introduced into the solution. The reaction of ozone with linolenic acid in solution was found to be exceedingly rapid. The stoichiometry of ozone reacted to number of double bonds present in the fatty acid was one for mono- and diunsaturated; however, for triunsaturated fatty acid the stoichiometry was about 0.70.

PHYSICAL PROPERTIES OF PURE SUCROSE OCTAESTERS. R.J. Jandacek and M.R. Webb, *Chem. Phys. Lipids* 22, 163–76 (1978). Nine sucrose octaesters of homogeneous fatty acid composition were prepared, and their physical properties were examined. From the melt the sucrose octaesters formed a stable phase having a diffraction pattern identical to that of the α-phase of triglycerides. The viscosities of the sucrose octaesters were higher than those of triglycerides with the same fatty acid composition. High-melting triglycerides and sucrose octaesters showed limited miscibility with liquid sucrose octaesters.

SYNTHESIS AND CHARACTERIZATION OF PROSTACYCLIN, 6-KETO-PROSTAGLANDIN $F_{1\alpha}$, PROSTAGLANDIN I_1, AND PROSTAGLANDIN I_3. R.A. Johnson, F.H. Lincoln, E.G. Nidy, W.P. Schneider, J.L. Thompson, and U. Axen, *J. Amer. Chem. Soc.* 100, 7690–705 (1978). The key intermediates, (5S,6S)-5-iodoprostaglandin I_1 methyl ester (7) and (5R,6R)-5-iodoprostaglandin I_1 methyl ester (8), have been prepared from the reaction of prostaglandin $F_{2\alpha}$ methyl ester (6) with iodine. The diastereomers, (5R,6S)-5-iodoprostaglandin I_1 methyl ester (17) and (5S,6R)-5-iodoprostaglandin I_1 methyl ester (18), have been prepared from the reaction of 5-*trans*-prostaglandin $F_{2\alpha}$ methyl ester (16) with iodine. Reductive removal of iodine from either 7 and 8 or from 17 and 18 gave (6R)-prostaglandin I_1 methyl ester (15) and (6S)-prostaglandin I_1 methyl ester (12), respectively. Compounds 15 and 12 have also been prepared from the reaction of (6) with mercuric acetate followed by reduction with sodium borohydride or from the reaction of 6-ketoprostaglandin $F_{1\alpha}$ methyl ester (22) with excess sodium cyanoborohydride. A convenient assay for the purity of prostacyclin samples has been developed.

ANALYSIS OF BILE ACIDS IN SERUM AND BILE BY CAPILLARY GAS-LIQUID CHROMATOGRAPHY. G. Karlaganis and G. Paumgartner, *J. Lipid Res.* 19, 771–4 (1978). Various liquid phases for glass capillary columns have been evaluated for gas-liquid chromatographic analysis of methyl ester trimithylsilylether derivatives of bile acids from serum and bile. Bile acid analysis is rapid and exhibits high separation efficiency with a 20×0.3 mm glass capillary column whose internal surface is covered with a crystal layer of barium carbonate and coated with polyethyleneglycol 20,000 as liquid phase according to Grob *et al.* (*Chromatographia* 10: 181, 1977).

MASS SPECTROMETRY, A POWERFUL TOOL FOR LIPID RESEARCH. R.A. Klein, *Chem. Phys. Lipids* 21, 291–312 (1978). This review is concerned with developments in the use of mass spectrometry as an analytical tool in the field of lipid structural research. Particular attention is given to instrumental techniques which yield the greatest amount of structural information. Methods are emphasized which increase the diagnostic scope of electron impact (EI) mass spectrometry and provide mechanistic information about fragmentations. Accurate determination of ionic mass is the first step towards a precise description of the various processes by which a molecule fragments. Other especially useful methods for structural elucidation and mechanistic studies involve labelling with stable isotopes and the analysis of metastable transitions.

QUANTIFICATION OF ADIPOCYTE FREE AND ESTERIFIED CHOLESTEROL USING LIQUID GEL CHROMATOGRAPHY. B.R. Krause and A.D. Hartman, *J. Lipid Res.* 19, 774–7 (1978). A reliable method for the separation of free and esterified cholesterol in adipocyte extracts is described. The procedure uses Sephadex LH-20, a lipophilic dextran gel, with a solvent system of chloroform-hexane 55:45 (v/v). Interference by excess triglyceride, such as that encountered in adipocyte total lipid extracts, was not observed, and overall recovery of both sterols exceeded 98%.

LIPID OXIDATION IN MECHANICALLY DEBONED RED MEAT. J.E. Kunsman, R.A. Field and D. Kazantzis, *J. Food Sci.* 43, 1375–8 (1978). Mechanically deboned meat (MDM) from flat bones and neck bones of cattle was tested against ground beef for differences in rate of lipid oxidation. To measure the oxidative changes in MDM and ground beef, the fatty acid disappearance from the polar and nonpolar lipids and the production of monocarbonyls during storage were monitored. The meat was tested under two separate temperatures; 2–3°C and analyzed at intervals on days 0, 2, 4, 6, 9 and 13; −35°C and analyzed at intervals on days 0, 30, and 90. Two additional flat bone samples were stored (aged) for 5–6 days and then deboned and analyzed. Overall, lipids in MDM from beef bones (aged or fresh) oxidized at about the same rate as lipids in ground beef.

ANALYSIS OF ALPHA TOCOPHEROL IN BLOOD PLASMA AND PLATELETS BY GAS LIQUID CHROMATOGRAPHY. J. Lehmann, *Lipids* 13, 616–8 (1978). A method is described for the analysis of α-tocopherol by gas liquid chromatography (GLC) with 0.3% Apiezon L as liquid phase. Impurities that interfere with GLC are removed by saponification. Cholesterol and other nonsaponifiables are separated from α-tocopherol by GLC.

DISTINCTIVE MEDIUM CHAIN WAX ESTERS, TRIGLYCERIDES, AND DIACYL GLYCERYL ETHERS IN THE HEAD FATS OF THE PACIFIC BEAKED WHALE, BERARDIUS BAIRDI. C. Letchfield, A.J. Greenberg, R.G. Ackman and C.A. Eaton, *Lipids* 13, 860–6 (1978). Lipids were extracted from the mandibular fat body (jaw), the fatty forehead (melon), and the dorsal blubber of a Pacific beaked whale *(Berardius bairdi)* and separated into lipid classes by preparative thin layer chromatography. The wax ester fatty alcohols and the alkoxy chains of the glyceryl ethers were mostly the C_{14}–C_{20} chain lengths commonly observed in marine organisms. The distinctive medium chain neutral lipids in the jaw and melon fats of this whale may be related to the postulated acoustical role of these tissues in echolocation.

RAPID ENZYME-INDUCED HYDROLYSIS OF MICROGRAM AMOUNTS OF PHOSPHATIDYLCHOLINE ON PHOSPHOLIPASE A_2/CELITE COLUMNS. W.N. Marmer and K.A. Pietruszka, *Lipids* 13, 840–3 (1978). A method has been developed to hydrolyze microgram amounts of phosphatidylcholine (PC) regiospecifically. Hydrolysis of the *sn*-glycerol 2-acyl group occurs rapidly on microcolumns of immobilized phospholipase A_2 on Celite 545 diatomaceous earth. Close to 90% reaction occurs within the first 5 min. Acyl group analysis then may be accomplished by gas liquid chromatography (GLC) of the resulting fatty acids. Hydrolysis of an equal weight mixture of $(14{:}0)_2$PC and $(18{:}2)_2$PC demonstrated nonpartiality of the immobilized enzyme for either a saturated or unsaturated substrate. The new methodology offers a convenient and sensitive alternative to the presently used procedures.

RAPID TRANSMETHYLATION OF MICROGRAM AMOUNTS OF PHOSPHATIDYLCHOLINE ON POTASSIUM METHOXIDE/CELITE COLUMNS. W.N. Marmer, *Lipids* 13, 835–9 (1978). A rapid and convenient method for the determination of acyl groups in phosphatidylcholine (PC) has been developed. Transmethylation reactions were carried out on potassium methoxide-impregnated Celite microcolumns that were readily prepared from Pasteur pipettes. Gas liquid chromatographic (GLC) analysis of the product methyl esters demonstrated that the reaction was neither selective for one acyl position of PC over the other, nor sensitive to the amount of unsaturation within the acyl group. The results of the acyl group analysis of natural egg yolk lecithin compared favorably with the results from an established procedure.

LOCATION OF DOUBLE BONDS AND CYCLOPROPANE RINGS IN FATTY ACIDS BY MASS SPECTROMETRY. D.E. Minnikin, *Chem. Phys. Lipids* 21, 313–47 (1978). Electron-impact mass spectrometric procedures for locating the position of double bonds and cyclopropane rings in long-chain fatty acids are reviewed. Since unsaturation is not located directly by mass spectrometry, the properties of suitable derivatives are summarized. Cyclopropane rings can be positively located in fatty acid esters by mass spectrometry of isomeric ketones or methoxy derivatives prepared by chromium trioxide oxidation or boron trifluoride-catalysed methoxylation, respectively. A variety of other procedures are also considered and some guidelines are given for choosing a method to suit a particular unsaturated acid.

DIFFERENCES IN THE PHOSPHOLIPID, CHOLESTEROL, AND FATTY ACYL COMPOSITION OF 3T3 AND SV3T3 PLASMA MEMBRANES. R.G. Perkins and R.E. Scott, *Lipids* 13, 653–7 (1978). An analysis of the phospholipid, cholesterol, and phospholipid fatty acyl composition of isolated plasma membranes of 3T3 and SV3T3 mouse embryo cells has been performed. The results show that the plasma membrane of SV3T3 cells contain relatively less phosphatidylethanolamine and sphingomyelin