The allo acid was then obtained by exposure to uviol lamp rays.

Pharmacology.—The only work along this line was by Matsuo[1] in 1918 who showed that the reduced acid, *p*-methoxypropionic, when injected into a rabbit was excreted in the urine as anisic acid and the glycocoll derivative of anisic acid ($CH_3OC_6H_4CONHCH_2COOH$).

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SOME NOTES ON THE U. S. P. SODIUM BORATE TEST FOR TRAGACANTH.

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At a meeting of the sixth annual Plant Science Seminar held in Boston, Mass., last August, it was brought out in one of the papers presented that samples of Gum Tragacanth now coming into the market do not respond satisfactorily to the U. S. P. sodium borate test.[1] Although this material, in every way, appears to be of very fine quality and responds to other prescribed tests for identity, it is being rejected by one of our large eastern manufacturing concerns as not being strictly U. S. P.

With my curiosity aroused as to the reason why samples now obtained should practically all fail to respond to this test while samples of ten years ago tested satisfactorily, I returned from the conference with the intention of investigating the old samples of Tragacanth carried in the Pharmacognosy drug stock at the College of Pharmacy, which represents a part of the valuable collection of vegetable and animal drugs started by Dr. Newcomb and which collection is still being enlarged by the department.

A paper entitled "A Comparative Precipitation Method for the Qualitative Identification of Each of the Common Gums" appeared in the January issue of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION (page 34), by Weinberger and Jacobs, and deals with the common commercial gums and mucilages such as Acacia, Tragacanth, Indian Gum, Irish Moss, Agar, etc., and qualitative identification is based upon the quantity of 95% alcohol necessary to precipitate completely each gum from a 1 per cent solution. Gabel has also recently reported on "The Effect of Heat on Tragacanth and Its Mucilage"[2] and it is hoped that the information contained in this paper and that to be obtained in further experiments, will add some useful information to our knowledge of the properties of Gum Tragacanth. The work is not complete as it stands at the time of this report and for this reason the results herein should be accepted as preliminary ones only.

The directions of the U. S. P. X sodium borate test for Tragacanth are essentially the same as those of the previous revision. This is mentioned to show that

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[1] *J. Biol. Chem.*, 35, p. 29.

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[1] JOUR. A. PH. A., 18 (1929), 698.

[2] *Ibid.*, 17 (1928), 1206.

the older samples reported as complying with the test some years ago were tested in the same manner as samples of to-day. The Pharmacopœia directs the preparation of a 2 per cent mucilage using distilled water. When the mucilage has been shaken to a smooth consistency, 2 Gm. of powdered Sodium Borate are added and the whole shaken until the salt is dissolved. The mucilage "should not lose its transparency nor exhibit any change in consistence and on pouring is not slimy or stringy even after standing 24 hours (foreign gums)."

Ten samples of Tragacanth were submitted to this test. As shown in the following table there are included several samples of very recent origin, others six, seven and eight years old and several dating back as far as 1910. The tabulation records the description of samples, dates of origin and results of the tests.

TABLE I.—RESULTS OF U. S. P. SODIUM BORATE TEST UPON TWELVE SAMPLES OF COMMERCIAL GUM TRAGACANTH.

Sample no.	Description and date of origin.	Result of test.
1.	"Tragacanth, No. 1, U. S. P." June 1922	Became very viscous
2.	"Tragacantha, No. 1, U. S. P." 1910	Became very viscous changing consistency
3.	"Tragacantha, Smyrna, No. 1." 1910	Practically no change in consistency after 24 hrs.
4.	"Tragacantha, Smyrna, No. 2." 1910	No change in consistency after 24 hrs.
5.	"Tragacantha, Alleppo, No. 3." 1910	No change in consistency after 24 hrs.
6.	"Tragacantha, No. 1." No date	Became very viscous within 14 hrs.
7.	"Tragacantha, No. 1, U. S. P." 1921	Became very viscous within 14 hrs.
8.	"Gum Tragacanth, Alleppo, No. 1." Aug. 1927	Very viscous almost at once, addition sodium borate
9.	"Tragacanth, No. 1." 1928	Changed to more viscous condition after 14 hrs.
10.	"Tragacanth, No. 1, U. S. P." 1923	Became very viscous after 14 hrs.
11.	"Tragacanth" offered as first grade in 1928	Became very viscous almost immediately
12.	"Tragacantha, Alleppo, No. 2." 1910	Showed no change after 24 hours

To summarize the foregoing table: Samples 2, 8, 9 and 11 changed consistency almost immediately after the addition of the Sodium Borate. Samples 1, 2, 6, 7, 8, 9, 10 and 11 showed the change after 14 hours' standing while only Samples 3, 4, 5 and 12 failed to show any change in viscosity whatever. Of these samples, No. 3 was of first quality, Nos. 4 and 12 were of second grade and No. 5 was of third grade. Of the entire lot of samples only four then might be considered as of U. S. P. quality since the mucilages produced by them were not altered by the addition of sodium borate. To all outward appearances they were inferior to those samples not responding satisfactorily to the test and which, therefore, must be classed as not U. S. P.

It was noticed in the making of the tests that the powdered sodium borate is dissolved very slowly and that some of the salt remains undissolved even after the mucilage has changed consistency. This indicated that an excess was being added over the amount actually necessary to cause gel formation.

With this in mind a test was run using Sample No. 6 which in the previous tests showed thickening in 14 hours. Varying amounts of Sodium Borate were added to like amounts of the mucilage to determine, if possible, the point where,

at the different concentrations, thickening occurs. In the following table it is seen that 0.8 Gm. of borate is sufficient to "set" the mucilage while a slightly smaller amount (0.6 Gm.) fails to produce any "setting."

TABLE II.—SHOWING EFFECT OF VARYING CONCENTRATIONS OF SODIUM BORATE UPON CONSISTENCY OF 100 CC. OF A 2% TRAGACANTH MUCILAGE USING SAMPLE NO. 6 OF TABLE I.

Portion no.	Gm. sodium borate.	Consistency of mixture.
1.	2.0	Firmly set
2.	1.8	Firmly set
3.	1.6	Firmly set
4.	1.4	Firmly set
5.	1.2	Firmly set
6.	1.0	Firmly set
7.	0.8	Only fairly set
8.	0.6	Tends toward liquid side
9.	0.4	Liquid
10.	0.2	Liquid

It is hoped in further tests to show the effect of such salts as Na_2CO_3, Na_3PO_4, Na_2HPO_4 or other salts producing alkaline reactions on the consistency of Tragacanth mucilage. It is well known that colloidal substances such as fibrin, gelatine, tragacanth, etc., are subject to hydration, *i. e.*, they are hydrophilic colloids, and that hydration is influenced to a large degree by hydrogen-ion concentration. Tragacanth being a colloid which is not amphoteric is influenced only in a p_H representing a comparatively high alkalinity as shown by the addition of varying amounts of Sodium Borate. It is expected that in addition to testing the effect of alkaline salts upon Mucilage of Tragacanth that we shall be able by means of a potentiometer to determine exactly the point at which maximum hydration occurs and that similar work on Indian Gum, Acacia, Agar, etc., may be carried on.

ABSTRACTS OF PAPERS OF SCIENTIFIC SECTION, A. PH. A.

"VI. The Standardization and Stabilization of Veratrum Preparations: The Hydrogen-Ion Concentration Factor," by E. E. Swanson and C. C. Hargreaves.

The effect of dilution with distilled water and alcohol and reading the lethal dose at the end of ½ hour and 12 hours studied in developing a bio-assay for veratrum. The hydrogen-ion concentration is found to be important in stabilizing veratrum preparation.

"VII. The Standardization and Stabilization of Ergot Preparations: The Hydrogen-Ion Concentration Factor," by E. E. Swanson.

Assays by the cockscomb method and reversal of the uterus on a number of U. S. P. fluidextracts were found to give correlative results. Some technical problems of the uterus method were studied. The hydrogen-ion concentration was found to be important in stabilizing ergot preparations.

"Stability of Anesthetic Ether in Containers of Various Types," by E. Van Deripe, L. W. Greene and R. E. Schoetzow.

Ether in tin cans, copper-plated tin cans and amber glass-stoppered bottles was kept under observation for a period of fifteen months, and ten fresh containers were opened each month and examined. The work confirmed information previously reported, that ether remains stable in copper-plated containers only.

"Evaluation of Pharmaceutical Glassware," by N. Storm and James C. Munch.

The reaction of a large number of types of glassware as bottles, vials and ampuls with a number of alkaloids and indicator solutions under various conditions of temperature and pressure are reported. A set of standard tests are outlined and standards for reaction recommended.