TABLE VI.—REPELLENT ACTION OF DODECYL ALCOHOL AND OIL OF CITRONELLA FOR MUSCA DOMESTICA

Time Min.	Control	Dodecyl Alcohol	Oil of Citronella
15	61	1	0
45	67	0	0
75	40	0	0
105	36	1	3
135	31	0	3
165	25	0	4
195	15	0	5
225	13	0	4
Total	288	2	19

The results shown in Table VI indicate dodecyl alcohol to be more repellent than oil of citronella for Musca domestica.

Toxicity of Lauronitrile

The toxicity tests were performed under carefully controlled conditions. Six rats were fed 0.25 cc. samples each by means of a stomach tube. No ill effects were observed immediately following the administration or during the ten days following.

A slight inflammation was observed upon the ears of rabbits treated with 2 cc. of a 10% alcoholic solution. This disappeared the following day and the ears remained normal during a two week period. Application of 1.5 cc. of a 10% alcoholic solution to the skin on the underside of the forearm of two human subjects produced no ill effects.

A rabbit's eyes were treated with 1.5 cc. of undiluted lauronitrile by means of an eye dropper. No ill effects of any kind were observed.

From the results of the toxicity tests, it was decided that lauronitrile is not toxic either when applied externally or administered orally.

Future Work

A larger scale investigation of the use of lauronitrile as a repellent for insects upon cattle, dogs and other animals is now being conducted. During the present season extensive tests have been undertaken upon the effectiveness of lauronitrile as a repellent for insects upon agricultural crops. The results of this work will be reported at a later date.

Acknowledgment

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Summary

(1) The repellent activity of a number of fatty acid derivatives for flies has been studied. It was found that certain higher alcohols: decyl, undecyl, undecenyl, and dodecyl alcohols are highly repellent and that aliphatic nitriles containing from ten to fourteen carbon atoms possess high repellent activity for the insects tested.

(2) Undecylonitrile, lauronitrile, tridecylonitrile and dodecyl alcohol are more repellent for flies than oil of citronella under the test conditions.

(3) Lauronitrile is non-toxic both when applied externally or administered orally.

LITERATURE CITED

(1) Bunker, C. W. and Hurschfelder, A. D., Am. J. Trop. Med., 5, pp. 359 (1925).
(2) Mail, C. A., Montana State Coll. Agri. Bull., pp. 288 (1934).

Abstracts

Oils and Fats

Edited by
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YIELD DIFFERENCES IN OIL MILLING. Magne Sethne. *Kgl. Norske Videnskab. Selskaba. Skrifter 1939,* No. 3, 150 pp. (Pub. 1940). Three equations are given for calcg. the theoretical oil yield, the factory loss and the cake yield; from the analyses of the raw material and corresponding oil cake. The analytical results and data given are from 5 yrs. of investigations on copra and peanuts. The discrepancy between sampling at the ship and at the mill were insignificant during the 5 yrs. Analytical methods for both raw materials and cake were investigated. The influence of drying, grinding with sand, choice of solvents, method of volatilizing solvent and drying ext. and extn. after HCl treatment on the oil detn. are given. The HCl treated samples were extd. with Et_2O and with petrol. ether; these gave results which were 0.34-0.87% higher than the non-HCl treated samples. Lowest results were by extn. with petrol. ether; these were 0.17-0.50% less than with Et_2O extn. Benzine, benzol, CCl_4, C_2HCl_3 and CS_2 extd. 0.20-0.80% more oil from copra than Et_2O. The oil extd. from peanuts by Et_2O and benzine was practically the same while benzol extd. 0.10-0.32% more. Influence of temp. and time when drying in vacuum, in ordinary oven and in atm. of CO_2 and an indirect moisture detn. were evaluated. The indirect method, calcn. indirectly from the amt. of oil and residue from the oil detn., gave the most plausible results. These were higher on the raw products and lower on cake than by the direct methods. The differences between the theoretical and actual factory yield, oil yield and cake yield were given graphically and in tables and were compared with the data from other reports. In an attempt to explain the losses, the author investigated the oil detns. and balance. Development of free fat acids during processing may have some effect. An appreciable portion of the free fat acids remains in the cake and are not quantitatively extd. in the oil detn. The oil extd. during analysis differed in content of P and N compds. from that com. pressed out. An equation for this influence was given. Water balance calcn. and investigations indicated that there was less factory loss when the indirect method of analysis was used. An equation for the effect of analytical error was presented. There are 43 references. (*Chem. Abs.*)

COMPOSITION OF COTTONSEEDS.. 4. Lipase of germinated seed. H. S. Olcott and T. D. Fontaine. *J. Am. Chem. Soc. 63,* 825-7 (1941). Dormant cottonseeds contain no lipase. Lipolytic activity develops during germination. Concurrently, total lipids decrease and free fatty acids increase. The germinated cottonseed lipase is effected in the pH range 6 to 9 (opt. 7 to 8). $CaCl_2$ activates the enzyme, particularly in alkaline solns. The effects of several other reagents on its activity are described.

GRAPEFRUIT YIELDS TEXTILE OIL. *News bulletin—Natl. Farm Chemurgic Council 2,* 22-3 (1941).

THE DETERMINATION OF FAT IN THE PRESENCE OF FREE FATTY ACIDS. I. THE MOJONNIER TEST OF MIX-

TURES OF FREE FATTY ACIDS AND BUTTERFAT. M. P. Starr and B. L. Herrington. *J. Dairy Sci. 24,* 165-9 (1941). Known wts. of a mixt. of fatty acids approximating completely hydrolyzed butterfat were added to known wts. of butterfat. When these mixts. were tested by the Mojonnier method, a part but not all of the free acid was recovered along with the fat. The amt. of free acid recovered with the fat was a practically constant fraction of the total free acid present in the sample. In the case of this particular mixt. of acids, 24% was recovered with the fat.

THE MELTING RANGE OF FATS. K. A. Williams. *Analyst 66,* 3-9 (1941). A photoelectric method for the detn. of m.ps. is described by which the present lack of consistency between the results of different observers using the capillary tube method may be avoided. The fact that melting starts at a temp. below the visual m.p. is confirmed by a modification of the dilatometric method which leads to reproducible and definite results for the true incipient and complete m.ps. The possible use of figures for change in vol. on melting and for the rate of change of density with temp. during melting is suggested as a means of characterising fats.

STUDIES ON ANTIOXIDANT ACTIVITY. I. ESTIMATION OF ANTIOXIDANT ACTIVITY IN STABILIZING VITAMIN A IN OILS. W. E. Parker, et al. *Can. J. Res. 19B,* 17-23 (1941. The efficiency of wheat-germ oil in stabilizing vitamin A against the destructive action of ultra-violet radiations was investigated. A rapid and convenient method of estimating antioxidant potency is described which is based on ultra-violet irradiation of mixts. of halibut liver oil and antioxidant in chloroform soln. and estimation of vitamin A by the direct appln. of the antimony trichloride reaction employing photoelectric colorimetry.

A COMPARISON OF THE INHIBITORY ACTION OF DIFFERENT FATS AND FATTY ACIDS INTRODUCED INTO THE DUODENUM ON GASTRIC CONTRACTIONS. W. I. Card. *Am. J. Dig. Diseases 8,* 47-53 (1941). The method here described now enables workers to compare the effectiveness of small doses of fats and fatty acids in inhibiting gastric movements. There was little difference in the effectiveness of the natural fats, except in the case of linseed oil, which probably owes part of its activity to the small amts. of linoleic acid it contains. No constant difference in the action of the pure fats tried was detected. With the exception of tricaproin in one subject, all the periods of inhibition were between 5½ and 6½ mins. for 1 g. of fat, and the differences cannot be regarded as significant. All but one of the fatty acids were about 5 times as effective in inhibiting gastric motility. Linoleic acid was about 10 times as effective.

RELATION OF DIETARY FAT TO RIBOFLAVIN REQUIREMENT OF GROWING RATS. G. J. Mannering, et. al. *Proc. Soc. Exptl. Biol. & Med. 46,* 100-4 (1941). It has been demonstrated that increasing the fat level in a riboflavin-low ration has a corresponding deleterious effect on the growth of young rats, and that the administration of adequate amts. of riboflavin completely corrects this deficiency.

PATENTS

MARGARINE. H. E. Otting and L. H. Chrysler (M & R Dietetic Labs., Inc.). *U. S. 2,233,179.* As a new article of manuf., lactic acid free margarine having therein a flavoring comprising a lipolyzed butter-fat-contg. material is described.

SUGAR COMPOSITION. J. R. White and J. A. Dunn (Lever Bros.). *U. S. 2,225,894.* A free-flowing conpn. for dusting and sugaring food substances which is nonhygroscopic and desistant to staining by grease comprises a mixt. of finely divided sugar, between about 1% and 10% of an edible salt capable of maintaining the sugar free-flowing and between about 3% and 10% of shortening which is solid at about 75° F. and is distributed as a thin film on the surfaces of the sugar particles.

SOLVENT EXTRACTION APPARATUS. H. S. Robinson (French Oil Mill Machinery Co.). *U. S. 2,225,799.* An improved method of solvent addn. for conveyor bucket-type system is described.

PROCESS OF REFINING VEGETABLE OILS. Olof E. Fröding (De Laval Separator Co.). *U. S. 2,230,796.* Proportionating and mixing devices for continuous refining equipment are described.

PROCESS OF REMOVING COLLOIDAL SUSPENSIONS FROM VEGETABLE OILS. R. H. Fash (Anderson, Clayton & Co.). *U. S. 2,229,062.* The process of refining vegetable oil consists in removing a large proportion of colloidal material, subjecting the oil to the action of radiant energy having a wave length of less than 0.535 micron to reduce the dispersion of the remaining colloidal material and removing the colloidal material, the dispersion of which has been reduced.

METHOD FOR THE PREPARATION OF HIGH GRADE FATTY ACIDS. H. Beller (Jasco Inc.). *U. S. 2,230,582.* A method of oxidizing hydrocarbons is given.

PACKING MATERIAL. S. Musher (Musher Foundation, Inc.). *U. S. 2,233,143.* A paper packing material for org. products susceptible to oxidative deterioration, said packing material being interiorly surfaced with antioxygenic water sol. ext. of oat flour, and said surfacing being coated with a waterproofing wax compn. is described.

TREATMENT OF CASTOR OIL. B. E. Sorenson (du Pont Co.). *U. S. 2,230,549.* The process comprises dehydrating raw castor oil by heating the oil, petroleum naphtha, and a small amt. of magnesium sulphate and P_2O_5 to about 220° for about 12 hrs. and removing the depd. water therefrom.

POLYMERIZING FATTY OILS. A. Schwarcman (Spencer Kellogg & Sons, Inc.). *U. S. 2,230,470.* Poly aromatic compds. carrying at least 2 phenol groups and a carboxyl group are used as polymerization catalysts.

HALOGENATED CASTOR OIL-POLYCARBOXYLIC ACID PRODUCTS. A. Hill (Imperial Chem. Industries, Ltd.). *U. S. 2,230,351.* The process for the manuf. of a flameresistant plasticizer comprises treating the reaction product obtained by reacting castor oil and a polycarboxylic acid with a free halogen until an increase of 5 to 25% by wt. is obtained.

COATING COMPOSITION. G. D. Martin (Monsanto Chem. Co.). *U. S. 2,225,918-20.* Halogenated, aralkylated and alkylated polyhydricphenol are used as skin retarders for drying oils.

ANTISKINNING AND WEATHER RESISTING AGENT FOR DRYING OIL COMPOSITIONS. H. C. Reynolds and H. B. Kellogg (Standard Oil Development Co.). *U. S. 2,228,487.* The method of preserving drying oil compns. which tend to deteriorate by the absorption of O_2 from the air comprises adding to it an org. compd. contg. the bivalent oximido group.