to a very simple and rapid method of preparing camphor liniment.

Mr. Beringer recommends the purchase of an almond grater to reduce the camphor to fine granules to which the oil is added and the mixture placed on a water-bath, when after fifteen minutes the camphor will be in solution, this being more rapid than by the official method in which coarser particles of camphor are used, the assumption being, presumably, that the more surface of the camphor exposed to the solvent action of the oil, the more rapid the solution; therefore, why not carry out this theory to its limit of practical application?

The following method I have used for three years and have prepared camphor liniment in less than ten minutes by this method: Place the camphor in a mortar and add sufficient chloroform or ether to reduce the camphor to an extremely fine powder, being sure no small lumps remain, and allow this to stand a minute with an occasional stir to facilitate the spontaneous evaporation of the solvent; then, add a small quantity of the oil and triturate until a thoroughly homogeneous mass

results; add another small portion of oil and mix again; transfer this to the bottle and rinse the mortar with the remainder of the oil; shake, and after standing three or four minutes the camphor will be in solution—provided, the camphor was powdered properly. Alcohol must not be used in powdering the camphor as this evaporates slowly as compared to the ether or chloroform, and, being almost insoluble in cotton-seed oil, it produces an undesirable cloudiness in the finished product.

Always weigh the oil unless its exact specific gravity is known. This will insure the finished product being the required strength.

The trace of chloroform or ether remaining will be of no importance and I can see no objection to this feature.

Another advantage of this process is that no camphor is volatilized resulting from the heating on a water-bath—a factor which might account for a weak preparation.

This method is not as good as the official method when camphor liniment is intended to be used for a subcutaneous injection, wherein the heating would tend to sterilize the oil, a desirable feature. So little camphor liniment is used for this purpose, and especially since ampuls of this preparation are on the market, that it would not be practical to prepare it by the official process just for this reason.

Before writing this article, I tried to find some mention of this method in print. The only mention found was that in Parrish's Treatise on Pharmacy, by Wiegand, 1884, page 808, which I will quote: "It is made very readily by reducing the camphor to powder with a small quantity of ether, and when thus divided a little more ether is added, which forms to a pasty consistence, when it will mix with great readiness with the oil. A slight exposure to the air in a shallow vessel removes every trace of ether."