Laboratory examination of samples of Syrup Tolu from retail pharmacies in the City of New York shows frequent deviation from the official requirement regarding alcohol content. A further investigation shows that a concentrated tolu was used as the basic material in many of these deficient samples. A possibility of deviation from formula was eliminated by securing concentrates of several reputable manufacturers, preparing the syrup according to stated formula and assaying the resulting preparation for alcohol content. As will be apparent in the following tabulation, these syrups showed an alcohol content uniformly lower than the 3.5 to 4.5% by volume specified by the U. S. Pharmacopœia X.

TABLE I.

| Soluble Tolu Preparations. | Labeling. | Formula for Syrup Tolu. | Alcohol Content of Preparation Resulting. |
|---|---|---|---|
| Manufacturer "A" | Fluid Tolu Soluble Alcohol 20% | Use 1/2 fld. oz., add simple syrup *q. s.* 16 fld. oz. | 1.8% |
| Manufacturer "B" | Alcohol 20% | Use 2 fld. oz, add simple syrup *q. s.* 23 fld. oz. | Less than 3.5% |
| Manufacturer "C" | Alcohol 25% | Use 40 cc. and 460 cc. simple syrup | Less than 3.5% |
| Manufacturer "D" | Alcohol 20% | Use 42 cc. and simple syrup *q. s.* 500 cc. | Less than 3.5% |
| Manufacturer "E" | Fluid Tolu Soluble Alcohol 24% (Artificial Color) | Use 30 cc. and 450 cc. simple syrup | 1.5% |

From a therapeutic standpoint these deviations from the official alcohol content may not be of importance but the fact remains that official specifications have a legal aspect. The retail pharmacist is held responsible for the quality of medicinal preparations he sells and regulatory authorities are legally bound by the official specifications. In certain instances the specifications may be interpreted in such a manner as to permit variation, but the official statement of maximum and minimum limits for alcohol in this preparation does not admit of much variation.

There appears to be no reason why the manufacturers of these concentrated tolu preparations cannot give the pharmacist a formula which will produce a preparation meeting all official requirements. Failure to do so will result in a continuance of a petty type of violation which is annoying to the pharmacist and more so to regulatory officials.

CHEMICAL LABORATORY, BUREAU FOODS AND DRUGS,
HEALTH DEPARTMENT, NEW YORK CITY.

## SOME PRESCRIPTION INCOMPATIBILITIES.*

BY S. L. HILTON.

In presenting the following prescriptions I am in hopes of bringing out some difficulties, some of which I have been able to solve and several others not. If the physician had better training or more properly speaking any training in prescription writing and incompatibilities, or would consult the pharmacist, he would obtain better results and most of the incompatibilities would be eliminated.

* Section on Practical Pharmacy and Dispensing, A. PH. A., Toronto meeting, 1932.

No. 1, ℞

| | |
|---|---|
| Cocaine hydrochloride | grains v |
| Solution neosilvol 20% | ℥ ss |
| Solution ephedrine 3% *q. s.* | ℥ i |

This prescription cannot be filled, neosilvol is an iodide of colloidal silver; the alkaloids are precipitated.

No. 2, ℞

| | |
|---|---|
| Acid salicylic | ℥ ii |
| Sodium bicarbonate | *q. s.* |
| Tr. ferric chloride | ℥ iii |
| Acid citric *q. s.* | |
| Aromatic elixir | ℥ ii |
| Distilled water *q. s. ad* | ℥ vi |
| *Misce.* | |

Dissolve thirty grains of citric acid in the tincture of ferric chloride and add one fluidounce of aromatic elixir. To the salicylic acid add two drachms of sodium bicarbonate and one fluidounce of aromatic elixir, then mix the two solutions; the result is a dark wine-colored mixture without precipitation.

I have had quite a controversy over the method given above, the method followed by the pharmacist is to make the sodium salicylate mixture, add the tincture of ferric chloride. A rusty brown precipitate is formed, to this he adds a small quantity of aqua ammonia—sufficient to dissolve; he then completes the prescription. I maintain that if a prescription can be compounded without adding anything not ordered or omitting something prescribed—no change should be made without the consent of the physician.

No. 3, ℞

| | |
|---|---|
| Calcium lactate | 15.0 |
| Dionin | 0.1 |
| Simple syrup | 15.0 |
| Distilled water *q. s.* | 180.0 |
| *Misce et Sig:* Tablespoonful every three hours. | |

This prescription was compounded and dispensed in a screw-cap bottle; the patient took part of it and the remainder was left on a mantel in a heated room for twenty-one days, when the preparation exploded—I was asked the reason. Calcium lactate is an acid salt, the prescription contains 8 per cent of syrup or about 4 per cent sucrose, the slightly (lactic) acid condition with heat changed the sucrose to invert sugar; fermentation developed, carbon dioxide and alcohol were formed. If the prescription had been dispensed in a corked bottle, instead of a screw-cap bottle, the cork would have been blown out; the bottle could not stand the pressure, consequently it was blown to pieces.

No. 4, ℞

| | |
|---|---|
| Zinc chloride | grains iv |
| Dobell's solution | ℥ iii |
| *Misce et Sig:* Use as a mouth wash. | |

It cannot be compounded so that the finished product contains any zinc chloride, for the reason that the sodium borate in the Dobell's solution precipitates zinc borate, an insoluble complex compound.

No. 5, ℞

| | |
|---|---|
| Sodium salicylate | ʒ vi |
| Sodium bicarbonate | ʒ vi |
| Aquæ gaultheria q. s. ad | ℥ vi |

*Misce et Sig:* ʒ ii p. c.

This prescription contains more sodium bicarbonate than will dissolve in the quantity of water ordered (solubility 1 in 20). The pharmacist desired to know why the solution turned black in a day or two. To avoid this change, there is but one make of sodium salicylate obtainable that does not change; this is physiologically tested. Small traces of phenol in the sodium salicylate is the cause of the darkening.

No. 6, ℞

| | |
|---|---|
| Ephedrine sulphate | 0.90 |
| Anesthesin | 0.60 |
| Distilled water *q. s. ad* | 30.00 |

*Misce et Sig:* Apply to tongue every 3 or 4 hours.

Anesthesin is insoluble in water, a few drops of diluted hydrochloric acid renders it soluble. Ephedrine hydrochloride should be used instead of the sulphate, make two separate solutions and mix them.

No. 7, ℞

| | |
|---|---|
| Sodium nitrite | |
| Sodium iodide *a a* | grains iiss |

Make 20 such capsules.

*Sig:* One three times a day as directed.

Free iodine is liberated, the two salts cannot be dispensed in the same capsule.

No. 8, ℞

| | |
|---|---|
| Betanapthol | grains viii |
| Precipitated sulphur | ʒ i |
| Alcohol | ʒ iv |
| Sat. sol. zinc sulphate | |
| Sat. sol. pot. sulphurat, of each to make | ℥ iv |

*M.* Make a paste.

It is easy enough to make a saturated solution of zinc sulphate, the solubility is given in the U. S. P. Nowhere could I find the solubility of sulphurated potassa, consequently had to work it out. One part is soluble in 0.8 parts of water.

Add the saturated solution of sulphurated potassa slowly to the saturated solution of zinc sulphate with constant stirring; when effervesence ceases add the other ingredients, previously mixed, to a large portion of the zinc sulphide mixture and make same weigh ℥ iv.

No. 9, ℞

| | |
|---|---|
| Acetylsalicylic acid | ʒ i |
| Amidopyrine | grains xl |
| Sodium bicarbonate | ʒ ss |

Mix and make twenty capsules.

Acetylsalicylic acid is incompatible with sodium bicarbonate and should be omitted.

No. 10, ℞

| | |
|---|---|
| Sodium salicylate | ʒ i |
| Calcium bromide | ʒ ii |
| Sol. potass. hydrox. | ʒ i |
| Elix. peptenzyme *q. s.* | ʒ iv |

*Misce et Sig:* Teaspoonful in water every 3 hours.

Why liquor potassa was added is beyond my understanding—calcium hydroxide is formed, which is insoluble in the mixture. Elixir peptenzyme contains pepsin, which is destroyed in alkaline mixtures.

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## THE LAXATIVE PROPERTIES OF RHAMNUS ALNIFOLIA.*

### A PRELIMINARY REPORT.

BY ALVA COTTON AND L. K. DARBAKER.

During one of the annual botanical expeditions to the Pymatuning swamp, Professor O. E. Jennings, Head of the Department of Botany of the University of Pittsburgh and Carnegie Museum, called the attention of one of the writers to *Rhamnus alnifolia*, which grows abundantly in some parts of the swamp.

The shrub *Rhamnus alnifolia* differs but little from the general description of the shrubs of the *Rhamnaceæ*. It is a low-growing shrub, inhabiting swamps from Maine to Pennsylvania, Illinois and northward. The leaves are ovate, with an acute apex, serrate margin and almost straight-veined. The shrub flowers in June; the flowers are small, inconspicuous and of a greenish color. The fruit is drupe-like, three-seeded and blackish in color.

As this plant is related to Cascara Sagrada, it was suggested that it might have similar laxative properties and, if so, perhaps be used in the same manner as Cascara Sagrada. During the summer of 1930 and 1931 bark and leaves were collected, dried and made into fluidextracts, without aging.

After some experimentation upon animals, the fluidextracts were tried upon humans. It was demonstrated that the fluidextracts made from the bark of *Rhamnus alnifolia* produced laxative and cathartic actions similar to those produced by Cascara Sagrada but approximately twice as much was necessary to produce the same results as with the Cascara Sagrada.

The leaves also contain laxative principles but in such small amounts as to render the fluidextract unsatisfactory for human use.

From these preliminary experiments it would seem that the bark of *Rhamnus alnifolia* could be used in the same manner as that of Cascara Sagrada, with the disadvantage of a larger dose but with the advantages of less griping and it not being necessary to age the bark.

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* Scientific Section, A. PH. A., Toronto meeting, 1932.

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**First Aid Week**, March 12th–19th, should mean a week of service. Advise your patrons of the necessity of care and the purpose of a label on medicines.