Letter to the editor

IN the color test for sesame oil, commonly known as the Baudouin test, concentrated hydrochloric acid and furfural are used as reagents. This test is also often termed "modified Villavecchia test." This is however not correct. The facts [1] appear to be as follows: a) Camoin, in 1850, observed the formation of red color when sesame oil was shaken with concentrated hydrochloric acid and a little cane sugar; b) Baudouin, in 1878, investigated this test further but without changing the reagent; c) the test then came to be called the Baudouin test and not the Camoin test; d) Villavecchia and Fabris together, in 1893, modified the test by replacing cane sugar with furfural. Is it not therefore more appropriate to call this test either "Villavecchia-Fabris test, or if Baudouin's name is to be retained, "modified Baudouin test?"

A reference to more than a dozen American, continental, and English text books on fatty oils revealed that only three gave the correct title.

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1. Budowski, P., and Markley, K. S., Chem. Rev., *48*, 130 (1950).

ABSTRACTS . . . . . E. S. Lutton, Editor

• Oils and Fats

Ralph W. Planck, Abstractor
Dorothy M. Rathmann, Abstractor

Dielectric constant and absorption coefficients of tripalmitin. L. I. Bogdanov and N. N. Stepanenko. *Zhur. Fiz. Khim.* **26**, 1477-1479(1952). Measured values (in 64-m. wave length) of the real part of the dielectric constant ϵ', at −45, −30, −6, 5, 20, 55, 80, 120°, are $\epsilon' = 2.272, 2.354, 2.402, 2.444, 2.544, 2,901, 2.954, 2.924$; the absorption index $n_K = 0, 0.01, 0.02, 0.03, 0.04, 0.08, 0.07, 0.04$; the total polarization P = 252, ..., 276, 286, 300, 352, 365, 373 cc. The orientational polarization P_μ = disappears in the low-temperature range up to 5°. At 20, 55, 80, 120°, P_μ calculated from ϵ' following Syrkin (*Chem. Abs.* **37**, 2628) is 35, 97, 113, 122 (the Debye-Onsager formula gives somewhat smaller figures), and calculated from the dipole moment (Stepanenko *et al.*, *Chem. Abs.* **41**, 7178) 174, 159, 145, 130 cc. The abnormal temperature trend of the P_μ from ϵ' may be due to changes of relaxation time, and to the decrease of association with increasing temperature. Values of the critical wave length λ_s corresponding to the maximum of the imaginary part ϵ'' at 55, 60, 80, 90, 100, 120, are 23, 21, 17, 14, 12, 10 cm.; the relaxation times $\tau = 1.23, 1.13, 0.91, 0.73, 0.61, 0.53 \times 10^{-10}$ sec; the dipole moments $\mu = 2.28, 2.38, 2.55, 2.64, 2.68, 2.81$D.; the Kirkwood (*Chem. Abs.* **33**, 9064) parameter $M_\infty = 2.75, 3.17, 3.46, 3.60, 3.70, 3.94 \times 10^{-18}$. The slow increase of λ_s and τ with increasing temperature (as compared with the sharp fall of the viscosity), and the increase of μ, may be linked with a decrease of association, which apparently disappears at 120°. The same factor may underlie the change of M_∞ with the temperature. (*Chem. Abs.* **47**, 6201-6202)

Experiments in oil-making. II. Harvest of 1951-952. V. Carrante, A. Strusi, and S. De Donno (Staz. agrar. sper., Bari, Italy). *Ann. sper. agrar.* (Rome) **7**, 241-288(1953) (English summary). The exhaustive study of production methods for olive oil is continued. In solvent extraction with $CHCl:CCl_2$ the amount of residual oil in the residue is 0.7%. It may be advantageous to produce oil with the Sculco apparatus and recover the balance with a solvent extractor. (*Chem. Abs.* **47**, 6676)

Amounts of fat acids with five double bonds in different animal fats. A. Chevallier, S. Manuel, C. Burg, and R. Wagner (Univ. Strasbourg, France). *Compt. rend. soc. biol.* **146**, 1133-5 (1952). Determinations were made by an untraviolet absorption method described elsewhere. The pentaene acid content in mg./g. total lipid were: for normal rat serum lipides 32, normal rat corpuscle lipides 40, entire body fat of normal rat 21, entire body fat of thyroxine-treated rat 40, entire body fat of normal guinea pig 6, and entire body fat of thyroxine-treated guinea pig, 11-12. (*Chem. Abs.* **47**, 6455-6)

X-ray diffraction studies on the polymorphism of phospholipides. J. B. Finean (Univ. Birmingham, Eng.). *Biochim. et Biophys. Acta* **10**, 371-84(1953). A study was made of the variations with temperature of the diffraction patterns of dipalmitoylcephalin, dimyristoylcephalin, erucoylstearoylcephalin, linoleoylpalmitoylcephalin, hydrolecithin, sphingomyelin, and acetal phospholipide. The long spacings of the phospholipides tend to decrease with rise in temperature. The decrease is associated with a tilting of the long axes of the molecules with respect to the plane of the bimolecular leaflet. In the case of the cephalins, tilting occurs in well-defined steps; this suggests the formation of distinct polymorphs. In the cases of lecithin and sphingomyelin, tilting is more continuous, but with these compounds also distinct polymorphic forms occur at certain stages of heating. The differences in behavior may be associated with differences in the nature of the end groups of the compounds. (*Chem. Abs.* **47**, 6470)

Kamala seeds (Mallotus phillippinensis) and its oil. S. C. Gupta (Natl. Chem. Lab., Poona). *Proc. Symposium Indian Oils Fats Natl. Chem. Lab. India, Poona* **1951**, 33-39. The seeds contain 40-50% Kamala-seed oil which was superior to tung oil in many coating applications. Properties: acid no. 6.4, sapon. no. 195, acetyl no. 15.7, Hehner no. 95.6, hexabromide no. 0.3, I no. (Wijs) 166.8, I no. (Woburn B) 175.8, diene no. 40.4, carbonyl value nil, Browne heat test 9 min., 30 sec. Two unsaturated isomeric acids with 3 double bonds, α- and β-kamolenic acids, were isolated. The isomerism is probably geometrical about one or more of the double bonds. The characteristics of the 2 acids are: C 73.2, 72.7%; H 10.27, 9.97%; m. 86-87°, 77-78°; neutralization equivalent 293.3, 293.12; and I no. (Woburn) 249.6, 248.6. (*Chem. Abs.* **47**, 6677)

The quality of cereals and their industrial uses. Factors affecting the suitability of oats for processing. J. B. Hutchinson (Research Assoc. of Brit. Flour-Millers, Cereals Research Sta., St. Albans, Herts). *Chem. and Ind.* **1953**(24), 578-581(June 13, 1953). Varietal and agronomic factors influence the % kernel and kernel weight. Sound oat kernels contain 5-11% oil, 3.1-10.2 (average 5.9) % free fatty acids, 1.7-3.8 (ave. 2.4) % N, and lipase which, unless inactivated by heat, produces much free fatty acid in undried oats, bitterness in oatmeal, and soapy flavor in oatcakes.

Utilization of mowrah oil. J. G. Kane (Dept. Chem. Technol., Matunga, Bombay). *Proc. Symposium Indian Oils Fats Natl. Chem. Lab. India, Poona* **1951**, 55-57. Preliminary report on the refining, hydrogenation, and solvent crystallization of mowrah oil for the manufacture of cacao-butter substitute. Oil hydrogenated to an I no. of 23 and m.p. of 57° contained 6% isoöleic, 71% saturated, and 23% oleic acids. With acetone and petroleum ether as the solvent, and a solvent-fat ratio of 4: 1 at 15°, a precipitate of 47% and a filtrate containing 53% oil were obtained. The latter with an I no. of 37 and a fairly sharp m.p. of 41.7° was similar to cacao butter in its physical behavior. (*Chem. Abs.* **47**, 6676)