HPLC-CAD METHOD FOR THE SEPARATION AND QUANTIFICATION OF LIPID CLASSES: APPLICATION TO EGG YOLK LIPIDS

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Investigations of lipid composition of biological tissues require accurate methods for the separation and quantification of lipid classes. The main problem in lipid class analysis is the lack of satisfactory detection methods enables the quantification of all major lipid classes. Recently a new detection method based upon aerosol charging (charge aerosol detector – CAD) has been introduced. CAD provide great sensitivity, precision and is quite user-friendly detection technique for lipids analysis.

In this report we present the HPLC method of egg yolk lipid classes analysis. Total lipids (30.6%) extraction was carried out by the Folch method. The polar (51.9% of total) and neutral lipid (48.1% of total) classes were separated by using normal-phase (silica) SPE cartridges. Two different HPLC methodologies (one for polar and one for neutral lipids) for the separation and quantification of lipid classes on a diol column and with a CAD detector were applied. The methods were optimized and the response and sensitivity of CAD was studied. In terms of linearity, precision and sensitivity the methods were validated.

The methods allowed base-line separation of all investigated egg yolk phospholipids (phosphatidylcholine, phosphatidylethanolamine, sphingomyelin and theirs lyso forms) and neutral lipid classes (triacylglycerol, cholesterol).

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