

ACQUITY UPLC Analysis of Organic Acids

Waters Corporation

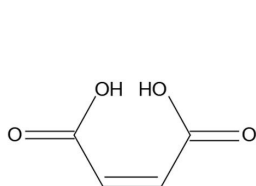
This is an Application Brief and does not contain a detailed Experimental section.

Abstract

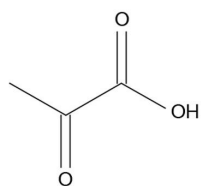
This application brief demonstrates the UPLC analysis of organic acids.

Introduction

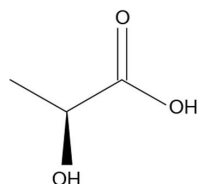
Structures



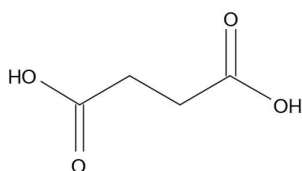
Maleic Acid



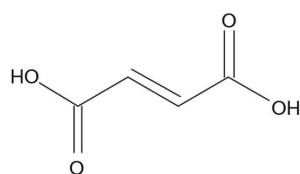
Pyruvic Acid



Lactic Acid



Succinic Acid



Fumaric Acid

Experimental

UPLC Conditions

Column:	ACQUITY BEH Amide, 2.1 x 100 mm, 1.7 μ m
Part Number:	186004801
Mobile phase A:	50/50 MeCN/H ₂ O with 10 mM CH ₃ COONH ₄ , pH 9.0
Mobile phase B:	95/5 MeCN/H ₂ O with 10 mM CH ₃ COONH ₄ , pH 9.0
Gradient Flow Rate:	0.6 mL/min

Injection Volume:	5.0 µL
Column Temp:	50 °C
Sample Temp:	5 °C
Strong/Weak needle wash:	95/5 MeCN/H ₂ O
Seal wash:	10/90 MeOH/H ₂ O
Instrument:	ACQUITY UPLC and TQD

Gradient:

Time (min)	%A	%B
Initial	0.1	99.9
0.4	0.1	99.9
0.5	40.0	60.0
2.0	70.0	30.0
2.01	0.1	99.9
5.0	0.1	99.9

MS Conditions

Instrument:	ACQUITY TQD
Ionization Mode:	ES ⁻

Capillary Voltage:	4.0 kV
Cone Voltage:	-25 V
Collision Energy:	10 eV
Extractor:	3 V
RF Lens:	0.1 V
Source Temp:	130 °C
Desolvation Temp:	350 °C
Desolvation Gas:	650 L/hr
Cone Gas:	0 L/hr
Collision Gas:	0.1 mL/min
MRM condition:	Pyruvic acid: 86.92 > 42.9 Lactic acid: 88.92 > 42.9 Succinic acid: 116.93 > 72.9 Maleic and Fumaric acid: 114.88 > 70.9

Results and Discussion

COMPOUNDS

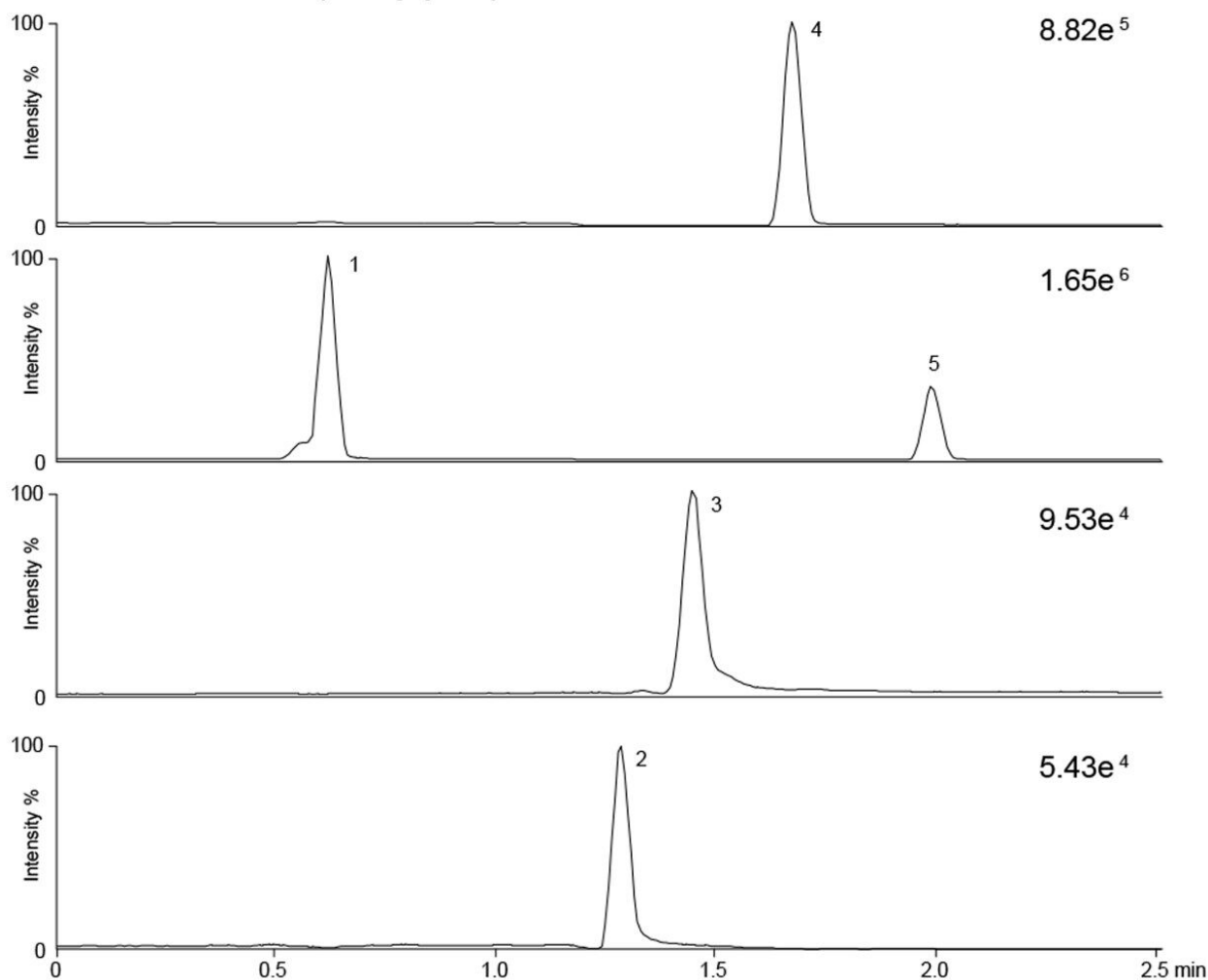
1. Maleic acid (1 ppm)

2. Pyruvic acid (50 ppm)

3. Lactic acid (50 ppm)

4. Succinic acid (50 ppm)

5. Fumaric acid (50 ppm)



Featured Products

ACQUITY UPLC System <<https://www.waters.com/514207>>

Xevo TQD Triple Quadrupole Mass Spectrometry <<https://www.waters.com/134608730>>

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