to the extent of ten per cent or more with a fair degree of accuracy.

As some olive oils may show the characteristic reaction given in this test, estimates below 10% would be considered speculative, although these olive oils as a rule show a coloration under 5%.

SUMMARY

The two recently devised tests for the detection of teaseed oil in olive oil, i.e. the Siebenberg-Hubbard and the Fitelson or so-called government tests, have been quite thoroughly investigated by this committee.

Data are given in a general report from the members, showing in detail the collaborative results, with individual comments on the behavior and accuracy of the methods.

From this work, the conclusion is reached that, of the two tests, the government one is by far the easier to perform, the clearer to interpret, and is applicable to any type of olive oil and teaseed oil mixture.

The committee recommends this to the Society for adoption as a tentative method for the detection of teaseed oil in olive oil, thus, incidentally, helping the government in its campaign to ferret out adulteration.

The test reads as follows:

The Fitelson Test for Teaseed Oil
(Lieberman-Burchard test modified)

Apparati: Test tubes of the same size, preferably flat-bottomed color tubes, 18 x 150 mm.

Pipettes and pieces of glass-tubing, 4 mm. outside and 2 mm. inside diameter designed to deliver 7 drops of oil equivalent to approx. 0.22 grams.

Reagents: C. P. Chloroform, conc. sulphuric acid, acetic anhydride.

A. C. S. anhydrous ether, redistilled over sodium and not over calcium chloride.

Method: Measure into a test tube, exactly 0.8 ml. acetic anhydride, 1.5 ml. chloroform and 0.2 ml. conc. sulphuric acid. Mix and cool in a water and ice bath to 5°C. Then add 7 drops of the oil to be tested. If the solution of oil in the reagents is cloudy, add acetic anhydride drop by drop, shaking each time, until clear. Let stand at 5°C. for five minutes. Now add 10 ml. cold anhydrous ether and mix immediately by inverting the stoppered test tube.

Teaseed oil will change to an intense red within a minute or so, the color reaching a maximum and then fading away. Some olive oils pass through a fleeting faint pink. Mixtures of teaseed and olive oils give a red coloration proportional to the amount of teaseed oil present. To arrive at an estimate of the amount of teaseed oil in a given sample, standards made up with known amounts should be run simultaneously and their colors compared.

This test will give reliable quantitative results above 10% of teaseed oil in the case of edible olive oils, but because of their variation in color, the inedible grades mask the end-point somewhat, so that the results are only roughly approximate. Occasionally olive oils of unquestionable purity are encountered, which test slightly pink, usually less than that equivalent to the presence of 5% of teaseed oil. For this reason, any color indicating less than 10% teaseed oil is uncertain and speculative, although not necessarily erroneous.

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M. F. Lauro, Chairman.

ABSTRACTS

Oils and Fats

Edited by
M. M. PISKUR

New British standards for whale oil and cod liver oil. *Fette u. Seifen 46*, 401 (1939). New Norwegian standards for whale oil, N. S. 487. L. Erlandsen. Ibid. 402.

Purity and purity determination of the higher fatty acids. H. Kurz. *Fette u. Seifen 46*, 397-400 (1939). Various methods of fractionating the mixed fatty acids of oils are reviewed. Development of a simple partial sepn. method to yield a characteristic to be called the sepn. no. (VK no.) is suggested. Sepn. may be by 2 immiscible solvents as alc. and ligroin. The portion of acids in each layer is detd. by sepg. the solns. and titrating.

Extraction of soap soln. with ethyl ether. H. W. Weedon. *Fette u. Seifen 46*, 400-1 (1939). In shaking a soap soln., to ext. unsaponifiable, with ethyl ether no detectable amt. of soap dissolves in the ether; some free fatty acids enter the ether phase. If the extn. is washed with water, the hydrolysis of the soap in soln. will increase the free fat acids in the ether phase.

Iodometric acid determination on spoiled fats. H. P. Kaufmann and Matty Lund. *Fette u. Seifen 46*, 390-1 (1939). The KI-KIO$_3$ method for detg. the acid no. of fats gives higher results than the usual method of titrating with KOH. The data and work points out that this difference is not due to the peroxide or active oxygen content of the fats.

The constitution of the linoleic acid of seed fats. T. P. Hilditch & H. Jasperson. *J. Soc. Chem.* Ind. *58*, 233-41T (1939). The yields of cryst. tetrabromostearic acid, m.p. 114°, and of the various tetrahydroxystearic acid producible from natural linoleic acid of cottonseed oil, and from the isomeric varieties produced by chemical means, have been compared. In addn. to the natural acid, "α"- and "β"-linoleic acids were prepd. by debromination resp. of the cryst. and of the viscous liquid tetrabromostearic acids which are formed when bromine unites additively with the natural acid; further, the cis-trans isomerised lineoleic acids produced by the action of 0.3% of Se at 220° on the "α"- and "β"-linoleic acids were also studied. The results confirm the view, already expressed by several workers, that natural and "α"-linoleic acids are stereochemically identical. "β"-Linoleic acid is more probably a mixt. of about equal parts of the cis-Δ^9-cis-Δ^{12}-acid and the cis-Δ^9-trans-Δ^{12}-acid, whilst the isomerised "α"-linoleic acid apparently consists largely of the trans-Δ^9-trans-Δ^{12}-form.

NOTE ON POLETHENOID ACIDS OF THE C-18 SERIES IN BUTTER FAT. T. P. Hilditch & H. Jasperson. *J. Soc. Chem. Ind. 58,* 241-3T (1939). A conc. of the unsatd. C-18 acids of a summer butter fat has been isomerised by Se at 220°. From the proportion of elaidic acid in the equilibrium mixt. of the isomersed acids it is shown that the only other acids present are almost exclusively diethenoid. Evidence is adduced for the presence of traces of a conjugated diethenoid acid. It is shown that neither the natural octadecadienoic (linoleic) acid of seed fats, nor the trans-Δ^9-trans-Δ^{12}-form, is present in appreciable amts. in the butter diethenoid acids. Conclusive evidence for or against the presence of either of the remaining forms is still lacking.

THE DEACIDIFICATION OF ANIMAL AND VEGETABLE OILS OR FATS BY MEANS OF CARBODIIMIDES. E. Schmidt, W. Hahn, H. Duttenhofer & J. Maerkl. *Ber. 72B,* 945-8 (1939). From the results recorded in this paper, the use for this purpose of carbodiimides, RN:C:NR (I), affords a simple method which seems not less worthy of attention than those which have previously been described. An equimol. amt. of I is insufficient for complete deacidification of herring, pilchard and sardine oils, beef tallow, animal body fat, poppyseed and rapeseed oils; a 10-100% excess is required. Generally 10-20 g. oil was deacidified by heating at 70-80°, but equally good results were obtained with larger amts. Deacidification is complete in 1-30 hrs. and the products which sep. can be removed by centrifuging the oil or molten fat. (*Chem. Abs.*)

DEGREASING THE RESIDUES OBTAINED IN FAT-RECOVERY APPARATUS. S. Liberman. *Myasnaya Ind. U. S. S. R. 9,* No. 3, 14 (1938); Chimie & industrie *41,* 762. The residue is boiled with 10% $NaHSO_4$ soln. for 2-3 hrs., water is added and boiling is continued for 1 hr. On allowing to stand the liquid seps. into 4 layers: fat, fatty emulsion, brine and sludge. The fat layer is decanted; part of the brine is siphoned off, water is added and the operation is repeated. The fatty emulsion is salted out in a decantation app. (*Chem. Abs.*)

PATENTS

ART OF TREATING FATTY OILS. O. M. Behr (to Vegetable Oil Prod. Co., Inc.). *U. S. 2,166,103.* Partly polymerized fish oils are mixed with 3 pts. of org. solvent (ketones or alcs.) and the mixt. is permitted to settle. A lower layer is separated into a polymerized product and solvent. The top layer is separated into solvent and a non-drying oil.

IMPROVING THE DRYING PROPERTIES OF OILS. T. S. Hodgins (Reichhold Chemicals, Inc.) *U. S. 2,167,206.* A benzoyl peroxide treatment is used to destroy natural antioxidants of drying oils.

CONTINUOUS SPLITTING OF PLANT AND ANIMAL FAT. E. Hoffmann. *Ger. 677,957 Cl. 23d.* In the continuous splitting app. the fat or oil is continuously transferred through a series of superposed zones, which subject it to increasing temp. and press.

SYNTHETIC CREAM. D. Hildisch. *Ger. Pat. 670,549.* A confectionery cream is prepd. by partially hardening marine animal or fish oils, emulsifying these with milk or buttermilk and a little glycerin, and treating the homogenous mixt. in a beater to add air.

FAT-HARDENING PROCESS. S. H. Bertram. *U. S. 2,165,530.* Oleic acid, olein and their homologues are elaidinized by heating in the presence of selenium.

HARDENING FAT AND OIL. P. Irmen. *Brit. 503,607.* Higher alcs. or/and their esters, for example beeswax, are emulsified in water with the aid of heat and phosphoric acid salts, oil to be solidified is added to this emulsion and it is heated and boiled. On cooling, the oil separates above the emulsion as a solid fat in the form of a cake.

HIGH VACUUM DISTILLATION OF OILS. K. C. D. Hickman (to Distillation Products. Inc.). *U. S. 2,150,683.* Antioxidants are added to fish oils previous to concg. the vitamins by distn. Part of the antioxidant distills with the vitamin fraction.

CATALYTIC HYDROGENATION OF DINITRILES TO DIAMINES. B. W. Howk (to E. I. duPont). *U. S. 2,166,150-1. Hydrogenation of aliphatic dinitriles.* P. K. Signaigo (to E. I. du Pont). *U. S. 2,166,183.* Cobalt catalyst is used and hydrogenation may be at 25-200° C. and in presence of ammonia.

PROCESS FOR THE SEPARATION OF THE CONSTITUENTS OF ORGANIC MIXTURES CONTAINING BOTH RESIN ACIDS AND FATTY ACIDS, PARTICULARLY TALL OIL. F. H. Gayer & C. E. Fawkes (to Continental Res. Corp.). *U. S. 2,166,812.* Tall oil is esterified with alc., treated with NaO and the fatty acid esters are separated from resin acid soaps by treating the mixt. with hydrocarbon solvent, furfural and water.

ABSTRACTS

Soaps

Edited by M. L. SHEELY

THE STABILITY OF EMULSIONS. Part I. Soap-stabilized emulsions. A. King & L. N. Mukherjee. *J. Soc. Chem. Ind. 58,* 243-9T (1939). Hitherto emulsion stability has been ill-defined and a qualitative term. It is the object of the present series of papers to define emulsion stability quantitatively and to make a quantitative survey of the different types of emulsifying agents with a view of assessing their industrial efficiency. In the present paper results on soap-stabilized emulsions are reported. In general, it may be concluded that soaps form fine, but not very stable, emulsions. Sodium and potassium soaps of the same fatty acid possess an emulsifying efficiency of the same order; ammonium soaps are inferior. Oleates are more efficient than stearates and much more efficient than palmitates.

MAHOGANY SOAP AS A FLOTATION AGENT. W. E. Keck and Paul Jasburg. *Eng. Mining J. 140,* 49-51