OBSERVATIONS ON THE U. S. P. X TEST FOR "FOREIGN GUMS" IN TRAGACANTH.

BY R. A. KONNERTH.

The test for "foreign gums" in Tragacanth was introduced in the U. S. P. IX and carried over in the U. S. P. X. This test was applied to numerous samples of whole and powdered Tragacanth during this period with satisfactory results. Since February 1928, however, practically no Tragacanth could be found that would comply with this test.

During the week of August 13, 1928, the following observations were presented to the Plant Science Seminar held at Boston, Mass. They are herewith repeated for the purpose of further discussion and proper revision of the test by the U. S. P. Revision Committee.

In the test given on page 408 of the U. S. P. X, under "Tests for Identity and Purity" of Tragacanth, second paragraph intended for the detection of foreign gums, reads as follows:

> "Shake 2 Gm. of Tragacanth with 100 cc. of water until fully swollen and free from lumps, then add 2 Gm. of powdered sodium borate, and shake the mixture thoroughly until the salt is dissolved; the mucilage does not lose its transparency, nor exhibit any change in consistence, and on pouring is not slimy or stringy even after standing twenty-four hours (foreign gums)."

We found that when the powdered borax is added to the properly prepared mucilage and the mixture is shaken as directed until the borax is dissolved, a fairly firm jell forms within 10 to 30 minutes. This jell retains its consistency practically unchanged for more than 72 hours. Such a jell when formed in a 250 cc. Erlenmeyer flask cannot be dislodged even with violent shaking.

The gums tested represent very clean, white and perfect A-1 ribbons, complying with all other U. S. P. tests. The poorer grades on the market also fail to stand the U. S. P. test for foreign gums.

The writer believes that the market is flooded with one or more of the Asiatic species of Astragalus (Fam. *Leguminosæ*), which do not stand the U. S. P. test for "foreign gums."

It would seem desirable that this test be either revised or eliminated.

ANALYTICAL LABORATORIES,
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SPECIFIC GRAVITIES OF FIVE OFFICIAL SYRUPS.*

BY W. G. CROCKETT AND L. E. JARRETT.

The work represented in this paper was undertaken with two objects in view (1) to facilitate grading our students upon syrups they prepare in the laboratory, (2) to help establish official specific gravities for these syrups in case this be deemed wise by the committee for revising the Pharmacopœia.

Experience teaches us that frequently students are more concerned about finishing preparations rapidly and getting credit for the work than they are about

* Section on Practical Pharmacy and Dispensing, A. PH. A., Portland meeting, 1928.

the quality of finished products. Since sugar dissolves slowly in the cold, students sometimes attempt to hurry these preparations along either by using less sugar than is required or by straining before it has dissolved completely. If the specific gravity of the finished product be known, the teacher can reject immediately those syrups which are deficient in sugar, by using an hydrometer.

The syrups which serve as the basis for our work were prepared by our students during their laboratory course in galenical pharmacy and in accordance with the official methods. The class was advised in advance that some of their products would be used for experimental purposes and was requested to exercise the usual precautions. Forty samples of each syrup were prepared, from which twenty samples were chosen at random for specific gravity determinations.

This procedure furnished us with twenty samples of each syrup, made by twenty different manipulators, and under conditions which pretty nearly approximate those prevailing in the drug store. All weighings were made in a 25-cc. alcohol pycnometer at exactly 25 degrees centigrade. Conditions were altered in some cases as will be noted below. Weighings were made to the fourth decimal place although gravities have been calculated to the third place only.

Weight of pycnometer filled with water at 25° C. 62.0334 Gm. Weight of pycnometer alone 34.6256 Gm. Weight of water required to fill pycnometer 27.4078 Gm. This weight, 27.4078 Gm., is used in calculating all gravities in the tables.

SYRUP OF WILD CHERRY.

Syrups 1 and 2 were prepared from coarse powders purchased during the summers of 1926 and 1927, respectively. Each student prepared 200 cc. of the syrup, percolating onto the sugar contained in an 8-ounce prescription bottle and adjusting the final volume to a scratch he had made upon the bottle after pouring 200 cc. of water into it.

TABLE I.

Student number.	Syrup number.	Weight of syrup used.	Specific gravity.	Student number.	Syrup number.	Weight of syrup used.	Specific gravity.
3	1	35.7280	1.303	7	2	35.6550	1.301
13	1	35.8426	1.307	9	2	35.8246	1.307
11	1	35.9320	1.310	12	2	35.9446	1.311
15	1	35.9520	1.311	1	2	36.0775	1.316
2	1	35.9706	1.312	14	2	36.0942	1.316
10	1	35.9940	1.313	20	2	36.1196	1.317
4	1	36.0506	1.315	19	2	36.2432	1.322
6	1	36.1584	1.319	5	2	36.2454	1.322
16	1	36.1622	1.319	8	2	36.2928	1.324
17	1	36.1884	1.320	18	2	36.4720	1.330

The specific gravity of 1000 cc. of syrup of wild cherry prepared by a member of our faculty and in accordance with the official process, was found to be 1.317.

SYRUP OF ORANGE.

Syrups 1 and 2 were made from two freshly prepared tinctures of sweet orange peel. Each student prepared 100 cc. in a 4-ounce prescription bottle, adjusting to final volume as in the case of wild cherry.

TABLE II.

Student number.	Syrup number.	Weight of syrup used.	Specific gravity.	Student number.	Syrup number.	Weight of syrup used.	Specific gravity.
17	1	34.7292	1.267	14	2	35.1794	1.283
6	1	35.4280	1.292	19	2	35.1086	1.281
18	1	35.6916	1.302	2	2	35.4550	1.293
4	1	35.7836	1.305	1	2	35.5023	1.295
7	1	35.8422	1.307	9	2	35.6008	1.298
3	1	35.9820	1.312	15	2	35.4894	1.295
16	1	35.9730	1.312	5	2	35.6896	1.302
20	1	35.9810	1.312	11	2	36.0422	1.314
10	1	36.0564	1.315	12	2	36.0184	1.314
8	1	36.0982	1.317	13	2	36.0916	1.316

SYRUP OF TOLU.

Each student prepared 100 cc., warming to dissolve the sugar and making up to volume as before.

TABLE III.

Student number.	Weight of syrup used.	Specific gravity.	Student number.	Weight of syrup used.	Specific gravity.
16	34.2622	1.250	9	35.1902	1.283
8	34.4748	1.257	14	35.1686	1.283
13	34.4982	1.259	19	35.1626	1.283
7	34.6297	1.263	2	35.1871	1.283
11	34.7562	1.268	4	35.1854	1.283
20	34.8550	1.271	18	35.1755	1.283
6	34.8698	1.272	17	35.2880	1.288
10	34.8708	1.272	3	35.3222	1.289
12	34.8904	1.273	1	35.5064	1.295
5	34.9683	1.275	15	35.6264	1.300

SYRUP OF GINGER.

In preparing syrups 1 and 2, fluidextracts made by Sharp and Dohme and Eli Lilly, respectively, were used. Each student prepared 100 cc., warming to dissolve the sugar and making up to volume in a 100-cc. measuring cylinder.

TABLE IV.

Student number.	Syrup number.	Weight of syrup used.	Specific gravity.	Student number.	Syrup number.	Weight of syrup used.	Specific gravity.
12	1	34.3294	1.252	9	2	34.5756	1.261
11	1	34.6552	1.264	3	2	34.6382	1.263
15	1	34.6535	1.264	5	2	34.7948	1.269
20	1	34.7404	1.267	4	2	34.8956	1.273
17	1	34.8234	1.270	6	2	34.9482	1.275
18	1	34.9024	1.273	10	2	34.9610	1.275
19	1	34.9490	1.275	7	2	34.9928	1.276
13	1	35.0614	1.279	1	2	35.0156	1.277
16	1	35.1457	1.282	2	2	35.1360	1.282
14	1	36.0082	1.313	8	2	35.2452	1.286

After the work above had been completed three 100-cc. samples of syrup of ginger were prepared by a member of our faculty, using S. & D. fluidextract of ginger and making up to volume in a 100-cc. cylinder. Their gravities were found to be 1.281, 1.284 and 1.290.

SYRUP OF CITRIC ACID.

Several liters of plain syrup were first prepared by percolation and this product was used in the manufacture of all syrups in the table below. Each student prepared 100 cc. syrup of citric acid, making up to volume in a 4-ounce prescription bottle as described previously.

TABLE V.

Student number.	Weight of syrup used.	Specific gravity.	Student number.	Weight of syrup used.	Specific gravity.
3	34.8546	1.271	5	35.5546	1.297
10	34.6126	1.262	4	35.5870	1.298
17	35.1548	1.282	7	35.6226	1.299
2	35.3574	1.289	11	35.4452	1.293
13	35.4584	1.293	12	35.5196	1.296
6	35.4392	1.293	15	35.6250	1.299
8	35.4656	1.293	16	35.6406	1.300
20	35.4590	1.293	19	35.6384	1.300
9	35.5122	1.295	18	35.7094	1.302
14	35.5474	1.295	1	35.8196	1.307

The variations in the specific gravities of this syrup are greater than we had anticipated, since all students were using from the same sample of plain syrup. Three 100-cc. samples of syrup of citric acid were prepared at a later date by a member of our faculty, who used a plain syrup having a specific gravity of 1.308 and made them up to volume in a 100-cc. cylinder. The specific gravities of these three samples were found to be 1.302, 1.302 and 1.303.

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PHARMACEUTICAL MANUFACTURING AND ITS RELATIONSHIP TO THE DRUG STORE.*

BY EDWARD D. DAVY.[1]

Increasing the professional standing of the pharmacist in the community is of unquestionable interest to the pharmacist, pharmaceutical organizations and schools; but the manner of accomplishing it without additional fundamental training is a very difficult problem.

It is intended here to present one phase, largely discarded, but which I believe will help the cause, and that phase is manufacturing on a small scale in the drug store.

The reasons ordinarily offered for not continuing the old practice of making some of these commonly used products is lack of time; the lack of time being largely occasioned by customers for hair nets, toys, post cards, sandwiches, etc.

Ordinarily, if the stock above mentioned does not obtain in the drug store, considerable time is available, which one man could give to the manufacture of certain preparations which do not require elaborate apparatus.

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