

rarely 3 cells wide" should be added. "Xylem, a broad radiating porous region, composed of narrow wood wedges made up of numerous large tracheæ" should be added. "Rhizomes with intraxylary phloem strands" should be added.

Powdered Apocynum.—Line 3. "Polarization crosses distinct" should be added.

Line 3. "Numerous fragments of strongly lignified wood fibers, the latter associated with tracheæ having bordered pores or spiral thickenings," should read "numerous slender lignified, porous wood fibers, associated with tracheæ having simple pits or elliptical bordered pores."

Line 6. "Stone cells few or absent" should read "stone cells isodiametric or elongated, having strongly lignified, thick walls and branching pore canals."

The following bioassay standard should be added: "Determine the potency of Apocynum in terms of U. S. P. digitalis units as directed for Digitalis in the U. S. Pharmacopœia XI, page 136.

The drug should be additionally described as "giving rise to occasional short rootlets or root scars or purplish buds of aerial stems, and short stem bases with a thin fibrous bark and a hollow center."

The suggestion is made that the dose of three grains be changed to one grain, since apocynum has a higher potency than Digitalis but now is given twice the dosage of Digitalis Pulverata.

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GELATIN AS AN EMULSIFYING AGENT IN LINIMENTUM TEREBINTHINÆ ACETICUM.*

BY FREDERICK GRILL¹ AND NORMAN NOBACH.¹

Linimentum Terebinthinæ Aceticum represents an emulsion of a volatile oil and water stabilized by fresh egg. Little information could be obtained from the literature reviewed regarding this National Formulary preparation, especially as to the use of different emulsifying agents. Some investigators report a change in the proportion of albumin and yolk of the egg or a modification of the official formula by the addition of a saponin (1)-(2). It has been pointed out by Tice (3) that gelatin from an acid-treated precursor having an isoelectric point at p_H 8 requires a p_H of approximately 3 to effectively stabilize an emulsion. Serrallach and co-workers (4) in determining the film strength of emulsifier films at liquid-liquid interfaces show that comparatively strong films are formed rather rapidly, and continue to increase in strength, at the liquid-liquid interfaces when aqueous solutions of gelatin are added to the fixed oils, castor oil, cod liver oil, olive oil and mineral oil.

Considering the foregoing statements, it was thought that gelatin might prove of value in making Linimentum Terebinthinæ Aceticum because the p_H of the

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liniment is approximately 3, and that possibly aqueous solutions of gelatin would form strong emulsifier films at the liquid-liquid interface with turpentine as in the case of the fixed oils reported. Film strengths were not determined in these experiments. These considerations led to a series of experiments with Linimentum Terebinthinæ Aceticum and modified formulas, which are reported.

Samples of the following formulas were made in 1000 cc. quantities.

Sample No. 1. Linimentum Terebinthinæ Aceticum, N. F. VI.

Sample No. 2. N. F. VI formula modified by replacing the whole egg with 10 grams of gelatin U. S. P.

Sample No. 3. Same as No. 2 but with the addition of 80 Gm. of anhydrous lanolin U. S. P.

All samples were compounded by agitating for 5 minutes in a bottle and then passing through one of the hand operated homogenizers. This procedure was adopted in order that an immediate and uniform dispersed phase be obtained, and to insure as far as possible reproducible results.

The samples prepared in the manner described were compared as to color, uniformity of dispersed phase and relative viscosity.

Samples No. 1 and No. 2 were white and sample No. 3 was of a decided cream color. The color of the latter may have been due to the lanolin or other factors which were neglected in this study.

All samples had a rather uniform dispersed phase when examined microscopically, due no doubt to the method used in the preparation of the emulsions.

The relative viscosity curves in Fig. 1 are interesting to note. It may be seen from curve No. 1 that there is a continual increase in viscosity with age accounting

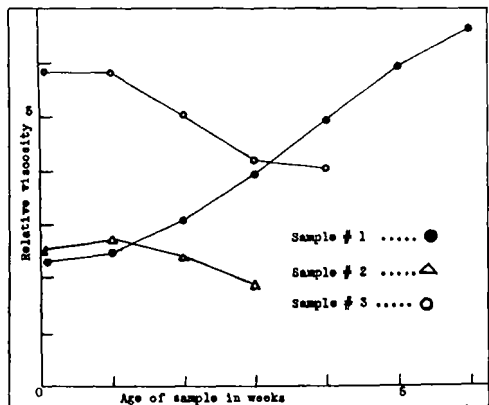


Fig. 1.—Change in comparative viscosity with age. The comparative viscosity obtained by noting the time of flow in seconds at 37° C for 60 cc. sample and comparing that to the time of flow in seconds for a 60 cc. sample of distilled water under similar conditions.

essentially the same as curve No. 2 except for a rather uniform displacement on the vertical axis. Lanolin was added to the emulsion containing gelatin to reduce the stickiness of the preparation.

for the fact that the liniment increases in stability upon standing, an observation commonly made in routine dispensing. Curves No. 2 and No. 3, showing at first a slight increase in viscosity with age (or remaining constant for a short period) and then decreasing, may be expected due to the general behavior of gelatin swelling in acid media and subsequently undergoing hydrolysis. This decrease in viscosity with age results in a thinning of the emulsion but does not alter the stability because samples standing for six months or longer presented a satisfactory preparation after shaking. It might be expected that curve No. 3 would be somewhat different in form due to the lanolin content but it is

SUMMARY.

1. Linimentum Terebinthinæ Aceticum modified by replacing egg with gelatin was compared with the official product.
2. All emulsions prepared exhibited a very uniform dispersed phase probably due to the method of preparation.
3. The relative viscosity of the N. F. VI formula increases with age whereas the other emulsions decrease in relative viscosity with age.
4. The decrease in relative viscosity of the gelatin emulsions apparently does not alter their stability.

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STORE ARRANGEMENT.*

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To-day, drug store layout and planning are receiving considerable attention. The reason for this is that modern merchandising methods have shown the need of making better use of available space. Although modernization programs have been recommended for all departments in the drug store, we shall limit our discussion to the prescription department which can be improved to make it stand out so that it will tell the story of the service the pharmacist is prepared to give. It has been found that, generally speaking, an average drug store can increase its prescription business by modernization of the prescription department. Granted that it pays to display merchandise, we can say that displaying the prescription department will also help sell the services of the pharmacist to the public and the public health professions.

We know that the prescription department is an exclusive feature of the drug store. The prescription department gives pharmacists a special franchise and puts a great responsibility on them in the service they give in connection with any public health program. To modernize the prescription department not only causes increased sales in it but also adds to the sales as well as the appearance of the rest of the store. To modernize the prescription department places the pharmacist in a better position to perform his duties and to accept his responsibility to the community he serves.

Adequate space for a prescription department must be provided in the layout of a pharmacy. For the professional pharmacy this department is the store itself. I say "store" advisedly because even the professional pharmacy has somewhat of a commercial setting in that it not only renders service but it is also engaged in buying and selling merchandise. A retail store of any kind is a selling arrangement and the object of store and prescription department planning and design is to get

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