ABSTRACTS OF PAPERS PUBLISHED IN OTHER JOURNALS.

Food and Drugs Analysis.

Evaluation of Acid Cream. M. A. Dichno and O. M. Briskin. (*Z. Unters. Lebensm.*, 1926, **52**, 469–475.)—A number of chemical and bacteriological tests have been carried out on samples of cream classified according to quality under four headings. These tests include the number of bacteria, fat content, acidity, specific gravity, water-content, and arbitrary constants obtained from the fermentation and reductase tests. The product of the last two provides a numerical index which varies regularly with the other analytical numbers and

assists in the classification of the samples. The limiting figures for a bad cream are: Specific gravity 1·0135, fat-content 23·46 per cent., acid-content 0·7 per cent. as lactic acid ; a colour is produced in the reductase test in 2 hours, and coagulation in the fermentation test in 2½ hours. The specific gravity was determined on 100 c.c. of the sample mixed with 10 c.c. of ammonia of specific gravity 0·96.

J. G.

Solidification Points of Edible Fats. T. Meyer. (*Z. Unters. Lebensm.*, 1926, **52**, 461–465.)—Time-temperature curves have been plotted, according to the method of Mohr, for the following oils : Palm kernel, coconut, arachis, neutral lard, oleomargarine, butter fat, and hardened whale oil. The solidification points were obtained from the maxima and minima observed on the curves, the curve for each fat being characteristic. The results are correlated with the m.pts. of the high and low m.pt. glycerides known to be present in the fats. A mean deviation of less than ± 0·1° C. is obtained if the experimental conditions are standardised ; *i.e.*, 35 c.c. of the fat at 50° C. contained in a 50 c.c. beaker are placed in a water-bath so that the level of the fat is 2 cm. below that of the water. The temperature of the cooling water (usually 15° C.) influences the nature of the curves, especially in the case of neutral lard. The method will distinguish between margarine and butter, except in the case of a mixture such as oleomargarine (4 parts), palm kernel oil (3 parts) and hardened whale oil (3 parts). J. G.

New Value for the Determination of Butter Fat. F. v. Morgenstern. (*Z. Unters. Lebensm.*, 1926, **52**, 385–388.)—In order to eliminate the influence of the caprylic and other acids, except butyric acid, obtained on saponification of butter fat (*cf.* Kuhlmann and Grossfeld, ANALYST, 1926, **51**, 305), the soap solution may be treated with copper sulphate and filtered. Five grms. of the fat are saponified with 2 c.c. of potassium hydroxide solution (750 grms. KOH per litre) and 10 c.c. of glycerin, and the soap solution cooled and diluted with 100 c.c. of water. The liquid is then cooled to 20° C., well shaken with 10 c.c. of coconut soap solution and 60 c.c. of copper sulphate solution (50 grms. of the crystallised salt per 600 c.c.), and, after 2 to 3 hours, filtered through a large plain filter paper. The filtrate should amount to 100 c.c., and, if necessary, the copper soap must be stirred with a glass rod. The 100 c.c. of filtrate are distilled with 50 c.c. of dilute sulphuric acid (12·5 c.c. of the concentrated acid per litre) and a little pumice in a Reichert-Meissl distilling flask, 110 c.c. of distillate being collected and titrated with 0·1 *N* sodium hydroxide solution. The number of c.c. of the alkali required is the titration value or copper value. Occasionally filtration from the copper soap fails to yield 100 c.c. of filtrate ; in such cases the copper value is proportional to the volume of filtrate titrated.

For copper values 1, 1·1, 1·2 and 1·3, the respective percentages of butter fat in the sample are 0, 0·5, 1·5 and 2. Each further addition of 0·1 to the copper value corresponds with an increase of 1 per cent. of butter fat. Good results are obtained with mixtures of butter fat with coconut butter or rape oil in varying proportions. T. H. P.

Occurrence of Arsenic and Lead in Fruit as a Result of Treatment with Protecting Agents. L. Lendrich and F. Mayer. (*Z. Unters. Lebensm.*, 1926, **52**, 441–457.)—Determinations of the lead and arsenic contents of fifteen types of apples from Canada, the United States and Australia have been made on various portions of the original and washed and dried fruit. The lead was determined colorimetrically by Winkler's method after the destruction of the organic matter and the precipitation of lead sulphate, which was dissolved in ammonium acetate solution. For the arsenic determination the sample was well mixed with magnesia in the proportion 25 : 1, and 10 c.c. of fuming nitric acid added. The whole was dried on the water-bath, heated for 1 hour at 150° C., and the ashing completed over a burner. The residue was dissolved in hot 15 per cent. sulphuric acid. This method gave results with a maximum error of + 4·6 per cent., whereas direct ashing involved a maximum error of − 20 per cent. The arsenic mirrors were dissolved in a 3 c.c. stoppered cylinder filled with 2 c.c. of 0·0005 *N* iodine solution and water. To this solution were added 3 drops of cold saturated solution of sodium carbonate, 3 drops of starch solution, and 2 c.c. of a 0·0005 *N* solution of arsenic trioxide. The solution was then back-titrated with the iodine solution. The titration from a blank experiment must be deducted, and the method (Ramberg's) is capable of determining 0·001 mgrm. of arsenic. In the following table the results refer to 100 grms. of sample.

Type of dried fruit.	Arsenic content (As_2O_3). Mirror.	Titration.	Lead content (Pb).
Pears, unpeeled	0·22 mgrm.	0·34 mgrm.	0·13 mgrm.
,, ,, ...	0·02 ,,	0·029 ,,	0
Apple rings, peeled	0·01 ,,	0·015 ,,	0
,, ,, partly peeled ..	Trace	0	0
,, ,, ,, ,, ..	Trace	0	0

A more complete table shows the results obtained by the two methods for various portions of the apple. In the washed and dried fruit most of the lead and arsenic is derived from the skin, which indicates that it is not easily removed during the handling and treating processes. In most cases lead was absent, and neither lead nor arsenic was found in apples from West Virginia, Canada and West Australia. (*Cf.* ANALYST, 1926, **51**, 291). J. G.

Determination of Benzoic Acid in Foodstuffs. G. W. Monier-Williams. (*Ministry of Health. Reports on Public Health and Medical Subjects.* No. 39. January 1927, p. 57.) See *Ministry of Health Report*, p. 229.

Caffeine Content of Coffee Extracts and their Physiological Action. H. Jesser. (*Z. Unters. Lebensm.*, 1926, **52**, 389–392.)—The view that less caffeine passes into solution when coffee is extracted with sugar solution than when water is used is not substantiated by experimental data. Moreover, the physiological effects of the extracts are the same in the two cases. A cup of coffee holding 150 c.c. and corresponding with 7·5 grms. of coffee, contains about 0·09 grm. of caffeine, and a cup of black tea of similar size, about 0·025 grm. T. H. P.

Determination of Caffeine in Black Tea. W. Stüber. (*Z. Unters. Lebensm.*, 1926, **52**, 393–395.)—Fendler and Stüber's method for the determination of caffeine in coffee (ANALYST, 1916, **41**, 88) may be applied to black tea when modified as follows: From 25 to 50 grms. of the tea are powdered in a porcelain mortar, and 5 grms. of the powder are shaken for 30 minutes in a stoppered glass bottle with 5 grms. of 10 per cent. ammonia solution and 200 grms. of chloroform. The total contents of the bottle are transferred to a large pleated filter, and 150 c.c. of the filtrate are evaporated in a wide-necked flask on a water-bath, the last traces of chloroform being removed by a current of air. The residue is digested on the water-bath, and frequently swirled, with 80 c.c. of hot water, the cooled liquid being treated with 10 c.c. of 1 per cent. potassium permanganate solution and left for 15 minutes. The manganese is separated by addition of 2 c.c. of about 3 per cent. hydrogen peroxide solution containing 1 c.c. of glacial acetic acid per 100 c.c., further additions of 1 c.c. of the solution being made until the red colour of the liquid is destroyed. The flask is placed on a boiling water-bath and the acid peroxide solution added in quantities of 0·5 c.c. until such an addition fails to lighten the colour. The flask is left for 15 minutes altogether on the bath, the liquid being then cooled and filtered through a moist plain filter, about 9 cm. in diameter. Flask and filter are washed with cold water, and the clear filtrate, amounting to about 200 c.c., shaken with 50 c.c., and then with three successive quantities of 25 c.c. of chloroform. The combined chloroform extracts are evaporated in a wide-necked flask, and the residue dried at 100° C. to constant weight, which corresponds with 3·75 grms. of the tea. T. H. P.

Determination of Podophyllin. R. Eder and W. Schneiter. (*Pharm. Acta Helv.*, 1926, **1**, 15–24; *J. Pharm. Chim.*, 1927, **119**, 122.)—Half-a-grm. of finely powdered podophyllin is shaken for 30 minutes with 15 c.c. of chloroform, filtered, and 10 c.c. run into 50 grms. of petroleum spirit. The precipitate is collected on a weighed filter paper of 0·08 m. diameter, the flask and filter washed with 20 c.c. of ether, and the residue dried for 1 hour at 70° and weighed. This weight corresponds to two-thirds of the podophyllin taken and should not be less than 40 per cent. of that weight. D. G. H.

Identification and Determination of Ergot of Rye. A. Tschirch. (*Pharm. Acta Helv.*, 1926, **1**, 89-90; *J. Pharm. Chim.*, 1927, **119**, 122–123.)—The red solution produced by shaking for 2 hours one grm. of the powdered drug with 20 c.c. of ether, 10 drops of ammonia solution, and 20 drops of water, is decanted, the ether evaporated, and the residue taken up with acetic acid and filtered. Sulphuric acid containing ferric chloride is run on to the filtrate, and a blue-violet zone (ergotamine) should form at the point of junction. The acid is colourless or slightly yellow, and the acetic acid layer should show a green fluorescence (ergosterine). If these conditions are fulfilled, 0·02 per cent. of ergotamine is present in the drug and only traces of protein amines, which latter result from defective keeping conditions, such as the presence of moisture.

D. G. H.

Alleged Reaction of Cherry-Laurel Distillate. F. Morvillez and Defossez. (*J. Pharm. Chim.*, 1927, **119**, 97–100.)—Pecker's reagent was not found reliable in its action on natural cherry-laurel distillate in the presence of stannous cyanide, but Meillère's reagent (200 grms. of a 15 per cent. solution of ammonium molybdate, 20 c.c. of 50 per cent. by volume sulphuric acid and 30 c.c. of nitric acid) gave a much more marked coloration. The reducing properties of the distillate are notably augmented by the presence of stannous cyanide, and, whilst the absence of the tin may cause an artificial product to be suspected (since the commercial distillation is carried out in tinned copper vessels), its presence is not a proof of good preparation. D. G. H.

Dried Sulphate of Iron. J. F. Liverseege. (*Pharm. J.*, 1927, **118**, 106.)—Dried ferrous sulphate may absorb water fairly readily, but if kept in properly closed bottles, there should be no great deterioration. The insoluble matter in 12 bought samples varied from 0·3 to 3·3 per cent., and an increase of either temperature (above 150° C.) or time in preparing small samples produced an increase in insoluble matter and decrease in ferrous sulphate, owing to formation of basic and ferric sulphate (*cf.* p. 223). D. G. H.

Iron Pills. J. F. Liverseege. (*Pharm. J.*, 1927, **118**, 106–108.)—As a result of an investigation into the composition of iron pills on the market it is suggested that 5 grain iron pills should contain not less than 1 grain of ferrous carbonate ; that the carbonate present should be chemically equivalent to rather more than the amount of ferrous sulphate ; that talc should not be present in the pill mass ; that variation above and below the mean weight should be within 10 per cent., and that pill coats should be moderate in amount and the pill disintegrate in a reasonable time. Increased accuracy in labels is also suggested. The percentage composition, size and weight in grains of 5 typical samples of Pil. Ferri B.P. are tabulated. The determination of ferrous sulphate by means of 3 N phosphoric acid is advocated, with diphenylamine as indicator (*cf.* p. 224). D. G. H.