ABSTRACTS

Oils and Fats

Edited by
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A test of deteriorated fats by means of the reaction of Stamm. ISTVÁN KORPÁCZY. *Kisérletügyi Közlemények* 36, 211-15 (1933).—Dissolve 1 cc. liquefied fat in 1 cc. of a soln. contg. 0.5 g. diphenylcarbazide in 100 cc. acetylene tetrachloride, immerse for exactly 3 min. in boiling water in a test tube, cool and compare with an aq. Bordeaux S soln. Fats showing higher color nos. with this reaction than 5 should be considered deteriorated and unfit for consumption.
S. S. DE FINALY.

Hungarian castor-oil plant. MIKLÓS JANICSEK. *Mezögazdasági Kutatások* 6, 316-19 (1933).—Castor beans grown in Hungary had oil contents of 43.75-57.00%. The acid no. varied from 0.59 for freshly pressed seeds to 4.32 for seeds that had been stored in a bottle for 60 days. S. S. DE FINALY.

Rye oil. II. Properties as affected by choice of menstruum. ALBERT W. STOUT, H. A. SCHUETTE and R. G. FISCHER. *J. Am. Chem. Soc.* 56, 210-11 (1934); cf. *C. A.* 26, 4972.—The yield of oil that can be recovered by extn. from rye embryo, the degree of pigmentation of the oil, its phys. and chem. consts. and the contents of unsaponifiable matter and P depend on the solvent. The yields from the various solvents increased in the order: petr. ether $< Et_2O < CCl_4 < C_2H_4Cl_2 < CS_2 < C_6H_6 < CHCl_3 < Me_2CO$. The following minima and maxima were noted: d^{25} 0.9220 and 0.9482, n^{20} 1.4732 and 1.4789, I no. 133.8 and 139.5, percentage of unsaponifiable matter 8.09 and 10.00, percentage of P (tentatively recorded as lecithin equiv.) 1.03 and 7.26.
C. J. WEST.

Sapukaja nut. F. W. FREISE. *Tropenpflanzer* 36, 199-202 (1933); *Chimie & industrie* 30, 901-2.—Sapukaja nut has a pericarp contg. a toxic compd. and must be removed. The compn. of the nuts is: protein 16.1, fat 63.6, N-free ext. and crude fiber 8.2, H_2O 8.2, ash 3.85%. The light yellow, almond-odor cold-pressed oil has the following characteristics: d. 0.920, sapon. no. 198, I no. 75.9. Modern plants produce 45-48% yields of first-pressing and 11-13% of second-pressing oil the former being suitable for *edible purposes* and the latter for fine soaps.
A. PAPINEAU-COUTURE.

Vegetable lecithin of the soy bean. F. ROTHÉA and F. NIELLOUX. *J. pharm. chim.* 18, 443-5 (1933).—As lecithin is insol. in acetone, sol. in $CHCl_3$ or Et_2O, this permits its quant. sepn. from the fats of com. crude lecithin, and its detn., *e.g.*, in cacao butter. Purified vegetable lecithin contains total P 2.76%; total N 1.37%; ratio P:N 2.015. For egg lecithin, Lebeau and Courtois (*C. A.* 23, 3307) give P 3.84%, N 1.86%, P:N 2.07.
S. WALDBOTT.

Change in the composition of sunflower oil during ripening of the seed. K. H. BAUER. *Fettchem. Umschau* 41, 1-2 (1934).—The I no. of sunflower oil, extd. from fresh seed while ripening between Sept. 26 and Nov. 15 remained almost const., but the satd. acids decreased steadily from 15.14 to 6.70%, the linoleic acid from 74.74 to 64.91%, while oleic acid increased from 9.89 to 28.35%. After Nov. 16, the compn. of the oil remained practically uniform. P. ESCHER.

The iodine number of Polish linseed oil. STEFAN BAZAREWSKI and WITOLD ZARNOWSKI. *Polish Agr. Forestal Ann.* 27, 315-32 (332 in French) (1932).—The I no. of linseed oil depends on the method of prepg. the oil. Oil extd. with Et_2O shows the smallest I no.; that obtained by pressure with application of heat shows a medium I no.; that pressed in the cold shows the highest I no. Oil from seed obtained on non-fertilized fields has a somewhat higher I no.; that from fertilized fields a smaller I no.; it is 189.7 and 188.1, resp. With dense sowing the I no. is on the av. 189.9, while with thin sowing 187.9. Meteorological factors in the period of ripening of the seeds exert a pronounced influence on the properties of the oil. The longer this period lasts, the more unsatd. acids the oil contains and the higher is its I no. The I no. depends also on the origin of the seed. The highest no. shows oil from seeds of Nowo-Swieciany (190.7) and Sejny (190.8); the lowest no. shows oil from seeds of Lomza (177.5), Buczacz (177.7) and Chyrów (177.7). A still lower value showed an Argentine linseed oil (La Plata). The av. I no. of Polish linseed oil obtained by hot pressure is 185.0.
J. WIERTELAK.

Antioxidants for fats and oils. GEORGE R. GREENBANK and GEORGE E. HOLMES. *Ind. Eng. Chem.* 26, 243-5 (1934).—Of the phenols only the *o*- and *p*- types are active as antioxidants for fats and oils. Some unsatd. polybasic aliphatic acids, notably maleic, are also antioxidants. E. SCHERUBEL.

Characteristics and composition of Wisconsin-grown tobacco-seed oil. WILLARD L. ROBERTS and H. A. SCHUETTE. *J. Am. Chem. Soc.* 56, 207-9 (1934).—That it forms a film on exposure to air is perhaps the earliest characterization which tobacco-seed oil has received. As a result, practically all investigators since that time have classified it as a drying oil. If this classification is a valid one, then this oil is unusual in that it contains none of those highly unsatd. acids usually associated with products of this type. Its predominating unsatd. acid is linoleic acid, which apparently is present here in 2 isomeric forms. In much smaller amt. is found oleic acid. The av. compn. of these oils is: palmitic acid 3.1, stearic acid 4.8, oleic acid 16.2, linoleic acid 70.4, unsaponifiable matter 1.25%. Insofar as comparable data are available, it appears that the phys. and chem. consts. of Wisconsin-grown oils fall within the limits of those reported by others but not so the chem. compn. This is perhaps explainable on the ground that the compns. reported by several others represent mere approximations. Chem. and phys. characteristics are given for the extd. and expressed oil. C. J. WEST.

Shea kernels from Nigeria. Anon. *Bull. Imp. Inst.* 31, 334-41 (1933); cf. *C. A.* 27, 437.—Seven samples of shea kernels were picked from each of 2 individual trees at different stages of maturity and analyzed. *Conclusions.*—The oil content of the kernels increases and the unsaponifiable content of the oil decreases as the kernel ripens. The unsaponifiable content of the fresh kernels remains more or less const. throughout the period of ripening. The unsaponifiable content of the oil remains practically const. once the kernels have reached maturity. The lower the oil content of the kernels, the higher the unsaponifiable content of the oil. It is suggested that the unsaponifiable constituent is present in the nuts at an early stage of their development before the formation of the oil begins; that it remains more or less const. in amt. during the secretion of the oil, and that consequently as the seed ripens the percentage of unsaponifiable constituents in the oil falls proportionately as the oil content increases. A. P.-C.

Effect of carbon dioxide on the growth of molds which attack oil seeds in storage. N. I. KAYUKOVA. *Schriften zentral. biochem. Forschungsinst. Nahr.-Genussmittelind.* (U. S. S. R.) 3, 193-218 (1933).—The CO_2 accumulating from respiration of moist oil seeds inhibits mold growths. Higher CO_2 concns. are more effective; at 80% CO_2 growth is very slow and at 90% it is practically stopped for molds, with only slight growth of yeasts and bacteria persisting. Decreasing the O_2 concn. to 4% had no effect. Flaxseed is more susceptible than soy beans to preservation by CO_2.
JULIAN F. SMITH.

Micro method for the determination of iodine numbers. J. O. RALLS. *J. Am. Chem. Soc.* 56, 121-3 (1934).—A method is described which is applicable to samples of from 0.75 to 25 mg. and which permits the detn. of total halogen consumed and the halogen acid produced, on a single sample. Results are given for 30 compds. IBr is used as the reagent and CCl_4 as the solvent.
C. J. WEST.

The determination of the iodine numbers of several Indian oils according to the method of H. P. Kaufmann. Kaufmann vs. Hanus Iodine Value. N. N. GODBOLE. *Amarenda and Urba Datt. Fettchem. Umschau,* 41, 1 (1934).—Table shows I. V. obtained on several important Indian oils, including: linseed, sesame, mustard seed, peanut, almond, castor, cocoanut, beef tallow and others. With oils having I. V. over 50 Kaufmann shows slightly higher values. Under 50 Kaufmann shows lower values. Kaufmann methods yields reliable results and may be used instead of Hanus.—Abstracted by Arthur L. Fowler, Jr.

Spoilage of fats and oils. R. NEU. *Allgem. Oel-Fett-Ztg.* 30, 583-8 (1933).—W. C. Powick's chain of reactions in explaining the rancidity of fats (*C. A.* 18, 1580) starts with free oleic acid and finishes with epihydric aldehyde, the color-producing compd. in the Kreis reaction. N. suggests instead the following chain: olein is oxidized to linolenic acid ester; this by selective oxidation at the 2 outer double bonds becomes an unsatd. diperoxide; by splitting off H_2O_2 it becomes the corresponding dimonoxide ester and by H_2O absorption an unsatd. tetrahydroxy acid ester; by splitting again, heptyl and maleic aldehyde result and also the half aldehyde of pimelic acid ester; by losing CO maleic aldehyde forms acrolein and this by oxidation forms epihydric aldehyde. N. suggests similar reactions for linolin and linolenin, and discusses the work of Pritzker and Jungkunz, Salway, Barnicoat and of Better, who says that autoxidation is not due to the unsatd. condition of the fatty acids, but to the presence or absence of antioxidants. A distinct retardation occurs in ricinolic acid by its introduction of OH which, for further oxidation, must first be dehydrogenated. P. ESCHER.