A PHARMACEUTICAL STUDY OF SYRUP OF FERROUS IODIDE. (1840–1927).

BY CATY J. BRAFORD AND H. A. LANGENHAN.

(*Continued from p. 660, July* JOUR. A. PH. A., 1927.)

No. V. Summary of Assays.

Within the last twenty-five years there have been numerous reports in the literature regarding the purity rubric of Syrup of Ferrous Iodide. Samples have been reported varying from 3.1%[1] to 8.7%.[2] Hulbert[3] examined a sample that contained nearly twice as much ferrous iodide as is required by the U. S. P.

The following table offers a summary of the reports since 1906. Most of the data were obtained through the Digest of Comments on the U. S. P. and N. F.

Reporter.	No. of samples. Examined.	Rejected.	References.
H. V. Arny	8	2	Proc. Ohio Pharm. Assoc., 1909, p. 67
H. V. Arny	14	4	Proc. Ohio Pharm. Assoc., 1910, p. 70
H. V. Arny	15	6	Proc. Ohio Pharm. Assoc., 1911, p. 217
G. Bachman	6	1	Proc. Minn. Pharm. Assoc., 1920, p. 108
H. E. Barnard	56	9	Red. Ind. Bd. Health, 1906, p. 383
H. E. Barnard	2	0	Rep. Ind. Bd. Health, 1913, p. 433
L. A. Brown	14	11	Rep. No. Dak. Agr. Exp. Sta., P. II, 1906, p. 150
L. A. Brown	36	4	Proc. Ky. Pharm. Assoc., 1912, p. 51
L. A. Brown	32	7	Proc. Ky. Pharm. Assoc., 1913, p. 118
Chas. Caspari, Jr.	381	45	Rep. Food-Drug Com. Md., 1912, p. 15
Alfred Cook	2	1	Rep. So. Dak. F. & D. Com., 1912, p. 50
E. De Barr	9	4	Rep. Okla. P. H. Dept., 1912, p. 451
Fitz-Randolph	5	3	Rep. N. J. Bd. Health, 1911, p. 226
T. G. Hudson	32	20	Bull. Ga. Dept. Agri., 1910, no. 51, p. 145
M. Jongwald	26	16	Proc. No. Dak. Pharm. Assoc., 1919, p. 56
E. F. Ladd	72	15	Bull. Agri. Exp. Sta. No. Dak., Vol. 2, 1912, p. 136
Penniman	45	4	Rep. Md. Bd. Health, 1915, p. 174
P. Röder	2	0	Pharm. Post. Wien, Vol. 39, 1906, p. 296
L. E. Sayre	18	7	Proc. A. PH. A., Vol. 58, 1910, p. 1095
L. E. Sayre	8	8	Bull. Kan. Bd. Health, 1908, Vol. 4, p. 182, p. 298
E. E. Stallings	39	11	Bull. Ga. Dept. Agri., 56, 1912, p. 121
J. P. Street	29	4	Rep. Conn. Agri. Exp. Sta., 1915, p. 348
A. R. Todd	2	1	Rep. Mich. D. & F. Dept., 1913, p. 176
F. J. Wulling	3	3	N. W. Drug. Vol. 11, Sept. 1910, p. 25
F. J. Wulling	5	5	JOUR. A. PH. A., Vol. 1, 1912, p. 1126
A. Ziefle	72	22	Rep. No. Dak. Agri. Exp. Sta., 1912–14, p. 131
Anon.	30	4	Rep. Conn. D. & F. Com., 1916, p. 19
Anon.	6	4	Bull. Ga. Dept. Agri., Vol. 2, 1915, p. 27

EDITOR'S NOTE.—In addition to this tabulated matter Professor Langenhan has also submitted abstracts of the subject, covering more than 200 references of more than 40 pp. ms., which, it is hoped, will be published later.

As will be noted the number of samples rejected is comparatively large (approximately 25%). Wulling[4] expressed a doubt as to whether a 5% syrup could be

[1] Bachman, Proc. Minn. Pharm. Assoc. (1907), 41; through Dig. Com. (1907).
[2] Bachman, Proc. Minn. Pharm. Assoc. (1909), 70; through Dig. Com. (1909).
[3] Hulbert, Bull. No. Dak. Exp. Sta. F, Dept. 4, 345; through Dig. Com. (1917).
[4] Wulling, JOUR. A. PH. A., 1 (1912), 1122.

obtained by making the preparation according to the U. S. P. directions, after two samples that had been carefully prepared in his laboratory were found to be below standard.

In order to determine whether or not experimentation verifies such a supposition, six samples of Syrup of Ferrous Iodide were prepared. These samples of 200 cc. each were prepared according to the U. S. P. direction with only such variations as will be stated later. They were all stored in a cupboard that was painted inside with cream-colored paint and which was frequently opened, thus exposing the samples to a limited amount of light.

TABLE I.

Formula.	Tests.							Assay.* FeI_2, Gm. per 100 cc.				
	Fe.	I.	Acid.	Sugar.	Sp. gr.	$K_3Fe(CN)_6$	Starch +Cl.		Free I.	Description.	Date prepared.	Comment.
I	4 Gm.	12 Gm.	1 cc.	Excess in syrup	1.393	Blue ppt.	Blue color	7.63	None	Pale green	10/18/26	
II	4 Gm.	12 Gm.	None	Excess in syrup	1.394	Blue ppt.	Brown color	7.55	1 drop $N/10$ $Na_2S_2O_3$ decolorizes 5 cc.	Greenish brown syrup	10/18/26	
III	4 Gm.	12 Gm.	1 cc.	Excess not in syrup	1.388	Blue ppt.	Blue color	7.55	None	Pale green syrup	10/27/26	
IV	2.9 Gm.	12 Gm.	1 cc.	Excess in syrup	1.390	Blue ppt.	Blue color	7.30	$Na_2S_2O_3$ showed app. 10%	Brown syrup color decreasing	11/12/26	
V	3.9 Gm.	12 Gm.	1 cc.	Excess in syrup	1.357	Blue ppt.	Blue color	7.65	None	Pale green syrup	11/12/26	Less sugar dissolved
VI	2.9 Gm.	12 Gm.	1 cc.	Excess in syrup	1.374	Blue ppt.	Blue color	7.23	None	Pale green syrup	11/12/26	No heat applied

TABLE II.

(SAME PRODUCTS AS NO. 1 TESTED 5 MONTHS LATER.)

Formula.	Tests.						Assay.* FeI_2, Gm. per 100 cc.			
	Fe.	I.	Acid.	Sugar.	$K_3Fe(CN)_6$.	Starch +Cl.		Free I.	Description.	
I	4 Gm.	12 Gm.	1 cc.	Excess in syrup	Blue ppt.	Blue color	7.25	None	Pale green	A little lighter than when prepared
II	4 Gm.	12 Gm.	None	Excess in syrup	Blue ppt.	Blue color	7.52	Trace	Brown	
III	4 Gm.	12 Gm.	1 cc.	Excess removed	Blue ppt.	Blue color	7.62	None	Pale green	
IV	2.9 Gm.	12 Gm.	1 cc.	Excess in syrup	Blue ppt.	Blue color	7.33	None	Pale green	
V	3.9 Gm.	12 Gm.	1 cc.	Excess in syrup	Blue ppt.	Blue color	7.56	None	Pale green	Slightly darker at top
VI	2.9 Gm.	12 Gm.	1 cc.	Excess in syrup	Blue	Blue	7.32	None	Pale green	Slightly darker at top

* The results given for the Gm. of FeI_2 per 100 cc. are the average results obtained from two or more assays.

Sample 1 was made according to the U. S. P. X and the excess sugar was allowed to remain in the syrup. Sample 2 was made in the same way but contained no hypophosphorous acid. Sample 3 was the U. S. P. syrup and was used as the control sample. The remaining three syrups were made with molecular quantities of iron and iodine computed from the following equation:

$$Fe + I_2 \longrightarrow FeI_2$$

Starting with sixty Gm. of iodine as specified by the U. S. P., thirteen and two-tenths Gm. of iron would be necessary to combine with it. The iron used in the experiment, when assayed, was found to be 92%, so the amount was increased by 10%, making the quantity 2.9 Gm. for 200 cc. of finished syrup. Samples 4 and

6 were made with such quantities. In Sample 5 this amount was increased by one Gm. In each case the excess sugar was not strained out.

The U. S. P. tests both quantitative and qualitative were applied to all six samples and the results are listed in Table I. After five months the same tests were again applied with the results listed in Table II. As will be noticed after comparing the two tables, there was but little change in any of the samples. The percentage strength remained about the same. Sample 4 which was somewhat brown when made had become slightly greener in color after standing. Samples 5 and 6 had a slight brown coloration at the top which disappeared when the bottle was shaken. The green color of Sample 1 seemed to be slightly less.

UNIVERSITY OF WASHINGTON,
COLLEGE OF PHARMACY,
SEATTLE.

ADVERTISING A PRESCRIPTION DEPARTMENT.*

BY JACOB DINER.

The author stated that he had prepared no paper but would present his subject without notes. He prefaced his remarks by saying that advertising a prescription department was not so very different from the advertising of any other department.

"Before advertising is started," he said, "it is necessary to have the merchandise which it is desired to advertise; that means before a prescription practice can be built up the store must have a prescription department and such a development can be put in at a less cost than a soda fountain. Among the things that help to build up a prescription department aside from the stock fixtures, etc., is the personality of the one who conducts the department. A pharmacist must have personality, must know prescriptions, and must have the necessary books of reference. He must have the confidence of his customers and of the physicians. The advertising of a prescription department begins primarily with the physician. He should be invited to the store, personally or by letter, and be informed relative to the qualifications of the pharmacist and of the service which the department can give. He should be informed relative to the stock and that it is the intention to carry a full line of items necessary for a complete prescription department, and that every care is exercised in order to insure safety to the patient."

He stated that physicians should be shown the manufacturing of the prescription department, how emulsions, tablets, wafers, etc., are prepared.

In his own store Dr. Diner gives information to the physicians relative to new preparations and how preparations could be dispensed to better advantage by new processes. He continued by saying that the physician might be detailed with preparations that the physician prescribes and he advised that the physician be given the formula so that he could write his prescriptions accordingly. He found it advantageous to send out letters to physicians relative to the subjects of interest and it is of particular value to have the physician advised of the official preparations, both of the U. S. P. and the N. F. In his opinion such conferences and communications as referred to, with the physicians, strengthen the confidence of pharmacists and physicians in one another.

* Remarks before Section on Commercial Interests, A. PH. A., St. Louis meeting, 1927.