ABSTRACTS

Oils and Fats

Edited by
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The Oils, Fats and Soaps Industries in 1932 (British). REX FURNESS, *Industrial Chemist*, Vol. IX, No. 96, Page 1, January, 1933.—About 5,000,000 cwt. of margarine is produced annually in Great Britain. An advance of some importance appears to have been made in the development of a butter-like aroma in margarine. It is based on the discovery that the characteristic aroma of freshly made butter is due mainly to the presence of an extremely small proportion of diacetyl.

Oxidative rancidity can be restrained by the use of so-called "antioxygens." Hilditch has shown that antioxygens are actually present in certain natural fats and oils and concludes that natural antioxygenic compounds accompany the original fatty oils and are the cause of the "induction periods" observed when the oils are exposed to the action of the oxygen. Hilditch has further shown that the natural antioxygens present in olive and linseed oils can be largely removed by boiling the oils with water.

Knowledge concerning the hydrogenation of oils has advanced considerably. It is now known that by varying the conditions of the catalytic reaction the same unsaturated glyceride mixture may afford hydrogenated products of different properties although the absorption of hydrogen and the consequent reduction in iodine value is the same.

Progress has been made in the determination of the constitution of natural oils and fats. When an oil has been hydrogenated down to iodine value of 4 to 45, tri-unsaturated glycerides have disappeared and thereafter di-oleo-glycerides are hydrogenated in preference to mono-oleo compounds; generally, throughout the hydrogenation process, mixed glycerides containing palmitic groups are preferentially attached to those containing only stearic residues.

Recent work by Lester Smith suggests that saponification of oils takes place, not at the interface of two immiscible liquids—oil and alkaline lye—i. e., heterogeneous reaction, but in the soap phase, both oil and alkali being dissolved in the neat soap so that the reaction should be designated as homogeneous.

M. L. SHEELEY.

Photochemical oxidation of cottonseed oil. GEO. R. GREENBANK and GEO. E. HOLM. *Ind. Eng. Chem.* **25**, 167-8 (1933).—The relative accelerating effect of light of different parts of the visible spectrum upon the autoxidation of cottonseed oil was studied; and the greatest accelerating effect noted in the range of the orange band; the blue range is the least effective.

E. SCHERUBEL.

Chloroiodo and bromoiodo compounds precipitated from fish oils. SEI-ICHI UENO and MASAYOSHI IWAI. *J. Soc. Chem. Ind. Japan* **35**, Suppl. binding 592-4 (1932).—Concd. Wijs or Hanus solns. when added to an ether soln. of fish oil fatty acids produce a fine white ppt. These ppts. when compared with the halogen derivs. of highly unsatd. fatty acids of fish oils showed that the Wijs. soln. ppts. the tetrachlorotetraiodo or pentachloropentaiodo derivs. The Hanus soln. ppts. the tetrabromotetraiodo or pentabromopentaiodo derivs. The yield of these ppts. is const. for the same kind of fish oil and serves as a basis of identification of the kind of fish oil. The detn. of the ppts. produced by the Wijs. soln. serves to detect the presence of fish oil in other oils, but the ppts. formed by the Hanus soln. cannot serve for this purpose as linolenic acid forms the same kind of ppt.

E. SCHERUBEL.

Analysis and composition of fatty material produced by the decomposition of herring in sea water. ROGER C. WELLS and E. THEODORE ERICKSON. *J. Am. Chem. Soc.* **55**, 338-41 (1933).—Analysis of the Ca and Mg salts of fatty acids derived from herring buried under sea water for an unknown time gave the following results: loss on heating 1 hr. at 105°, 5.90%; org. matter extd. with C_6H_6 after treatment with HCl, unsatd. fatty acids 8.20%; satd. fatty acids 64.50; non-saponifiable matter 0.60; protein 2.80; inorg. matter including S and NaCl 10.27; undetd. 7.73. Heating this material 7 days at 350° gives a greenish fluorescent petroleum-like product. Geochem. possibilities related to the origin of petroleum in sedimentary deposits are discussed.

C. J. WEST.

The acido-iodometric index of oils. J. M. CLAVERA and M. ORO LOPEZ. *Anales soc. españ. fis. quim.* **30**, 971-4 (1932).—The Ruziczka method (*Z anal. Chem.* **81**, 252 (1930)) of detg. the acido-iodometric index of solid fats is applied to oils, with the modification of the use of a reaction time of 24 hrs. with oils whose fatty acid contains 18 or more C atoms. Olive oil gives 9.8-10.2; peanut oil 8.0-8.5. The detn. is of no value with rancid oils.

E. M. SYMMES.

Oil-mill practice. Linseed industry in the East [Palestine]. E. I. BETTER. *Allgem. Oel-u. Fett-Ztg.* **29**, 6-9 (1932).—Palestine linseed averages 7.5% of impurities (dirt, etc., and occasionally foreign bitter seeds). The oil (40%), H_2O (6.15%) and protein (22.6%) contents are characteristic. The high protein content is also evidenced in the large proportion of mucilage (foots) in the expressed oil; this, however, seps. readily on keeping for a few days. The analytical figures for the oil resemble those for Indian oils.

B. C. A.

Kinetics of drying vegetable oils. N. FUKS. *J. Applied Chem.* (U. S. S. R.) **5**, 1046-58 (1932).—The rate of O absorption is, within certain limits, independent of the thickness of the layer of the linseed oil. The depth of the gelatinized layer does not increase if the depth of the oil is increased beyond the above limit, and the amt. of O absorbed also remains unchanged. If the rate of oxidation is W, the concn. of O is C and b and d are consts., $W = dC/(b + C)$. The const. b is small and the rate of oxidation in pure O is only 3% higher than in air. The equation has theoretical foundation if the oxidation of the oil is assumed to proceed in 2 phases: addn. of O to the catalyst and its transfer in an activated state to the triglycerides of the oil. The second assumption does not contradict the chain theory of the reaction. Practical applications of the equation are discussed. The theory of Blom (*C. A.* **21**, 1720) on the mechanism of drying is unacceptable. Also in *Kolloid Z.* **61**, 365-70 (1932).

V. KALICHEVSKY.

The fractionation of the glycerides of castor oil by selective solution. EMILE ANDRE. *Bull. sci. pharmacol.* **39**, 437-41 (1932).—A. claims the priority of using the method reported by Francois (*C. A.* **26**, 3947).

A. E MEYER.

Compounds produced during the hydrogenation of fish oils. IV. Fatty acids. SEIICHI UENO and RIICHIRO YAMASAKI. *J. Soc. Chem. Ind., Japan* **35**, Suppl. binding 492-5 (1932); cf. *C. A.* **25**, 4140.—The fatty acid of the volatile substance causing the bad odor produced during hydrogenation of fish oils is composed of C_4-C_7 and C_{14}-C_{18} groups of satd. acids. No acid of C_8-C_{13} was found. The odor of the fatty acids is due to the lower acid group which is produced by decompn. of the unsatd. acids. In the higher acid group, palmitic, myristic and stearic acids and a small amt. of behenic acid were isolated.

F. SCHERUBEL.

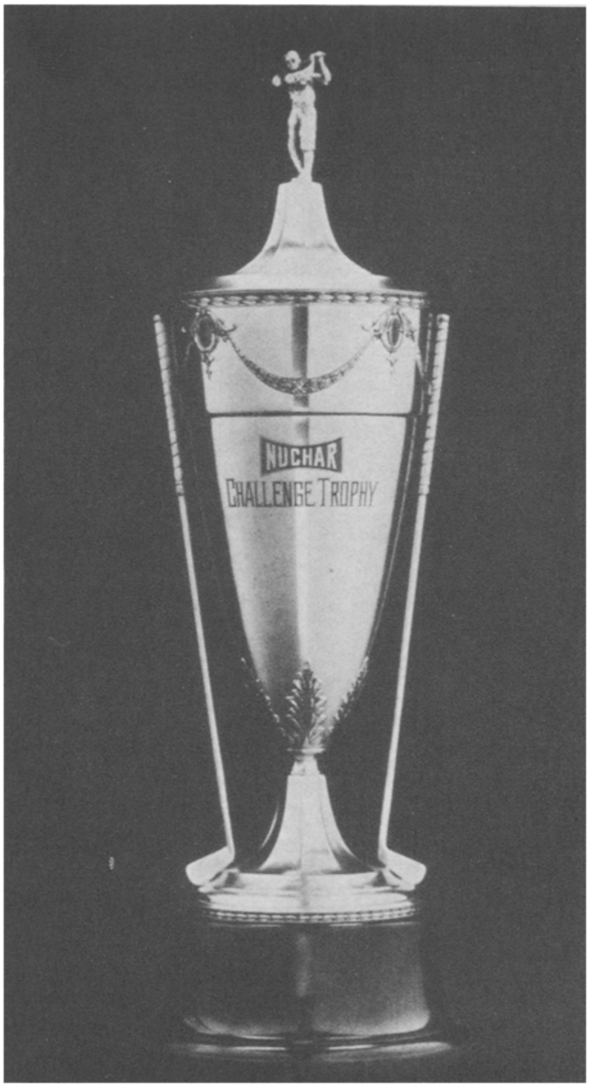
Conjugated hydrogenation. E. I. LYUBARSKII. *J. Applied Chem.* (U. S. S. R.) **5**, 1025-45 (1932).—The term applies to catalytic dehydrogenation and simultaneous hydrogenation of another substance present in the mixt. at the expense of the liberated H_2 but without its appearance in the vapor phase. The temp. at which the 2 reactions are balanced is defined as the crit. hydrogenation temp. Cottonseed oil, cooled to 6° and decanted from sepd. solids (neutralization no. 0.87, I no. 116.62) and EtOH (98.7% by wt.) were used in the presence of a catalyst from "Salolin" plant (Ni with admixt. of Fe 10.4%, infusorial earth 26.2%, cottonseed oil 63.4%). Practically identical results were obtained by hydrogenating 3 hrs. at 200° or 1 hr. at 220°, or 6 hrs. at 200° and 15 min. at 250°, etc. At the optimum temp. the degree of hydrogenation depends on time. Thus at 250-5° the same product was obtained by extending the time from 15 min. to 3 hrs. The time is greatly shortened in comparison with that required by gaseous H_2. The I no. could not be lowered below 64-67.6, notwithstanding the presence of excess EtOH. Increasing the amt. of catalyst up to 0.9% Ni increases the degree of hydrogenation, but further addns. have practically no effect. In the absence of catalyst the I no. was lowered to 110.8, which might be explained as caused by partial polymerization of the oil or by the catalytic effect of the glass. EtOH in excess of that required by the theory to obtain a certain degree of hydrogenation has no effect. In the absence of EtOH but in the presence of catalyst the I no. was lowered to 87.38. Repeating the expts. at 300° lowered the I no. to 66.97 which corresponds to the max. obtainable in presence of EtOH. This is due to polymerization of the oil in the presence of catalyst, as similar expts. in the absence of EtOH and catalyst did not lower the I no. In the presence of moisture infusorial earth, and not Ni, catalyzes hydrolysis. MeOH does not hydrogenate the oil, but higher alcs. act more readily the larger are their mols. Secondary alcs. appear more promising, but it is doubtful whether hydrogenation of cottonseed oil will go to completion.

V. KALICHEVSKY.

—Courtesy Chemical Abstracts.

Annual Golf Tournament

L. B. Forbes
Serious Threat and 1932
Runner-up



C. S. Williamson
1932 *Champion*

THIS event, which has become a classic, widely known throughout all technical circles, promises to be the best golf tournament yet held, because of the appointment of Mr. Albert F. Sanchez chairman of the committee by President Hamner. Being right on the ground, Mr. Sanchez is better able to provide for a fine tournament than out of town chairmen have been in the past, and it is understood that with the co-operation of Mr. Ganucheau and the title holder, Prof. Williamson, this annual event is something to look forward to.

Present plans call for play to start at the Metaire Country Club as soon after noon as possible, and the entire membership is familiar with this course and knows that it is one of the sportiest and best courses in the country, so prepare to enjoy yourself on Thursday afternoon, as usual.

This year promises the keenest competition, including a royal battle between Professor C. S. Williamson, holder of the Nuchar Challenge Trophy Cup and L. B. Forbes of Little Rock, runner-up last year, who battled Professor Williamson last year on even terms to the 17th green. An interesting sidelight is that Mr. Forbes took his chemistry under Prof. Williamson at Tulane and Prof. Williamson says that he is still the master and Forbes is a student, whereas Forbes claims that he only let the professor win out of respect to old age. Reports from Little Rock indicate that Forbes' game has never been better and from New Orleans we learn that the professor has also improved his game.

But the battle may not be limited to these two contestants, as there are a large number of dark horses, due to enter, including the president himself, who is said to have been larruping the ball most vigorously over at Dallas, and there will be a Northern threat from W. H. Irwin, John Vollertsen, A. S. Richardson and others who are said to be training carefully for the event, to say nothing of the Chattanooga wizard, Pelfsky, and R. C. Hatter, the Louisville wonder.

There have been rumors that Joe Wrench of New York will enter the tournament and he is said to be shooting close to 80, and do not forget that both Barrow and Agee, former winners of the cup, will be entered from Memphis.

Banquet Follows Golf

The banquet this year will be held in an historic rendezvous, made famous by the nobility, when kings were kings, in the Vieux Carre. The entertainment will probably be in two forms, music and public entertainers (GIRLS) during the banquet, and dancing at the end of the evening.

At the place where the banquet will be held, it is rumored that one must "parlez-vous," or probably go hungry, so all must polish up their best French.