

Separation and Quantification of Marine Lipids using Latroscan Thin-layer Chromatographic–flame Ionisation Detection Analysis.

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A method for separation and quantification of neutral lipid and phospholipid classes was developed using latroscan analysis, which combines thin layer chromatography (TLC) and flame ionisation detection (FID) techniques. Neutral lipid classes were developed and separated in several solvent systems with hexane-diethyl ether-formic acid (H:D:F). Phospholipid classes were developed and separated in several solvent systems with chloroform-methanol-water (C:M:W), chloroform-methanol-water-formic acid (C:M:W:F) and chloroform-methanol-water-ammonia (C:M:W:A). Finally, neutral lipid and phospholipid classes were developed and separated by several multiple developments using 2 or 3 different development solvent systems of decreasing polarity. The bath temperature was 25°C. The measurement conditions were hydrogen flow-rate 160 mL/min, air flow-rate 2L/min and scan speed 30s/scan. Even a slight difference in solvent proportion or composition of development solution influenced the chromatogram pattern as well as the individual lipid classes' fractionation. Thirteen lipid classes were identified and quantified in samples of standard lipid mixtures and marine lipids using the proposed development solvent systems. Latroscan analysis is a novel technique that is rapid, sensitive, easy to handle and exhibits a high reproducibility.