Separation of Glycerides by Flash Chromatography Using Different Reversed-Phase Silica Types

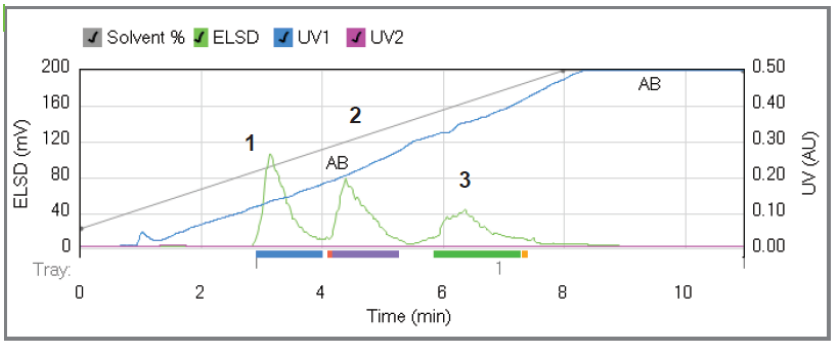
Triglycerides are fatty acids present as esters in combination with glycerol. Tristearin, a glyceryl ester of stearic acid, is a simple triglyceride having three identical acyl chains. It is found in both plants and animals and may be used as a drug delivery vehicle for target drug compounds.
This application demonstrates purification of a mixture of glycerides (mono-, di-, and tristearin) using C18 and amino phase chemistries. The C18 uses hydrophobic interaction to determine separation, wheras the amino phase uses lipophilic interaction between the stationary phase and the fatty acyl chain of the analyte to determine separation. The amino phase cartridge can be used in a normal phase or a reversed phase mode, depending on the solvents employed. When used in normal phase mode, the less polar compounds elute first, followed by the elution of the polar one's selectivity.

Experimental

Chromatography system	Pure C-815
Flash cartridge	FlashPure ID C18 12g FlashPure ID Amino 12g
Flow rate	30ml/min
Equilibration	5min
ESLD	Yes
UV wavelengths	254nm, 210nm
Sample injection	solid

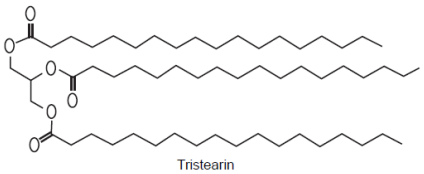
C18 cartridge	
Solvent A	Acetonitril
Solvent B	Methylene chloride
Gradient (Solvent B %)	10-100%: 0-8min 100%: 8-11min
Amino cartridge	
Solvent A	Acetonitril
Solvent B	Methylene chloride
Gradient (Solvent B %)	100%: 0-2min 100-10%: 2-11min 10%: 11-13min

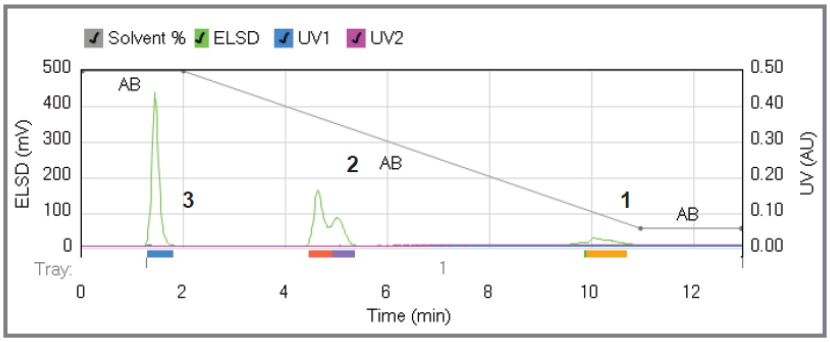
Results



Flash chromatogram of glyceride mixture on a C18 cartridge.

Compound ID:
1. Monostearin
2. Distearin
3. Tristearin





Flash chromatogram of glyceride mixture on an amino cartridge.