Development of polar lipid profiling method by supercritical fluid chromatography/mass spectrometry

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Data source : Poster
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Conditions

Column : Inertsil ODS-EP (5µm, 250 x 4.6 mm I.D.)
Column Cat. No. : 5020-02646
Mobile Phase : Carbon dioxide (CO_2, 99.9% grade)
Modifier : Methanol with 0.1% (w/w) $HCOONH_4$
Flow rate : 3 mL/min
Oven temperature : 37 ℃
Back pressure : 10 MPa

Sample : Polar lipids
Analyte : table below

Detection : SFC/MS/MS
Ionization method : Electrospray ionization
Ion mode : positive
Capillary voltage : 3.00 kV
Desolvation temperature : 450 ℃
Desolvation gas flow : 800 L/hr
Cone gas flow : 60 L/hr
Collision gas flow : 13.2 mL/hr
MS collision energy : 6 V
Source temperature : 150 ℃
Extractor voltage : 3 V

Optimized MS/MS method by TMS derivatization

Polar lipids	SRM transitions	CV	CE	Number of adducted TMS
Phosphatidylglycerol (PG)	[M+H] > [M-315]	20	30	2
Phosphatidic acid (PA)	[M+H] > [M-169]	25	25	1
Phosphatidylinositol (PI)	[M+H] > [M-619]	35	30	5
Lysophosphatidylcholine (LPC)	[M+H] > 184	45	35	1
Lysophosphatidylethanolamine (LPE)	[M+H] > [M-140]	30	15	1
Lysophosphatidylglycerol (LPG)	[M+H] > [M-315]	30	20	3
Lysophosphatidic acid (LPA)	[M+H] > [M-169]	30	15	2
Lysophosphatidylinositol (LPI)	[M+H] > [M-547]	45	25	5
Sphingomyeline (SM)	[M+H] > 184	45	30	1
Sphingosine-1-phosphate (S1P)	[M+H] > 264	25	20	2

CV: Cone voltage, CE: MS/MS collision energy

Profiling of 10 polar lipid standards