

## Sennosides in Traditional Chinese Medicine

Application #AN1390

## Conditions

**Column:** ACE 3 C18-PFP  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-1110-1546  
**Mobile Phase:** A: 0.75% acetic acid in H<sub>2</sub>O  
 B: MeCN/MeOH (90:10 v/v)  
**Gradient:**

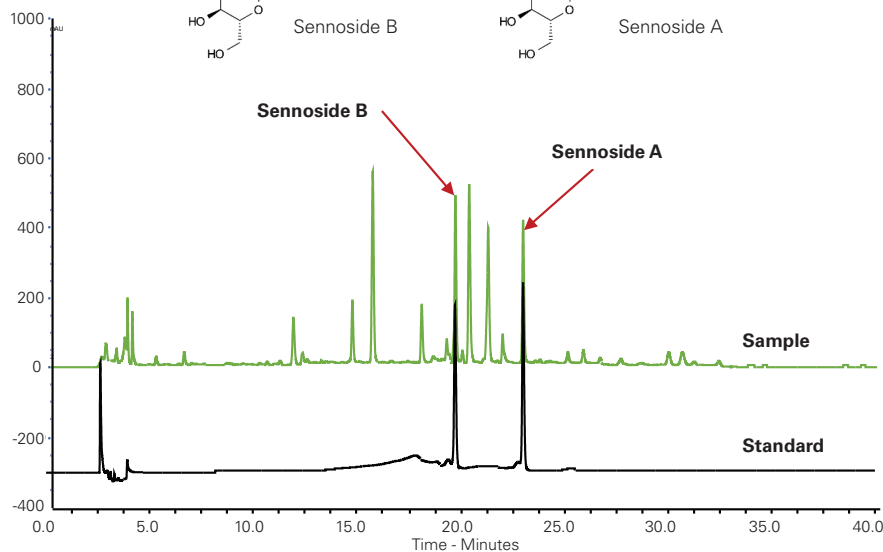
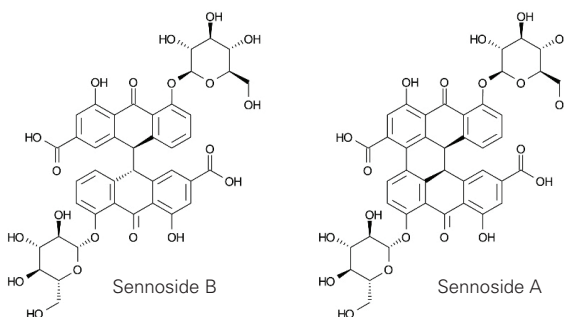
Time (mins)	%B
0	9
23	28
40	28

**Flow Rate:** 0.6 mL/min**Temperature:** 35 °C**Detection:** UV, 271 nm

**Sample:** Herbal tea bag containing Folium Sennae, Peppermint, Folium Mori, Folium Nelumbinis, Glycyrrhiza Uralensis and Lalang Grass Rhizome

## Analytes

Sennoside A  
 Sennoside B



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## Sotalol

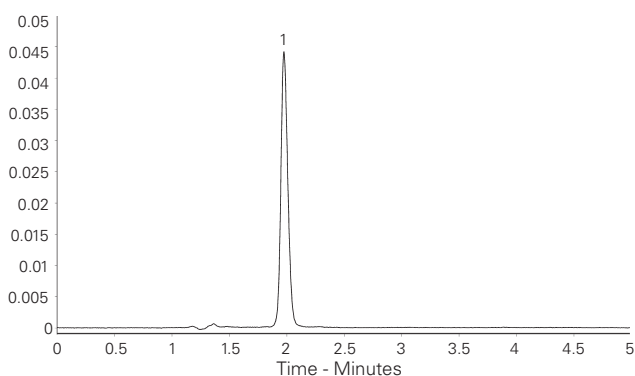
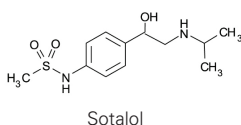
Application #AN3700

## Conditions

**Column:** ACE 5 CN  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-124-1546  
**Mobile Phase:** 20 mM ammonium formate pH 3.0/MeOH (85:15 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 20 µL (0.2mg/mL solution)  
**Temperature:** Ambient  
**Detection:** UV, 254 nm

## Analyte

1. Sotalol



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Snake Venom from *Crotalus Durissus Terrificus*

Application #AN4190

## Conditions

**Column:** ACE 3 C8-300  
**Dimensions:** 50 x 4.6 mm  
**Part Number:** ACE-212-0546  
**Mobile Phase:** A: 0.1% TFA in H<sub>2</sub>O  
 B: 0.1% TFA in MeCN/H<sub>2</sub>O (90:10 v/v)  
**Gradient:**

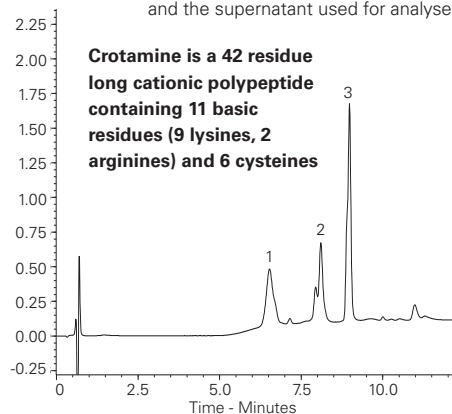
Time (mins)	%B
0	20
2	20
27	70

## Analytes

1. Crostamine  
 2. Crostapotin  
 3. Phospholipase A2 (PLA<sub>2</sub>)

**Flow Rate:** 1.2 mL/min**Injection:** 20 µL**Detection:** UV, 214 nm

**Sample:** Lyophilised crude venom powder was solubilised (1 mg/mL) in 0.1% TFA. Resulting solutions were centrifuged and the supernatant used for analyses.



**Crostamine is a 42 residue long cationic polypeptide containing 11 basic residues (9 lysines, 2 arginines) and 6 cysteines**



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Stability Indicating Method for HIV Injection Treatment

Application #AN4170

Conditions

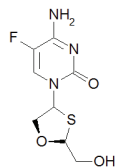
**Column:** ACE Excel 2 C18  
**Dimensions:** 50 x 3.0 mm  
**Part Number:** EXL-101-0503U  
**Mobile Phase:** A: 0.1% TFA in H<sub>2</sub>O  
 B: 0.1% TFA in MeCN  
**Gradient:**

Time (mins)	%B
0.0	10
3.0	90
6.0	90
6.1	10
8.0	10

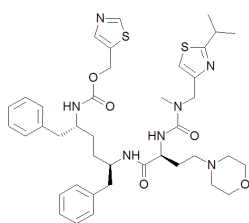
**Flow Rate:** 0.4 mL/min  
**Injection:** 20 µL  
**Temperature:** 30 °C  
**Detection:** UV, 240 nm

Analytes

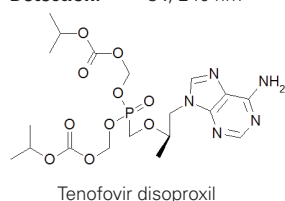
1. Emtricitabine (LLOQ 0.10 µg/mL)
2. Tenofovir disoproxil (LLOQ 0.10 µg/mL)
3. Cobicistat (LLOQ 0.20 µg/mL)
4. Elvitegravir (LLOQ 0.02 µg/mL)



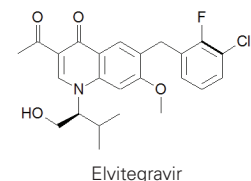
Emtricitabine



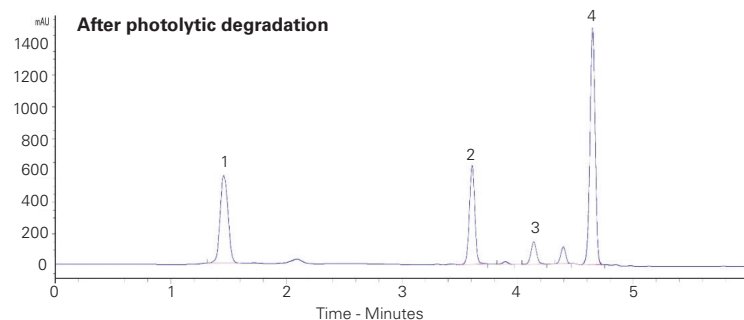
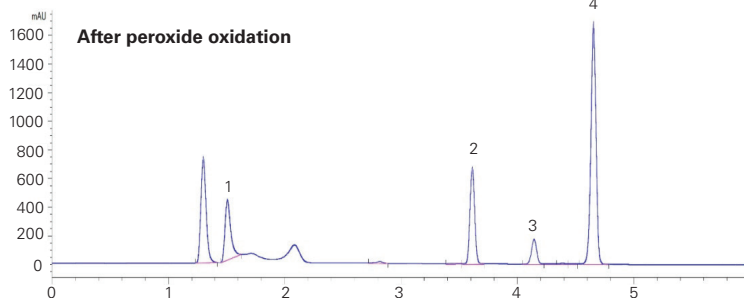
Cobicistat



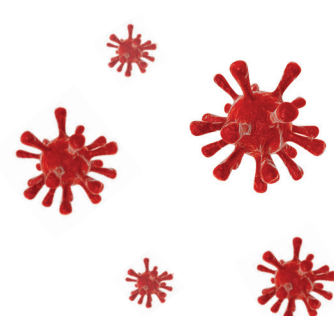
Tenofovir disoproxil



Elvitegravir



Revath Naga Lakshmi P., Prahlad P., Mastananna SK., Ravindra N., Venkata Basaveswara Rao M, UPLC Separation Analysis of Emtricitabine, Tenofovir, Cobicistat and Elvitegravir from their Degradation products, Int. J. Pharm & Pharm Sci, 8(4), 362- 369 (2016)



Please contact us for further information and advice on specific applications or for method development support

## Statins in Lactone and Hydroxy Acid Forms by HPLC-UV

Application #AN4360

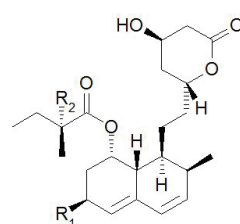
## Conditions

**Column:** ACE Excel 3 SuperC18  
**Dimensions:** 100 x 3.0 mm  
**Part Number:** EXL-1111-1003U  
**Mobile Phase:** A: MeCN  
 B: 5 mM ammonium acetate pH 4.5 in H<sub>2</sub>O  
 A/B (I) 73:27 v/v (II) 55:45 v/v  
**Flow Rate:** (I) 0.4 mL/min (II) 0.3 mL/min  
**Injection:** 20 µL  
**Temperature:** 40 °C  
**Detection:** UV, 238 nm

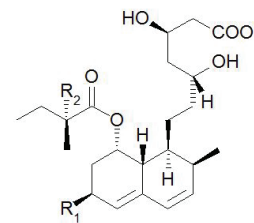
## Analytes

1. Simvastatin hydroxy acid
2. 4,4-Dichlorodiphenyl trichloroethane (I.S.)
3. Simvastatin lactone
4. Pravastatin hydroxy acid
5. Griseofulvin (I.S.)
6. Pravastatin lactone

**Simvastatin:** R<sub>1</sub>, R<sub>2</sub> = CH<sub>3</sub>  
**Pravastatin:** R<sub>1</sub> = OH, R<sub>2</sub> = H

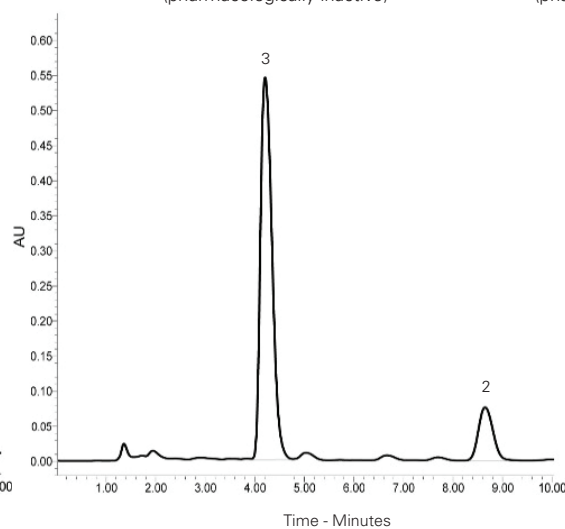
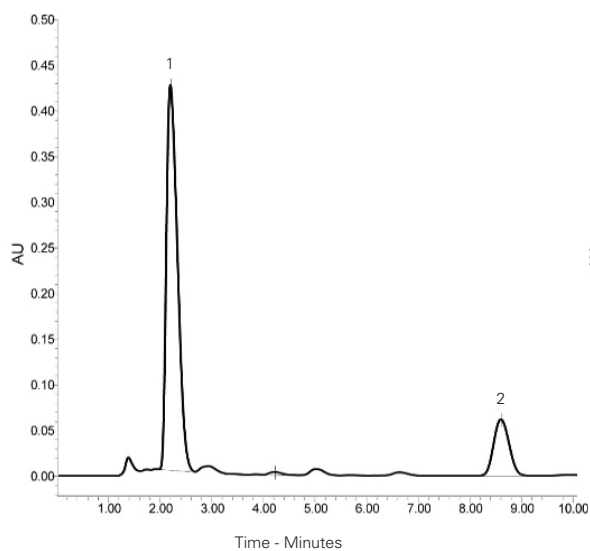


Lactone form  
(pharmacologically inactive)

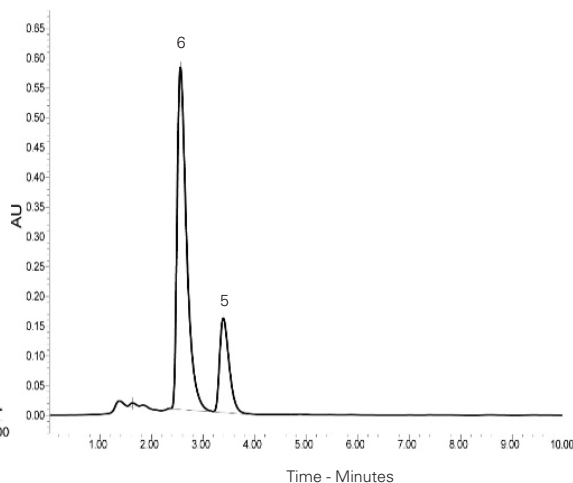
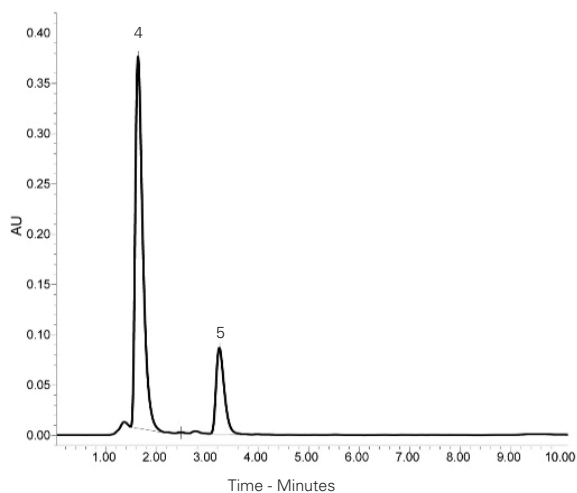


Hydroxy acid form  
(pharmacologically active)

## Conditions (I)



## Conditions (II)





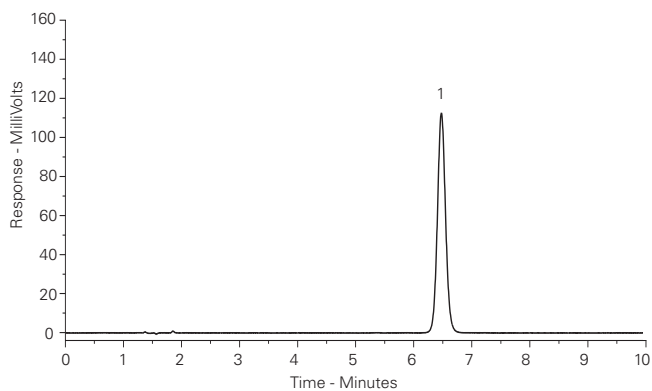
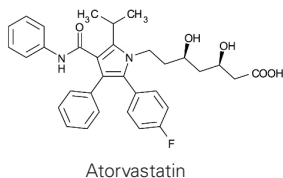
**Statins – Atorvastatin**  
Application #AN3310

**Conditions**

**Column:** ACE 5 C18  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-121-1546  
**Mobile Phase:** 10 mM ammonium formate  
 pH 3.0/MeCN (47:53 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 5 µL  
**Temperature:** Ambient  
**Detection:** UV, 254 nm

**Analyte**

1. Atorvastatin



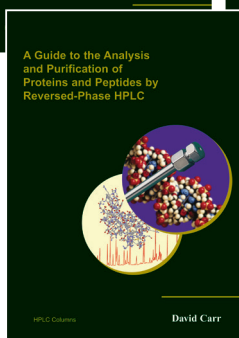
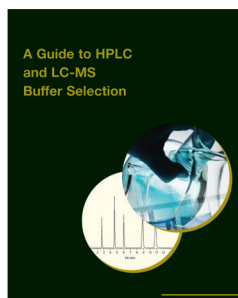
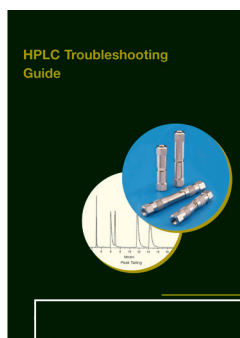
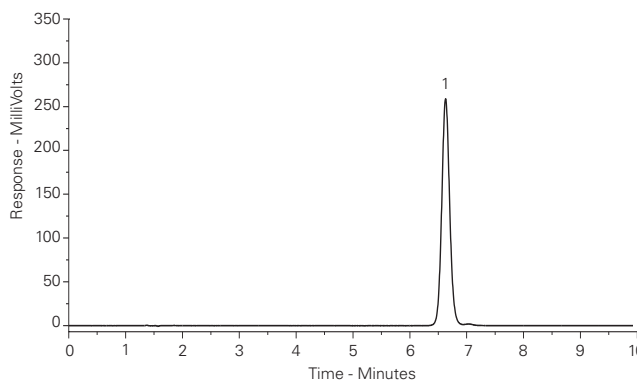
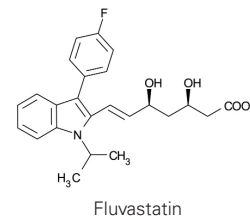
**Statins – Fluvastatin**  
Application #AN3320

**Conditions**

**Column:** ACE 5 C18  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-121-1546  
**Mobile Phase:** 10 mM ammonium formate  
 pH 3.0/MeCN (47:53 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 5 µL  
**Temperature:** Ambient  
**Detection:** UV, 254 nm

**Analyte**

1. Fluvastatin



**FREE HPLC  
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- HPLC Protein and Peptide Guide
- HPLC & LC-MS Buffer Selection Guide
- HPLC Troubleshooting Guide

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email: [info@ace-hplc.com](mailto:info@ace-hplc.com)



Statins – Pravastatin

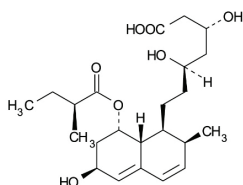
Application #AN3330

Conditions

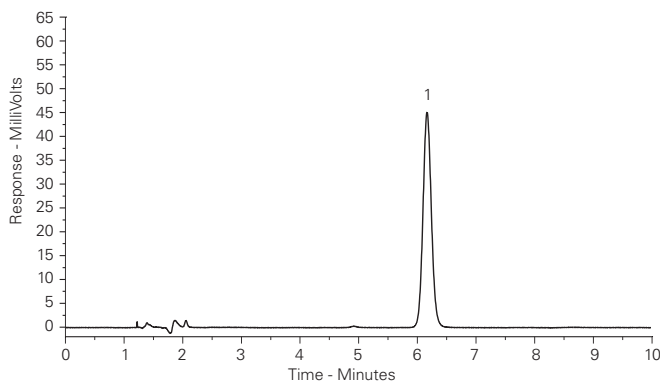
**Column:** ACE 5 C18  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-121-1546  
**Mobile Phase:** 10 mM ammonium formate pH 3.0/MeCN (68:32 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 5 µL  
**Temperature:** Ambient  
**Detection:** UV, 254 nm

Analyte

1. Pravastatin



Pravastatin



Statins – Simvastatin

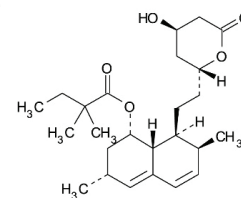
Application #AN3340

Conditions

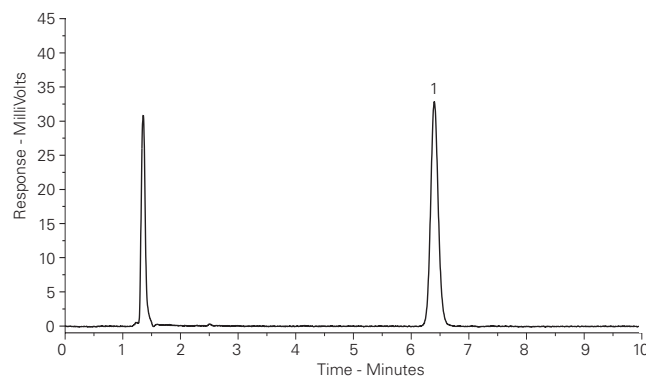
**Column:** ACE 5 C18  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-121-1546  
**Mobile Phase:** 10 mM ammonium formate pH 3.0/MeCN (25:75 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 5 µL  
**Temperature:** Ambient  
**Detection:** UV, 254 nm

Analyte

1. Simvastatin



Simvastatin



Steroid Hormones (Endogenous) by LC-MS/MS

Application #AN2640

Conditions

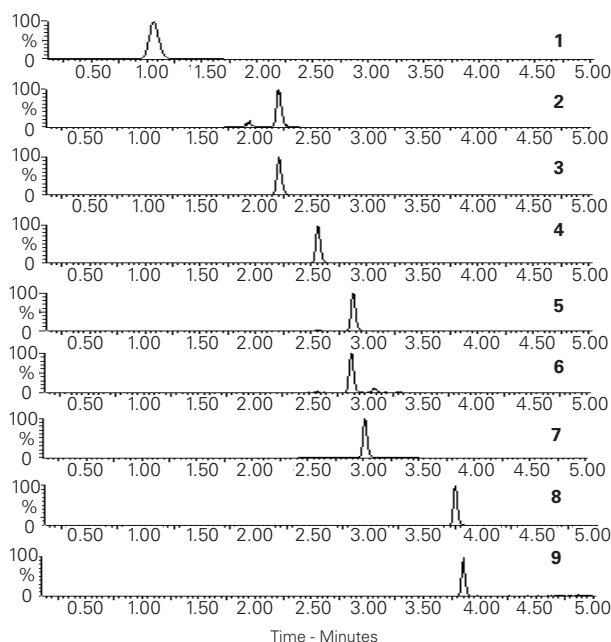
**Column:** ACE Excel 2 C18  
**Dimensions:** 50 x 2.1 mm  
**Part Number:** EXL-101-0502U  
**Mobile Phase:** A: 0.1% formic acid in H<sub>2</sub>O  
 B: 0.1% formic acid in MeOH  
**Gradient:**

Time (mins)	%B
0.0	50
0.8	50
4.2	81
4.3	100
5.3	100
5.8	50
6.8	50

**Flow Rate:** 0.4 mL/min  
**Injection:** 10 µL  
**Temperature:** 40 °C  
**Detection:** MS/MS  
 ESI in positive ion mode

Analytes

- |  |  |  |
|--|--|--|
| 1. Aldosterone<br>(m/z 361.4 → 315.4)      | 4. Androstenedione<br>(m/z 287.3 → 97.0) | 7. 17α-Hydroxyprogesterone<br>(m/z 331.4 → 97.0) |
| 2. 21-Deoxycortisol<br>(m/z 347.4 → 311.4) | 5. Testosterone<br>(m/z 289.4 → 97.0)    | 8. Progesterone<br>(m/z 315.4 → 97.0)            |
| 3. 11-Deoxycortisol<br>(m/z 347.4 → 97.0)  | 6. DHEA<br>(m/z 289.4 → 253.2)           | 9. Androsterone<br>(m/z 291.3 → 255.4)           |





## Steroid Mixture Separation

Application #AN1060

### Conditions

**Column:** ACE 3 C18  
ACE 3 Phenyl  
ACE 3 C18-AR

**Dimensions:** 150 x 4.6 mm

**Part Number:** ACE-111-1546, ACE-115-1546, ACE-119-1546

**Mobile Phase:** A: H<sub>2</sub>O  
B: MeCN

**Gradient:**

Time (mins)	%B
0	25
24	46
26	46
27	25

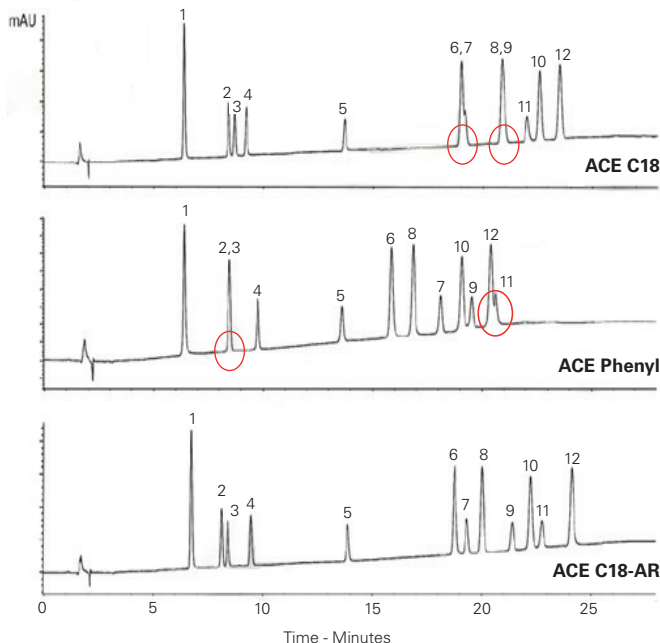
**Flow Rate:** 1 mL/min

**Temperature:** 20 °C

**Detection:** UV, 214 nm

### Analytes

- |                          |                                   |
|--------------------------|-----------------------------------|
| 1. Estriol               | 7. Cortisone-21-acetate           |
| 2. Prednisolone          | 8. 17 $\alpha$ -Estradiol         |
| 3. Hydrocortisone        | 9. 19-Norethindrone               |
| 4. Cortisone             | 10. 17 $\alpha$ -Ethinylestradiol |
| 5. Corticosterone        | 11. 21-Hydroxyprogesterone        |
| 6. 17 $\beta$ -Estradiol | 12. Estrone                       |



## Steroids UHPLC-UV Analysis and Comparison

Application #AN1640

### Conditions

**Column:** ACE Excel 2 CN-ES  
ACE Excel 2 C18  
ACE Excel 2 CN

**Dimensions:** 50 x 2.1 mm

**Part Number:** EXL-1013-0502U,  
EXL-101-0502U,  
EXL-104-0502U

**Mobile Phase:** A: 0.1% formic acid in H<sub>2</sub>O  
B: 0.1% formic acid in MeCN

**Gradient:**

Time (mins)	%B
0.0	25
10.0	80
10.5	80
11.0	25

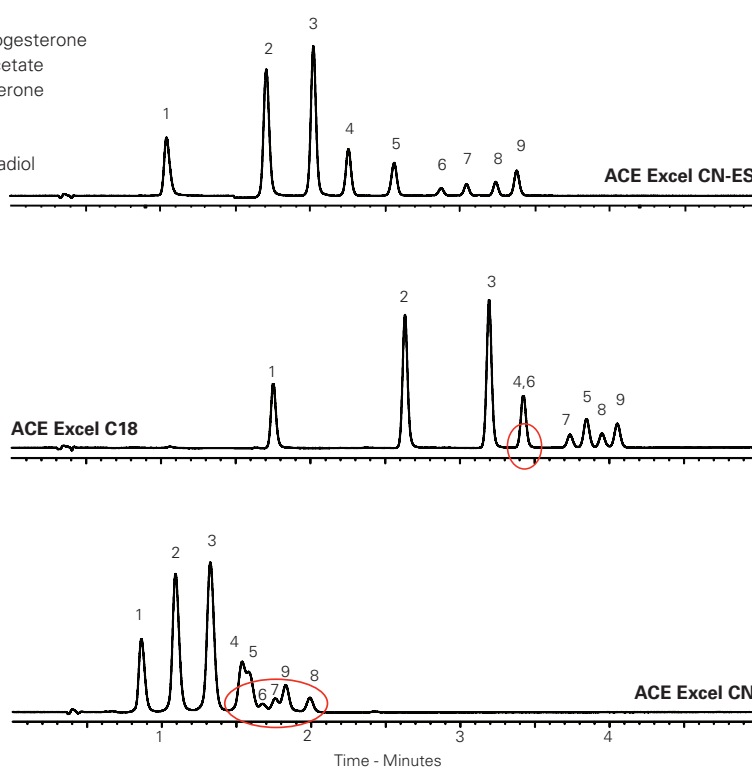
**Flow Rate:** 0.4 mL/min

**Temperature:** 40 °C

**Detection:** UV, 260 nm

### Analytes

- Cortisone
- Corticosterone
- 11 $\alpha$ -Hydroxyprogesterone
- Cortisone-21-acetate
- 11-Ketoprogesterone
- $\beta$ -Estradiol
- 17 $\alpha$ -Estradiol
- 17 $\alpha$ -Ethinylestradiol
- Estrone



**Steroids Separation using Enhanced Polar Selectivity**

Application #AN2470

**Conditions**

**Column:** ACE Excel 3 C18-Amide  
**Dimensions:** 50 x 2.1 mm  
**Part Number:** EXL-1112-0502U  
**Mobile Phase:** A: 0.1% formic acid in H<sub>2</sub>O  
 B: 0.1% formic acid in MeCN  
**Gradient:**

Time (mins)	%B
0	25
10	80

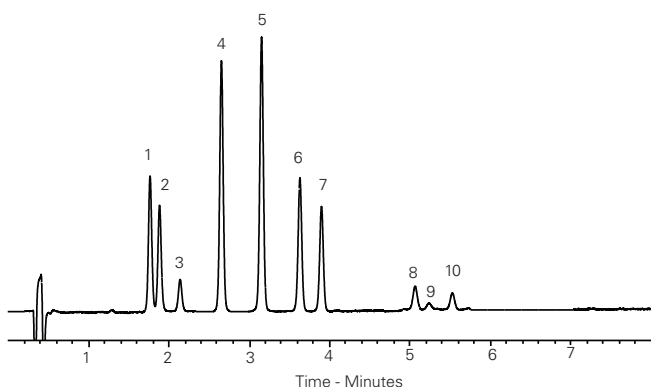
**Flow Rate:** 0.4 mL/min  
**Temperature:** 20 °C  
**Detection:** UV, 260 nm

**Analytes**

1. Prednisone
2. Prednisolone
3. Estriol
4. Corticosterone
5. 11 $\alpha$ -Hydroxyprogesterone
6. 11-Ketoprogesterone
7. 21-Hydroxyprogesterone
8.  $\beta$ -Estradiol
9. 17 $\alpha$ -Estradiol
10. 17 $\alpha$ -Ethinylestradiol



See page 5 for details



**Steroids (Veterinary) by LC-MS/MS**

Application #AN1830

**Conditions**

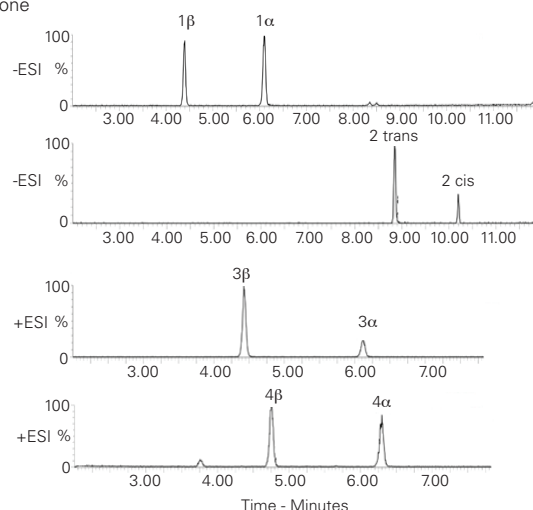
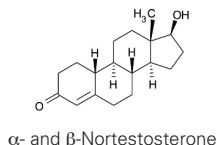
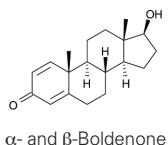
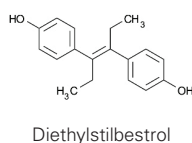
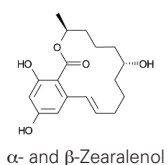
**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 100 x 2.1 mm  
**Part Number:** CORE-25A-1002U  
**Mobile Phase:** A: 0.01 mM ammonium fluoride + 0.001% formic acid  
 B: MeCN  
**Gradient:**

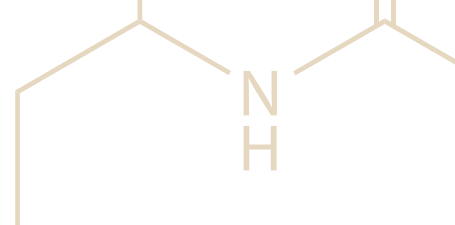
Time (mins)	%B
0.0	25
0.5	25
7.0	35
7.5	35
10.5	60
12.5	90

**Flow Rate:** 0.5 mL/min  
**Temperature:** 45 °C  
**Detection:** Positive or negative ESI  
 MRM data

**Analytes**

1.  $\alpha$ - and  $\beta$ -Zearalenol  
(*m/z* 319.17  $\rightarrow$  275.12)
2. Diethylstilbestrol-d8  
(*m/z* 275.23  $\rightarrow$  245.09)  
Also analysed in -ESI:  
Talaranol and zeranone-d4  
Talaranol and zeranone  
Zearalenone  
Hexestrol  
Diethylstilbestrol  
Dienestrol
3.  $\alpha$ - and  $\beta$ -Boldenone  
(*m/z* 287.17  $\rightarrow$  121.12)
4.  $\alpha$ - and  $\beta$ -Nortestosterone  
(*m/z* 275.23  $\rightarrow$  109.09)  
Also analysed in +ESI:  
Hydroxystanozolol  
Hydroxystanozolol-d3  
Methyltestosterone  
Methyltestosterone-d3  
 $\beta$ -Nortestosterone-d3  
 $\beta$ -Trenbolone  
 $\alpha$ -Trenbolone





St John's Wort

Application #AN4300

Conditions

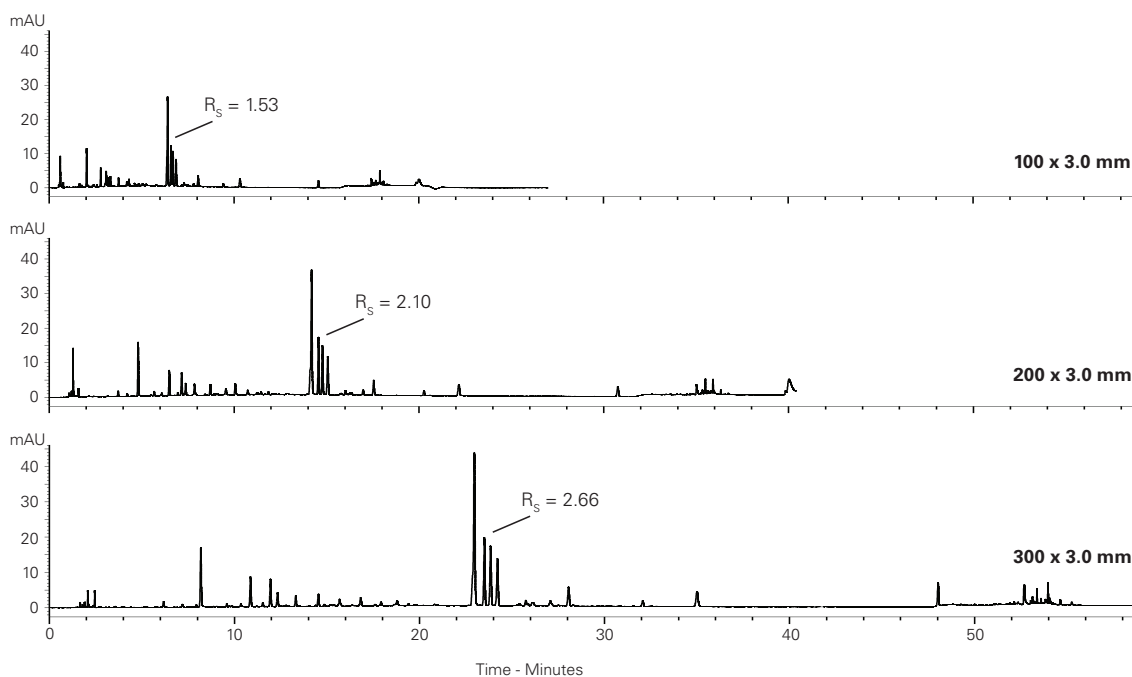
**Column:** ACE Excel 1.7 SuperC18  
**Dimensions:** 100 x 3.0 mm; 2 x 100 x 3.0 mm (coupled); 3 x 100 x 3.0 mm (coupled)  
**Part Number:** EXL-1711-1003U  
**Mobile Phase:** A: 0.1% formic acid in H<sub>2</sub>O  
 B: 0.1% formic acid in MeCN

Gradient:	Time (mins)			
	100 x 3.0 mm	200 x 3.0 mm	300 x 3.0 mm	%B
-	0.00	0.00	0.00	5
0.00	0.35	0.71	0.71	5
15.00	30.35	45.71	45.71	30
17.00	34.35	51.71	51.71	100
19.00	38.35	57.71	57.71	100
20.00	39.35	58.71	58.71	5
27.00	53.35	79.71	79.71	5

**Flow Rate:** 0.8 mL/min  
**Injection:** 2 µL (100 x 3.0 mm); 4 µL (200 x 3.0 mm); 6 µL (300 x 3.0 mm)  
**Temperature:** 80 °C  
**Detection:** UV, 280 nm  
**Sample:** Tablet ground to fine powder and extracted with MeCN/H<sub>2</sub>O (1:1 v/v) with ultrasonication. Supernatant diluted with H<sub>2</sub>O and filtered using Whatman Mini-Uniprep syringeless filter  
**System:** Chromaster Ultra Rs



*Hypericum perforatum*



Substituted Methoxybenzene Isomers

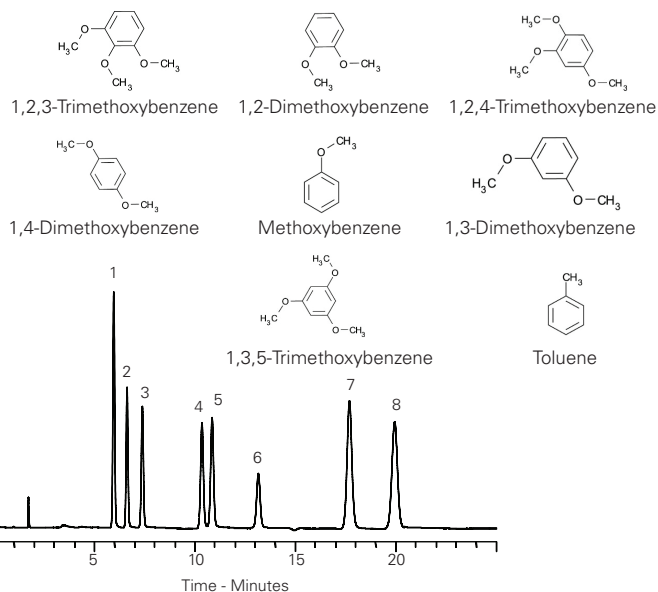
Application #AN2430

Conditions

**Column:** ACE 3 C18-PFP  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-1110-1546  
**Mobile Phase:** H<sub>2</sub>O/MeOH (50:50 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 5 µL  
**Temperature:** 40 °C  
**Detection:** UV, 214 nm

Analytes

- 1,2,3-Trimethoxybenzene
- 1,2-Dimethoxybenzene
- 1,2,4-Trimethoxybenzene
- 1,4-Dimethoxybenzene
- Methoxybenzene
- 1,3-Dimethoxybenzene
- 1,3,5-Trimethoxybenzene
- Toluene



Sugars – Cola vs Diet Cola

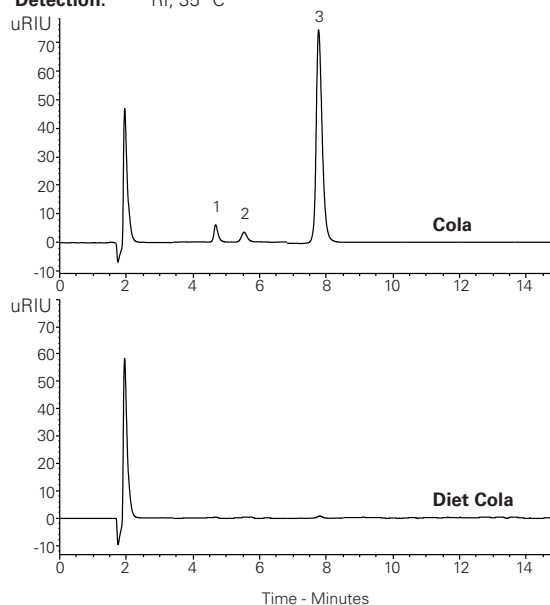
Application #AN4150

Conditions

**Column:** ACE Excel 3 NH<sub>2</sub>  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** EXL-1114-1546U  
**Mobile Phase:** MeCN/H<sub>2</sub>O (75:25 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 10 µL  
**Temperature:** 35 °C  
**Detection:** RI, 35 °C

Analytes

1. Fructose
2. Glucose
3. Sucrose



Sugars – Disaccharides

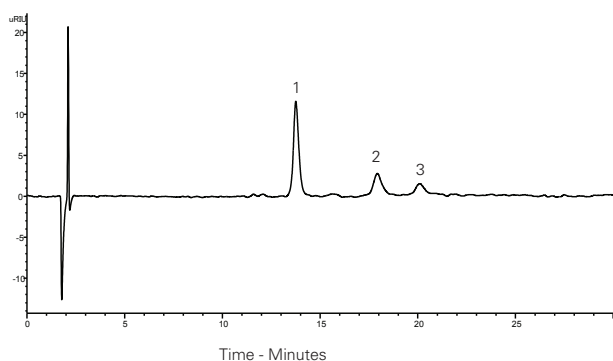
Application #AN4320

Conditions

**Column:** ACE Excel 3 NH<sub>2</sub>  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** EXL-1114-1546U  
**Mobile Phase:** MeCN/H<sub>2</sub>O (80:20 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 20 µL  
**Temperature:** 35 °C  
**Detection:** RI, 35 °C  
**Sample:** 2 mg/mL each disaccharide in MeCN/H<sub>2</sub>O (80:20 v/v)  
**System:** Chromaster 600

Analytes

1. Sucrose
2. Maltose
3. Lactose



Sugars – Lactulose

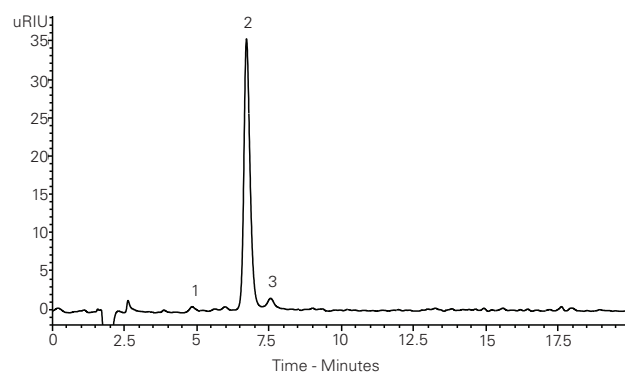
Application #AN4020

Conditions

**Column:** ACE Excel 5 NH<sub>2</sub>  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** EXL-1214-1546U  
**Mobile Phase:** MeCN/H<sub>2</sub>O (70:30 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 10 µL  
**Temperature:** 35 °C  
**Detection:** RI, 35 °C

Analytes

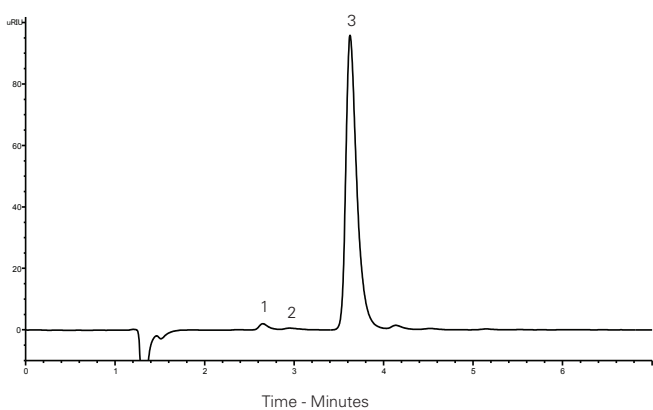
1. Galactose
2. Lactulose
3. Lactose





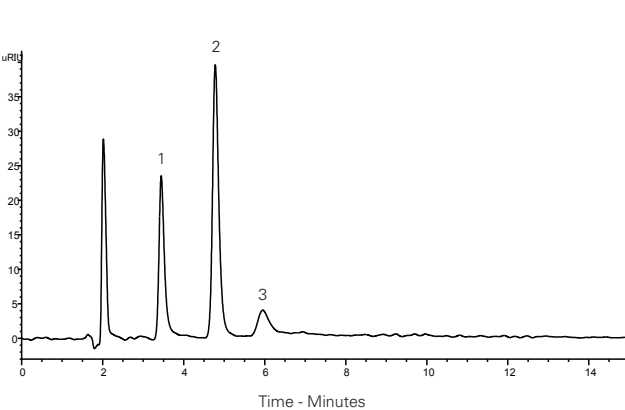
**Sugars – Maple Syrup** Application #AN4310

Conditions	Analytes
<b>Column:</b> ACE Excel 1.7 NH <sub>2</sub>	1. Fructose
<b>Dimensions:</b> 100 x 3.0 mm	2. Glucose
<b>Part Number:</b> EXL-1714-1003U	3. Sucrose
<b>Mobile Phase:</b> MeCN/H <sub>2</sub> O (70:30 v/v)	
<b>Flow Rate:</b> 0.43 mL/min	
<b>Injection:</b> 10 µL	
<b>Temperature:</b> 35 °C	
<b>Detection:</b> RI, 35 °C	
<b>Sample:</b> 100 µL maple syrup in 9900 µL mobile phase	
<b>System:</b> Chromaster 600	



**Sugars – Monosaccharides** Application #AN4330

Conditions	Analytes
<b>Column:</b> ACE Excel 5 NH <sub>2</sub>	1. Fructose
<b>Dimensions:</b> 150 x 4.6 mm	2. Galactose
<b>Part Number:</b> EXL-1214-1546U	3. Rhamnose
<b>Mobile Phase:</b> MeCN/H <sub>2</sub> O (75:25 v/v)	
<b>Flow Rate:</b> 1 mL/min	
<b>Injection:</b> 10 µL	
<b>Temperature:</b> 35 °C	
<b>Detection:</b> RI, 35 °C	
<b>Sample:</b> 5 mg/mL per monosaccharide in MeCN/H <sub>2</sub> O (70:30 v/v)	
<b>System:</b> Chromaster 600	



Please contact us for further information and advice on specific applications or for method development support

Sugars – Orange Juice

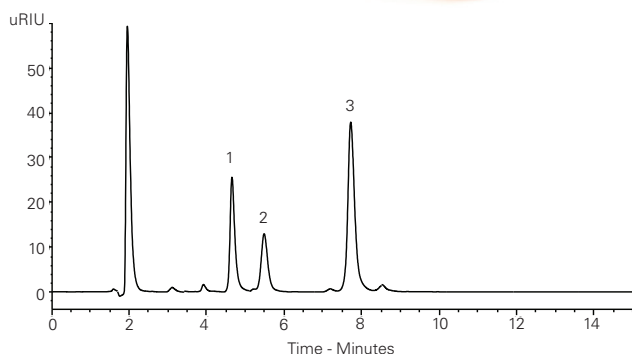
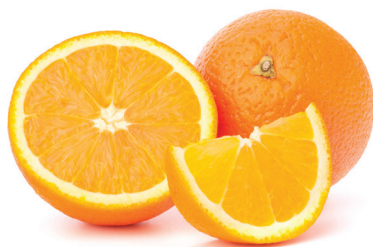
Application #AN4160

Conditions

**Column:** ACE Excel 3 NH<sub>2</sub>  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** EXL-1114-1546U  
**Mobile Phase:** MeCN/H<sub>2</sub>O (75:25 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 10 µL  
**Temperature:** 35 °C  
**Detection:** RI, 35 °C

Analytes

1. Fructose
2. Glucose
3. Sucrose



Sugars Separation

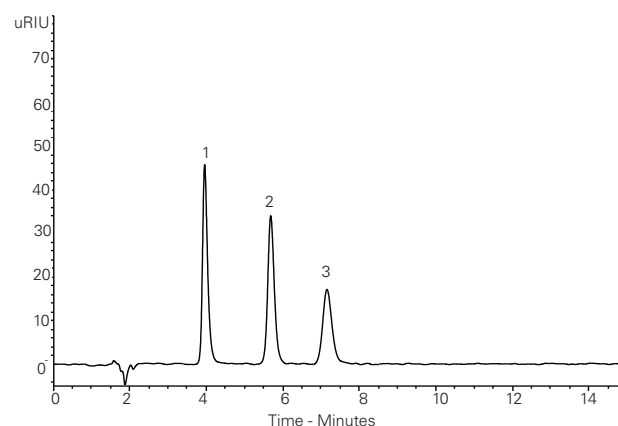
Application #AN4030

Conditions

**Column:** ACE Excel 5 NH<sub>2</sub>  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** EXL-1214-1546U  
**Mobile Phase:** MeCN/H<sub>2</sub>O (70:30 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 10 µL  
**Temperature:** 35 °C  
**Detection:** RI, 35 °C

Analytes

1. Fructose
2. Sucrose
3. Lactose



Sulfonamides

Application #AN1610

Conditions

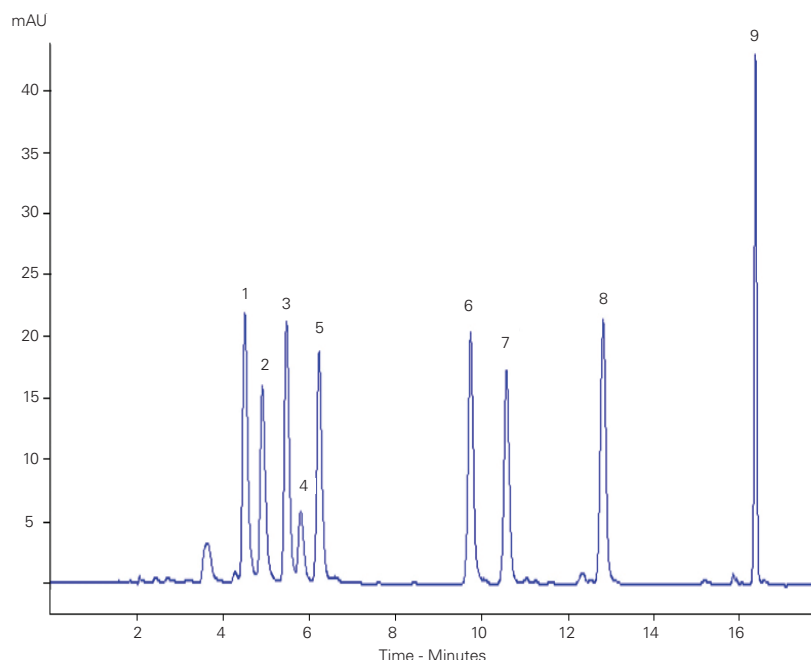
**Column:** ACE Excel 3 C18-PFP  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** EXL-1110-1546U  
**Mobile Phase:** A: H<sub>2</sub>O  
 B: MeCN  
 C: 10% formic acid  
**Gradient:**

Time (mins)	%A	%B	%C
0	84	15	1
12	74	25	1
14	59	40	1
16	84	15	1
18	84	15	1

**Flow Rate:** 1 mL/min  
**Detection:** UV, 268 nm

Analytes

1. Sulfadiazine
2. Sulfapyridine
3. Sulfamerazine
4. Sulfamoxole
5. Sulfamethazine
6. Sulfamonomethoxine
7. Sulfachloropyridazine
8. Sulfamethoxazole
9. Sulfadimethoxine







### Sulfurous Analytes Separation Comparison

Application #AN1320

#### Conditions

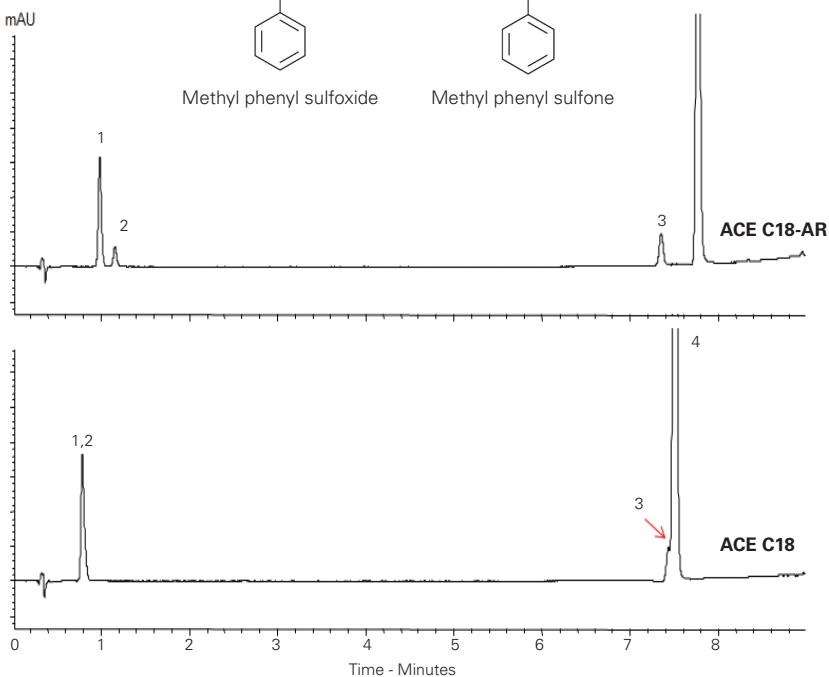
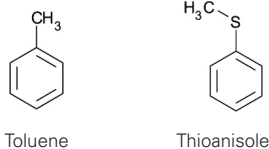
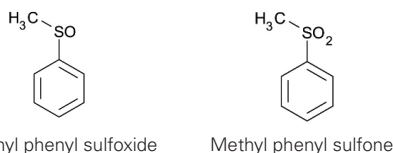
**Column:** ACE 3 C18-AR, ACE 3 C18  
**Dimensions:** 50 x 2.1 mm  
**Part Number:** ACE-119-0502, ACE-111-0502  
**Mobile Phase:** A: H<sub>2</sub>O  
 B: MeOH  
**Gradient:**

Time (mins)	%B
0.0	30
5.0	30
9.0	95
9.5	30
13.5	30

**Flow Rate:** 0.5 mL/min  
**Injection:** 1 µL  
**Temperature:** 22 °C  
**Detection:** UV, 254 nm

#### Analytes

1. Methyl phenyl sulfoxide
2. Methyl phenyl sulfone
3. Toluene
4. Thioanisole



### Sumatriptan and Promethazine by LC-MS/MS

Application #AN2530

#### Conditions

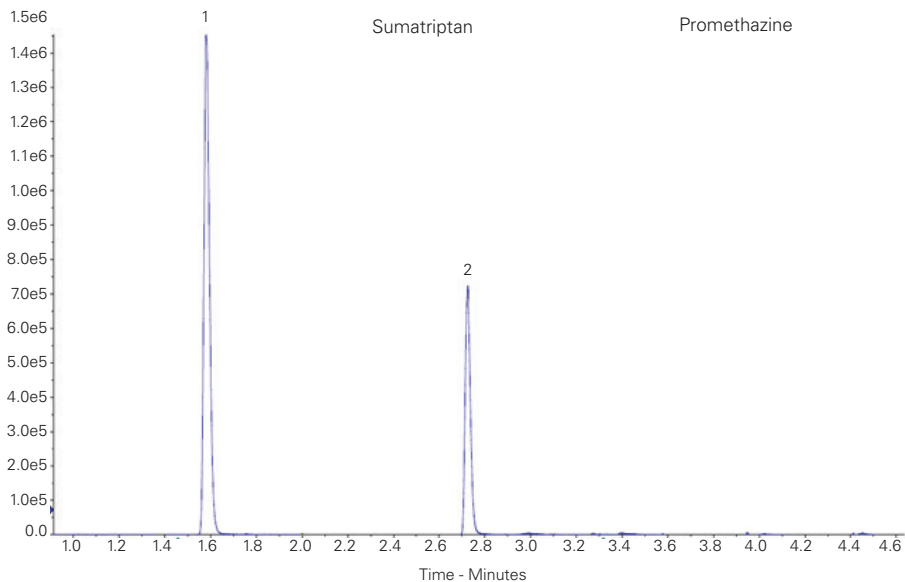
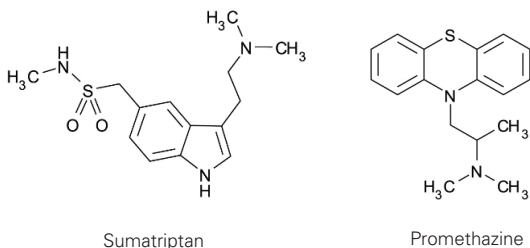
**Column:** ACE Excel 2 C18-PFP  
**Dimensions:** 100 x 2.1 mm  
**Part Number:** EXL-1010-1002U  
**Mobile Phase:** A: 0.1% formic acid in H<sub>2</sub>O  
 B: 0.1% formic acid in MeOH  
**Gradient:**

Time (mins)	%B
0.0	15
0.5	15
2.5	90
3.5	90
5.5	15

**Flow Rate:** 0.7 mL/min  
**Temperature:** 50 °C  
**Detection:** AB Sciex QTRAP 6500  
 DuoSpray Ion source (ESI/APCI)  
 Positive ion MRM mode

#### Analytes

1. Sumatriptan  
(*m/z* 296 → 58)
2. Promethazine  
(*m/z* 286 → 86)



Sunscreen Agents

Application #AN4370

Conditions

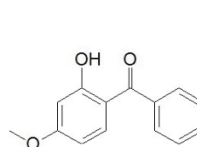
**Column:** ACE 3 C18  
**Dimensions:** 150 x 4.0 mm  
**Part Number:** ACE-111-1504  
**Mobile Phase:** A: MeOH/H<sub>2</sub>O (85:15 v/v)  
 B: THF  
**Gradient:**

Time (mins)	%B
0	0
7	0
10	50
14	50
16	0

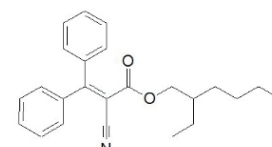
**Flow Rate:** 0.85 mL/min  
**Temperature:** 30 °C  
**Detection:** UV, 310 nm  
**Sample:** 40 µg/mL each standard

Analytes

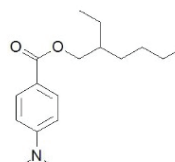
1. Benzophenone-3
2. Octocrylene
3. Octyl dimethyl PABA
4. Octyl methoxycinnamate
5. Avobenzene
6. Ethylhexyl salicylate
7. Homosalate
8. Ethylhexyl triazone
9. Tinosorb® M
10. Tinosorb® S



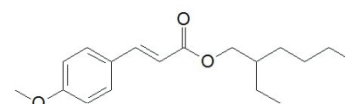
Benzophenone-3



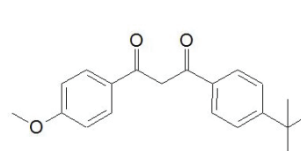
Octocrylene



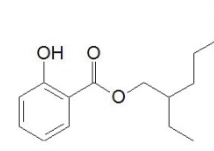
Octyl dimethyl PABA



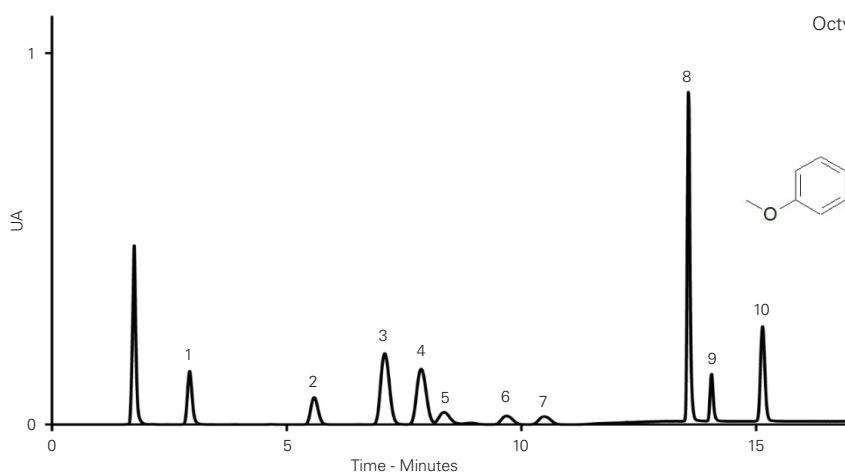
Octyl methoxycinnamate



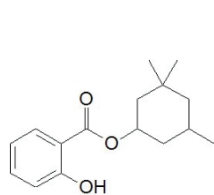
Avobenzene



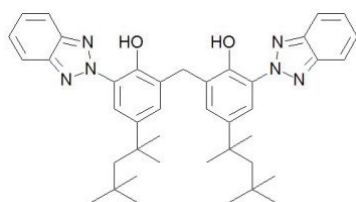
Ethylhexyl salicylate



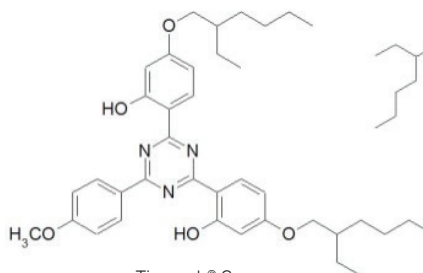
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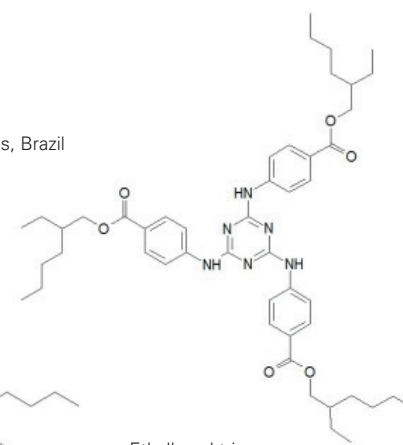
Homosalate



Tinosorb® M



Tinosorb® S



Ethylhexyl triazone

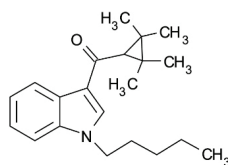


Synthetic Cannabinoids (SPICE) from Oral Fluid

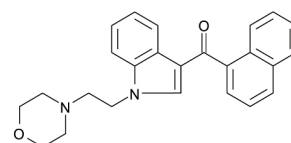
Application #AN1650

Conditions

**Column:** ACE Excel 2 C18-AR  
**Dimensions:** 100 x 2.1 mm  
**Part Number:** EXL-109-1002U  
**Mobile Phase:** 0.1% formic acid in MeOH/H<sub>2</sub>O (85:15 v/v)  
**Flow Rate:** 0.3 mL/min  
**Temperature:** Ambient  
**Detection:** Applied Biosystems/MDS Sciex 4000 Q-Trap Positive mode Turbo Ionspray



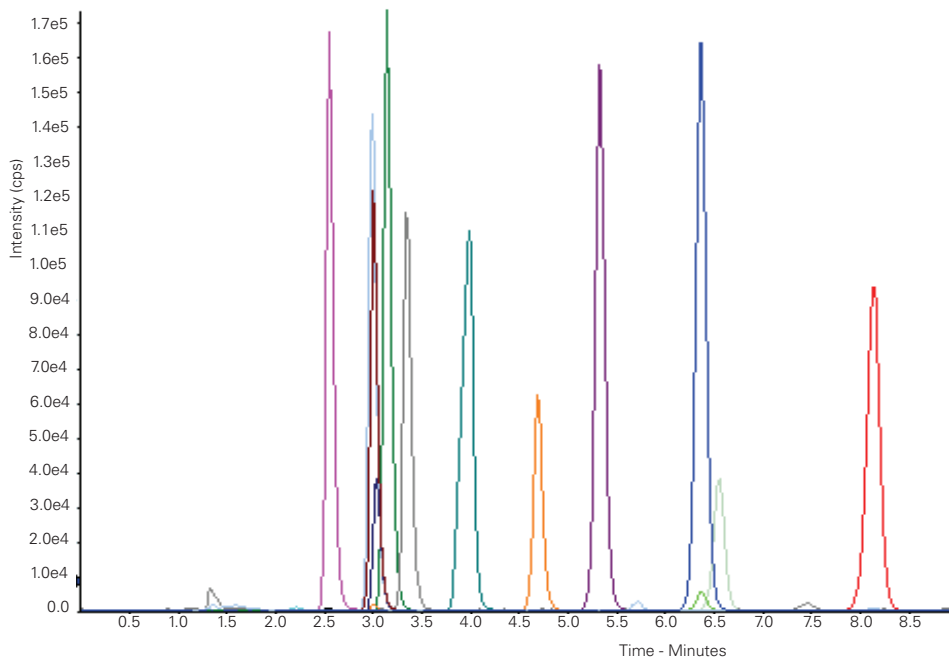
UR - 144



JWH - 200

Extracted ion chromatogram for SPICE analytes fortified in neat oral fluid at 20 ng/mL

Retention Time (minutes)	Analyte	MRM Transition	Decustering Potential (DP)	Collision Energy (CE)	Cell Exit Potential (CXP)
2.55	JWH-250 N-(5-hydroxypentyl)	352 → 120.9	40	30	16
2.99	JWH-073 N-(3-hydroxybutyl)	344 → 155	40	30	16
3.00	UR-144 5-Hydroxy-pentyl	328.5 → 125	30	35	16
3.03	UR-144 Pentanoic Acid	342.5 → 125	30	35	16
3.14	d5-JWH-018 N- (4-hydroxypentyl)	363.5 → 155	40	35	16
3.14	JWH-018 N- (4-hydroxypentyl)	358 → 155	40	30	16
3.34	JWH-018 5-pentanoic acid	372 → 155	40	30	16
3.98	JWH-200	385 → 155	40	30	16
4.69	XLR-11	330 → 125	30	35	16
5.32	JWH-250	336 → 121	40	30	16
6.36	JWH-073	328 → 155	40	30	16
6.37	UR-144 5-Chloro-pentyl	346.9 → 125	30	35	16
6.55	UR-144	312.5 → 125	30	35	16
8.14	JWH-018	342 → 155	40	30	16



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## Taxol in Fungal Extract by LC-MS/MS

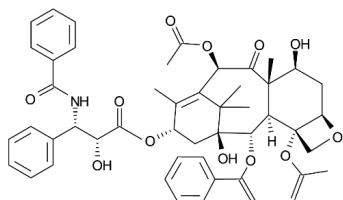
Application #AN1670

## Conditions

**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 150 x 2.1 mm  
**Part Number:** CORE-25A-1502U  
**Mobile Phase:** A: 0.5% formic acid in H<sub>2</sub>O  
 B: 0.5% formic acid in MeCN  
**Gradient:**

Time (mins)	%B
0.0	10
1.0	10
3.0	40
22.0	60
25.0	95

**Flow Rate:** 0.35 mL/min  
**Detection:** Orbitrap Elite MS  
 FT positive ion mode  
 Collision induced dissociation isolation width 5 Da  
 Normalised collision energy 32 eV  
 Activation Q 0.25  
 Activation times 10 ms

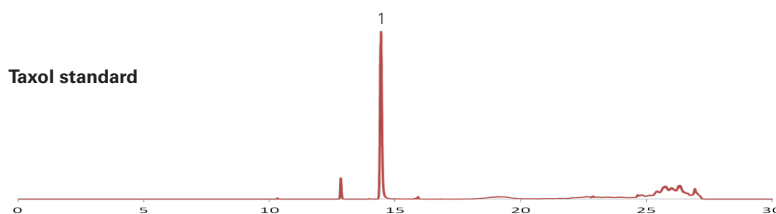


Taxol (Paclitaxel)

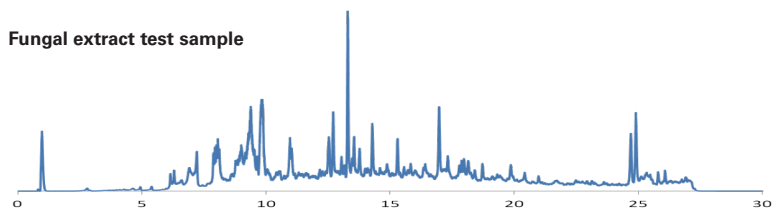
## Analyte

1. Taxol (Paclitaxel)

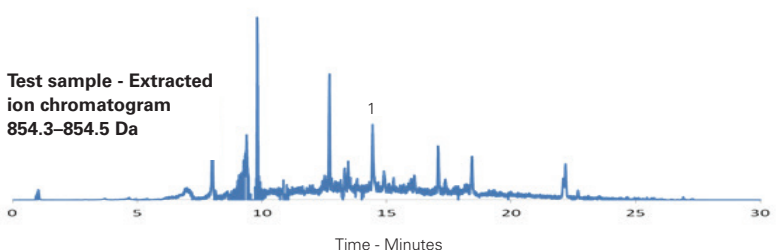
## Taxol standard



## Fungal extract test sample



## Test sample - Extracted ion chromatogram 854.3–854.5 Da



Time - Minutes

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## Telithromycin Analysis

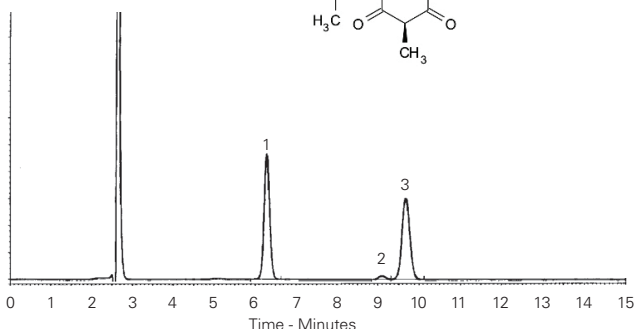
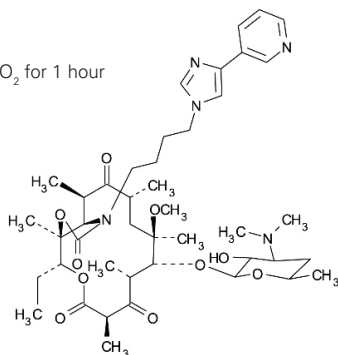
Application #AN3280

## Conditions

**Column:** ACE 5 C18  
**Dimensions:** 250 x 4.6 mm  
**Part Number:** ACE-121-2546  
**Mobile Phase:** 0.05 M phosphate buffer pH 4.0/MeOH (45:55 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 20 µL  
**Temperature:** 50 °C  
**Detection:** UV, 265 nm  
**Sample:** Exposed to 3% H<sub>2</sub>O<sub>2</sub> for 1 hour

## Analytes

1. Telithromycin  
 2. Degradant 1  
 3. Degradant 2



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 or  
 email: [info@ace-hplc.com](mailto:info@ace-hplc.com)



### Terfenadine and Fexofenadine in Rat Plasma

Application #AN3290

#### Conditions

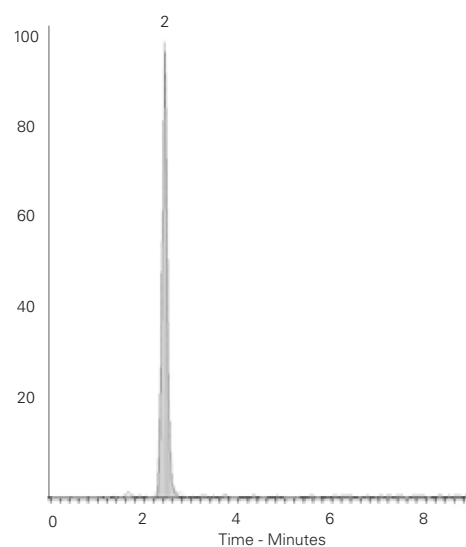
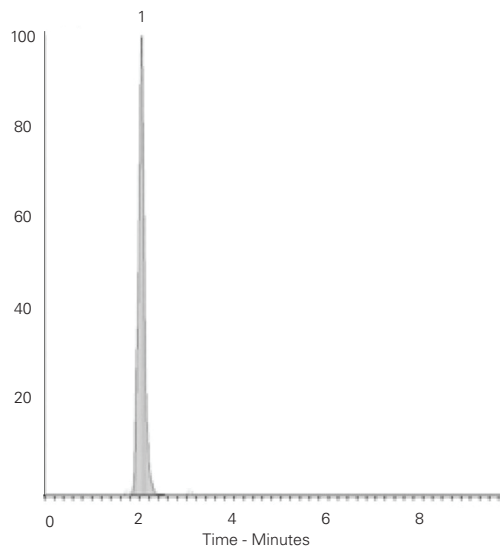
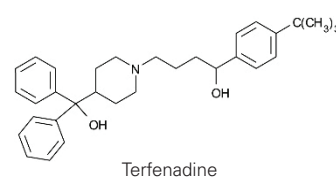
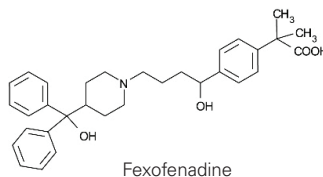
**Column:** ACE 5 AQ  
**Dimensions:** 50 x 3.0 mm  
**Part Number:** ACE-126-0503  
**Mobile Phase:** A: 0.1% formic acid in H<sub>2</sub>O  
 B: MeOH  
**Gradient:**

Time (mins)	%B
0.0	10
1.5	90
2.0	90
3.0	10

**Flow Rate:** 1 mL/min  
**Injection:** 10 µL  
**Temperature:** Ambient  
**Detection:** TurbolonSpray MS/MS  
 Positive ion mode

#### Analytes

1. Fexofenadine  
(m/z 502.3 → 466.3)
2. Terfenadine  
(m/z 472.3 → 436.3)



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### Testosterone

Application #AN3300

#### Conditions

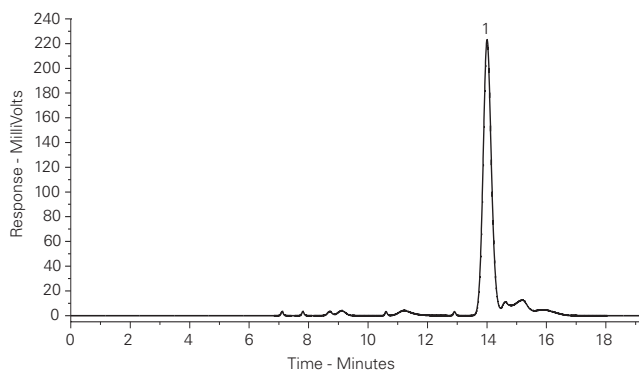
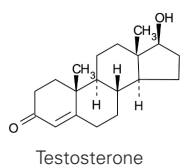
**Column:** ACE 5 C18  
**Dimensions:** 150 x 0.075 mm  
**Part Number:** ACE-121-1500075  
**Mobile Phase:** A: 0.1% formic acid in MeCN/0.1% formic acid in H<sub>2</sub>O (10:90 v/v)  
 B: 0.1% formic acid in MeCN/0.1% formic acid in H<sub>2</sub>O (90:10 v/v)  
**Gradient:**

Time (mins)	%B
0	40
5	40
30	95

**Flow Rate:** 1 µL/min  
**Temperature:** Ambient  
**Detection:** ESI MS/MS  
 Positive ion mode

#### Analyte

1. Testosterone



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### Tetracyclines

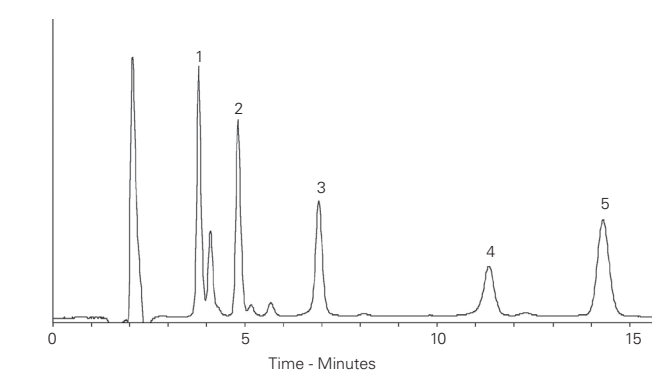
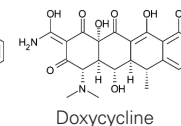
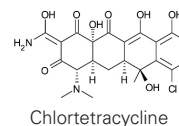
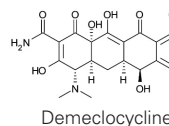
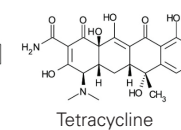
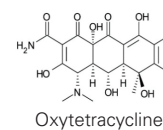
Application #AN3680

#### Conditions

**Column:** ACE 5 C18  
**Dimensions:** 150 x 3.0 mm  
**Part Number:** ACE-121-1503  
**Mobile Phase:** 10 mM oxalic acid pH 2.9/MeCN (80:20 v/v)  
**Flow Rate:** 0.5 mL/min  
**Injection:** 20 µL  
**Temperature:** Ambient  
**Detection:** UV-Vis, 350 nm

#### Analytes

1. Oxytetracycline
2. Tetracycline
3. Demeclocycline
4. Chlortetracycline
5. Doxycycline



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## Thyroid Hormones by LC-MS/MS (I)

Application #AN2170

## Conditions

**Column:** ACE Excel 2 C18-AR  
**Dimensions:** 100 x 2.1 mm  
**Part Number:** EXL-109-1002U  
**Mobile Phase:** A: 2 mM ammonium acetate, 0.1% formic acid in H<sub>2</sub>O  
 B: 2 mM ammonium acetate, 0.1% formic acid in MeOH  
**Gradient:**

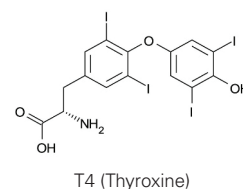
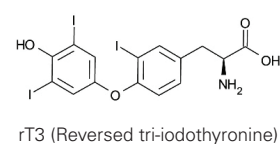
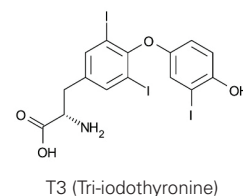
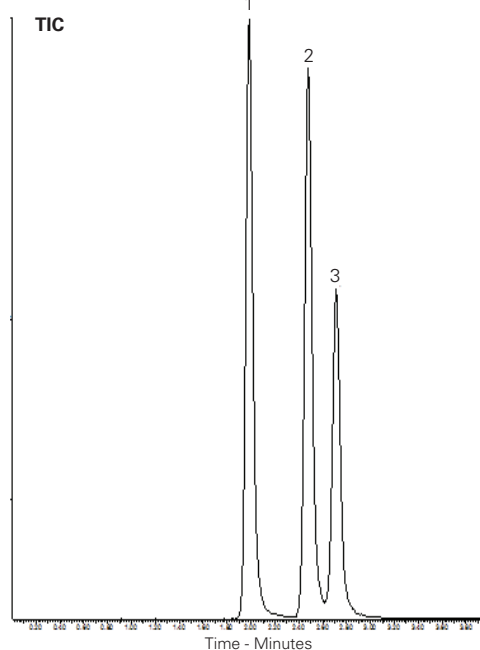
Time (mins)	%B
0.0	60
3.0	77
3.1	60

**Flow Rate:** 0.4 mL/min  
**Injection:** 10 µL  
**Temperature:** 40 °C  
**Detection:** XEVO TQS triple quad MS  
 Desolvation temperature: 500 °C  
 Ion source temperature: 150 °C  
 Positive mode ESI, MRM  
**Sample:** Serum samples extracted using Biotage EVOLUTE EXPRESS AX methodology

Analyte	Q1 (Da)	Q3 (Da)
T3	651.8	605.8
	(651.8)	(507.8)
	(651.8)	(478.9)
rT3	651.8	605.8
	(651.8)	(507.8)
	(651.8)	(478.9)
T3/rT3-d6 I.S.	657.8	611.8
	(657.8)	(611.8)
T4	777.7	731.7
	(777.7)	(351)
	(777.7)	(633.8)

## Analytes

1. T3 (Tri-iodothyronine)
2. rT3 (Reversed tri-iodothyronine)
3. T4 (Thyroxine)



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## Tocopherols Mixture Separation

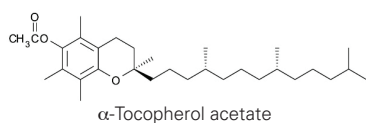
Application #AN3390

## Conditions

**Column:** ACE Excel 3 C18-PFP  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** EXL-1110-1546U  
**Mobile Phase:** A: 0.1% H<sub>3</sub>PO<sub>4</sub>/MeCN (1:3 v/v)  
 B: MeCN  
**Gradient:**

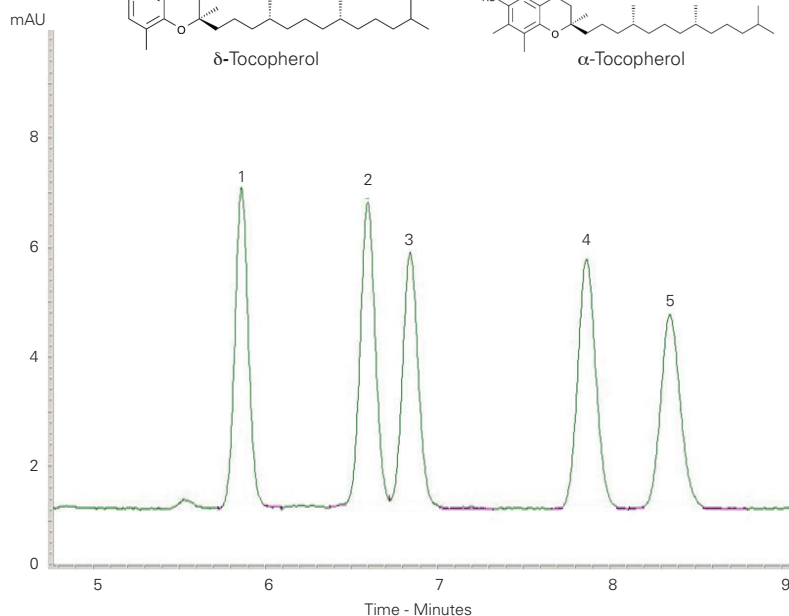
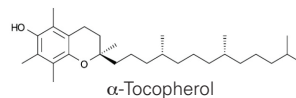
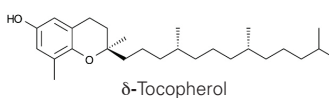
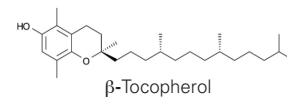
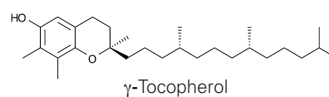
Time (mins)	%B
0.00	0
0.10	0
0.11	80
8.00	80
8.01	100
12.00	100
12.01	0
14.00	0

**Flow Rate:** 1.2 mL/min  
**Injection:** 10 µL  
**Temperature:** 40 °C  
**Detection:** UV, 285 nm



## Analytes

1. γ-Tocopherol
2. β-Tocopherol
3. δ-Tocopherol
4. α-Tocopherol
5. α-Tocopherol acetate



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### Tocopherols

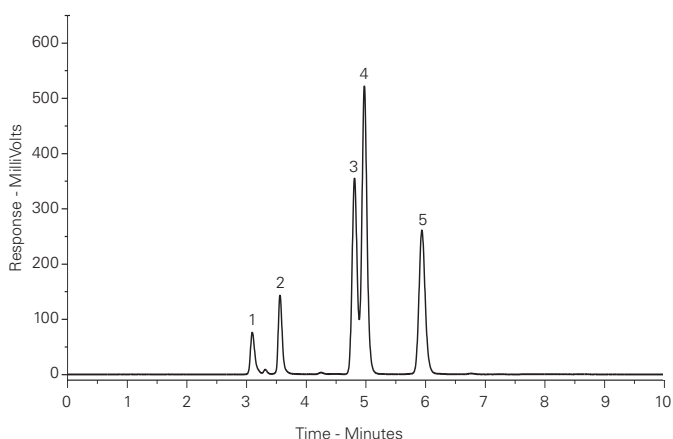
Application #AN2790

#### Conditions

**Column:** ACE 5 SIL  
**Dimensions:** 250 x 4.6 mm  
**Part Number:** ACE-127-2546  
**Mobile Phase:** Hexane/IPA (98:2 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 1 µL  
**Temperature:** Ambient  
**Detection:** UV-Vis, 450 nm

#### Analytes

1. γ-Tocopherol
2. α-Tocopherol
3. β-Tocopherol
4. β-Tocopherol
5. δ-Tocopherol



### Tricyclic Antidepressants

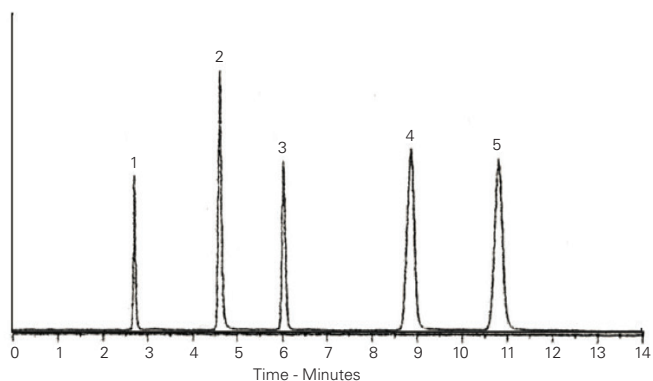
Application #AN3920

#### Conditions

**Column:** ACE 5 C18  
**Dimensions:** 250 x 4.6 mm  
**Part Number:** ACE-121-2546  
**Mobile Phase:** MeOH/25 mM KH<sub>2</sub>PO<sub>4</sub> pH 6.0 in H<sub>2</sub>O (80:20 v/v)  
**Flow Rate:** 1 mL/min  
**Temperature:** 22 °C  
**Detection:** UV, 215 nm

#### Analytes

1. Norephedrine
2. Nortriptyline
3. Toluene
4. Imipramine
5. Amitriptyline



### Toxins from *Amanita Phalloides* Mushrooms by LC-HRMS

Application #AN4060

#### Conditions

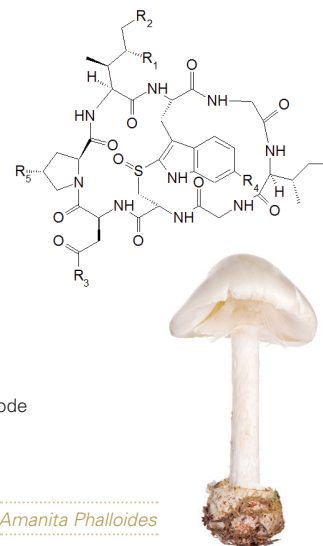
**Column:** ACE 3 AQ  
**Dimensions:** 150 x 3.0 mm  
**Part Number:** ACE-116-1503  
**Mobile Phase:** A: 0.1% formic acid in H<sub>2</sub>O  
 B: 0.1% formic acid in MeOH  
**Gradient:**

Time (mins)	%B
0	15
17	100
22	100
22	15
30	15

  
**Flow Rate:** 0.4 mL/min  
**Injection:** 10 µL  
**Temperature:** 50 °C  
**Detection:** Thermo Exactive MS  
 ESI in positive ion mode

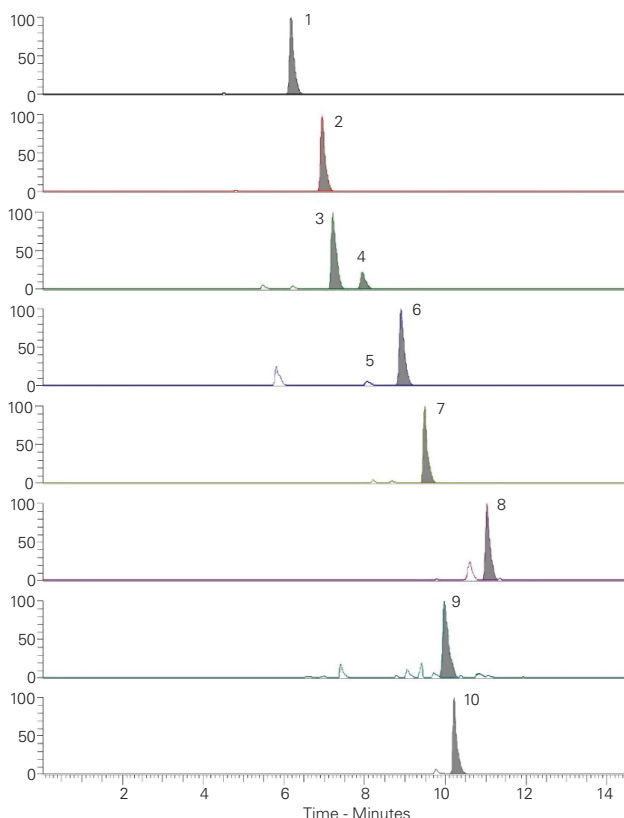
#### Analyte

1. Amatoxins



*Amanita Phalloides*

Peak	Analyte	R1	R2	R3	R4	R5	Exact Mass
1	α - Amanitin	OH	OH	NH <sub>2</sub>	OH	OH	918.35417
2	β - Amanitin	OH	OH	OH	OH	OH	919.338182
3	γ - Amanitin	H	OH	NH <sub>2</sub>	OH	OH	902.359252
4	Amaninamide	OH	OH	NH <sub>2</sub>	H	OH	902.359252
5	Amanin	OH	OH	OH	H	OH	903.343267
6	ε - Amanitin	H	OH	OH	OH	OH	903.343267
7	Amanullin	H	H	NH <sub>2</sub>	OH	OH	886.364337
8	Proamanullin	H	H	NH <sub>2</sub>	OH	H	870.369423
9	Amanullinic Acid	H	H	OH	OH	OH	887.348353
10	Bacitracin (IS)	-	-	-	-	-	1421.7489



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## Tricyclic Antidepressants (Gradient)

Application #AN1690

## Conditions

**Column:** ACE Excel 2 SuperC18  
**Dimensions:** 100 x 3.0 mm  
**Part Number:** EXL-1011-1003U  
**Mobile Phase:** A: 20 mM ammonium formate pH 3.0 in H<sub>2</sub>O  
 B: 20 mM ammonium formate pH 3.0 in MeOH/H<sub>2</sub>O (9:1 v/v)

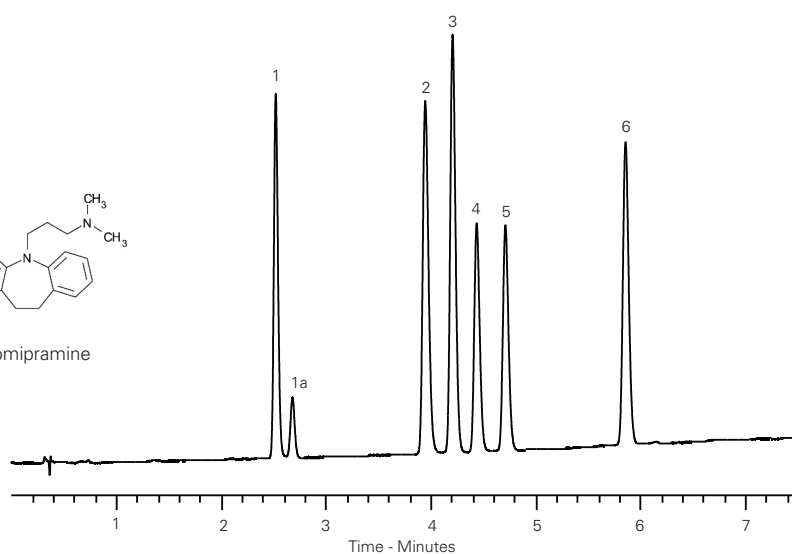
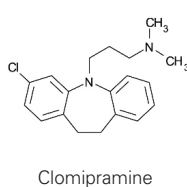
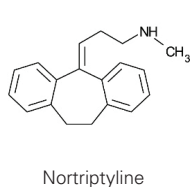
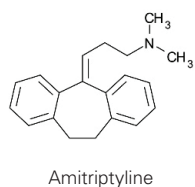
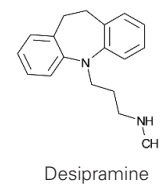
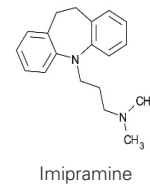
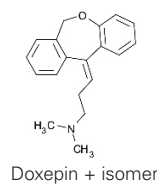
**Gradient:**

Time (mins)	%B
0.0	50
6.0	70
7.0	70
7.5	50

**Flow Rate:** 1.2 mL/min**Injection:** 2 µL**Temperature:** 40 °C**Detection:** UV, 260 nm

## Analytes

1. Doxepin + isomer
2. Imipramine
3. Desipramine
4. Amitriptyline
5. Nortriptyline
6. Clomipramine



## Tricyclic Antidepressants (Isocratic)

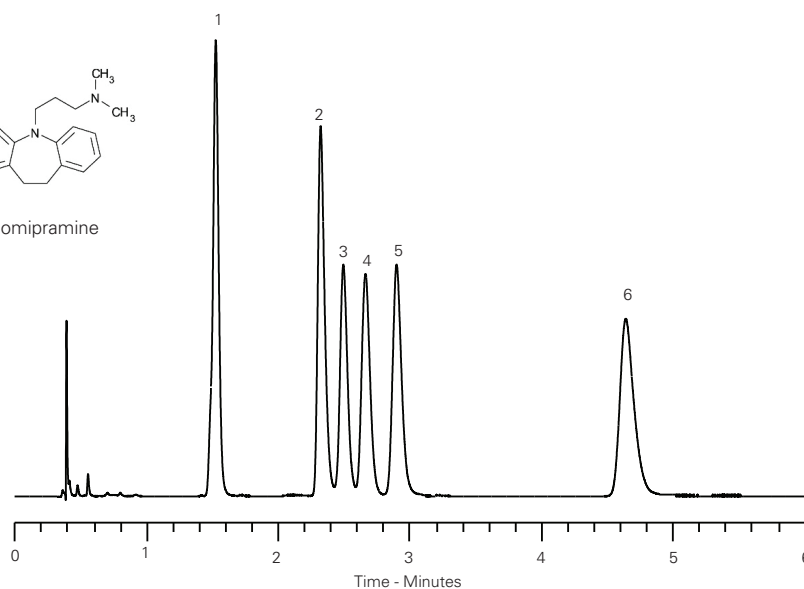
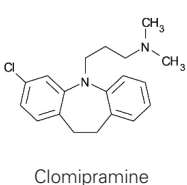
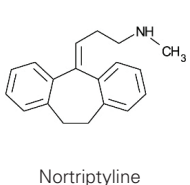
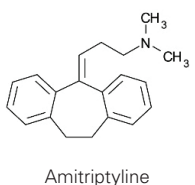
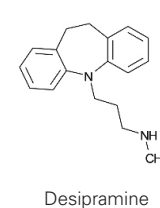
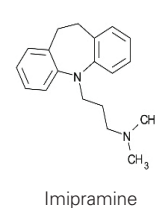
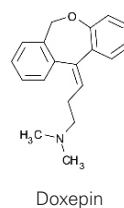
Application #AN1680

## Conditions

**Column:** ACE Excel 2 C18-PFP  
**Dimensions:** 100 x 3.0 mm  
**Part Number:** EXL-1010-1003U  
**Mobile Phase:** 20 mM ammonium formate pH 3.0 in MeOH/H<sub>2</sub>O (54:46 v/v)  
**Flow Rate:** 1.2 mL/min  
**Injection:** 2 µL  
**Temperature:** 40 °C  
**Detection:** UV, 260 nm

## Analytes

1. Doxepin
2. Imipramine
3. Desipramine
4. Amitriptyline
5. Nortriptyline
6. Clomipramine





## Tricyclic Antidepressants (Isocratic Rapid Analysis)

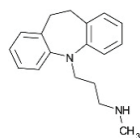
Application #AN1700

## Conditions

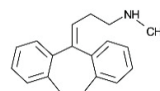
**Column:** ACE 5 C18  
**Dimensions:** 250 x 4.6 mm  
**Part Number:** ACE-121-2546  
**Mobile Phase:** 20 mM ammonium acetate pH 6.3  
 MeCN/H<sub>2</sub>O (65:35 v/v)  
**Flow Rate:** 1.5 mL/min  
**Injection:** 10 µL  
**Temperature:** 60 °C  
**Detection:** UV, 215 nm

## Analytes

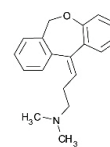
1. Desipramine
2. Nortriptyline
3. Doxepin
4. Imipramine
5. Amitriptyline



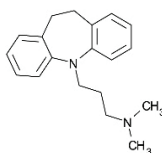
Desipramine



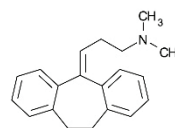
Nortriptyline



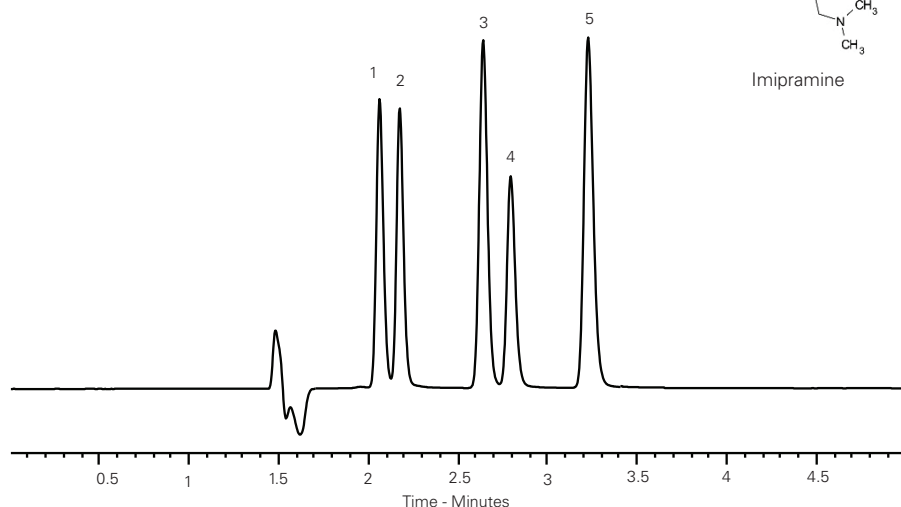
Doxepin



Imipramine



Amitriptyline



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Application #AN3560

Conditions

**Column:** ACE Excel 1.7 SuperC18  
**Dimensions:** 100 x 3.0 mm; 2 x 100 x 3.0 mm (coupled); 3 x 100 x 3.0 mm (coupled)  
**Part Number:** EXL-1711-1003U  
**Mobile Phase:** A: H<sub>2</sub>O  
 B: MeCN  
 C: 200 mM ammonium formate pH 3.0

Analytes

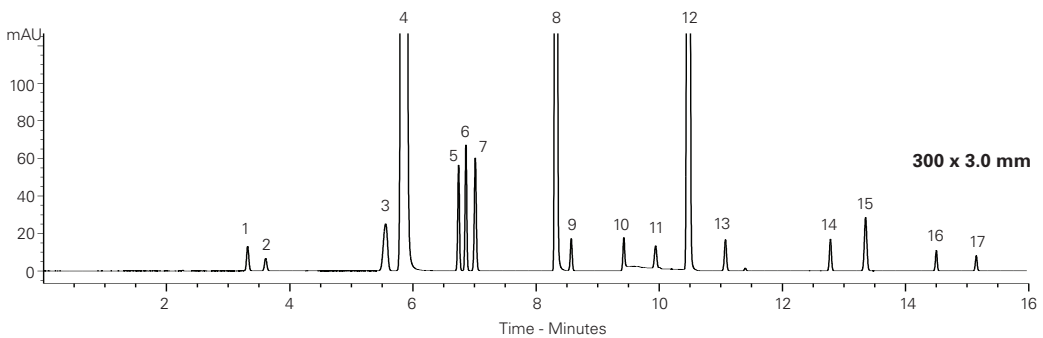
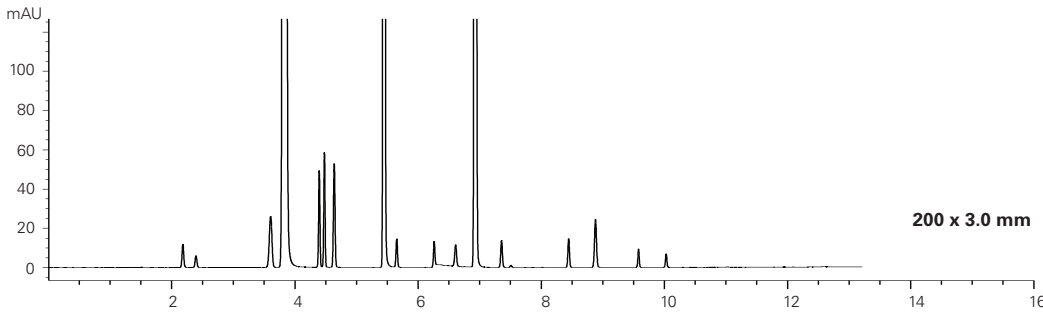
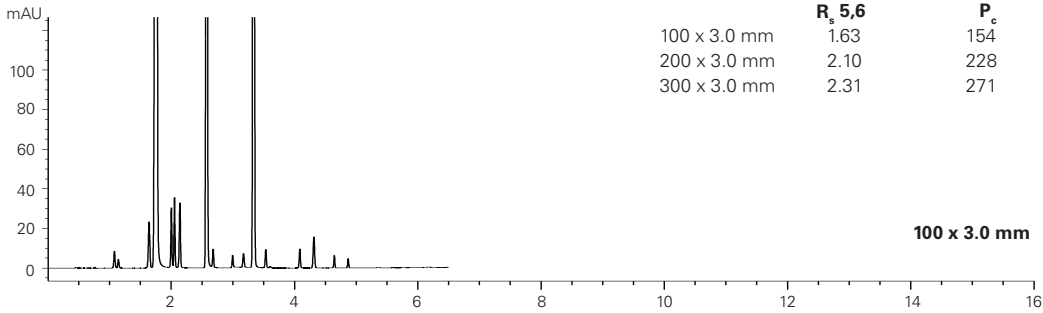
- |                  |                           |                                 |
|------------------|---------------------------|---------------------------------|
| 1. 2-Aminophenol | 7. 4-Hydroxybenzoic acid  | 13. 4-Nitrophenol               |
| 2. Hydroquinone  | 8. Caffeine               | 14. 4-Chloroacetanilide         |
| 3. Theobromine   | 9. 2-Acetamidophenol      | 15. 2-Nitrophenol               |
| 4. Paracetamol   | 10. 2-Hydroxybenzoic acid | 16. Acetylsalicylsalicylic acid |
| 5. Paraxanthine  | 11. Phenol                | 17. Salsalate                   |
| 6. Theophylline  | 12. Aspirin               |                                 |

Gradient:

	Time (mins)			%A	%B	%C
	100 x 3.0 mm	200 x 3.0 mm	300 x 3.0 mm			
-	0.00	0.00	0.00	90	5	5
0.00	1.21	2.41	2.41	90	5	5
5.00	11.21	17.41	17.41	20	75	5
6.00	12.21	18.41	18.41	20	75	5
6.50	13.21	19.41	19.41	90	5	5

**Flow Rate:** 0.8 mL/min  
**Temperature:** 80 °C  
**Detection:** UV, 270 nm

Dimensions	Resolution, R <sub>s</sub> 5,6	Peak Capacity, P <sub>c</sub>
100 x 3.0 mm	1.63	154
200 x 3.0 mm	2.10	228
300 x 3.0 mm	2.31	271





## Tyrosine, Tryptophan and Tramadol by HPLC with Fluorescence Detection

Application #AN4180

### Conditions

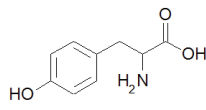
**Column:** ACE 5 C18  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-121-1546  
**Mobile Phase:** A: 50 mM NaH<sub>2</sub>PO<sub>4</sub> in H<sub>2</sub>O  
 B: MeCN/H<sub>2</sub>O (60:40 v/v)  
**Gradient:**

Time (mins)	%B
0.0	0
5.0	10
8.0	100
9.0	100
9.5	0
14.0	0

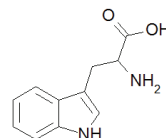
**Flow Rate:** 1 mL/min  
**Injection:** 5 µL  
**Temperature:** 25 °C  
**Detection:** Fluorescence, λ<sub>Ex</sub> 280 nm, λ<sub>Em</sub> 340 nm

### Analytes

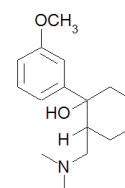
1. L-Tyrosine
2. L-Tryptophan
3. Tramadol



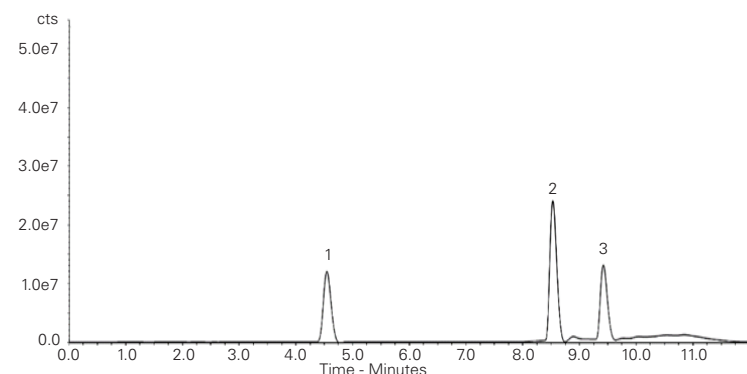
L-Tyrosine



L-Tryptophan



Tramadol



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## USP Monograph – 17α-Ethinylestradiol

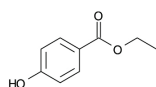
Application #AN1710

### Conditions

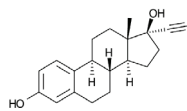
**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 50 x 3.0 mm  
**Part Number:** CORE-25A-0503U  
**Mobile Phase:** H<sub>2</sub>O/MeCN (50:50 v/v)  
**Flow Rate:** 0.43 mL/min  
**Injection:** 3.1 µL  
**Temperature:** Ambient (22 °C)  
**Detection:** UV, 280 nm

### Analytes

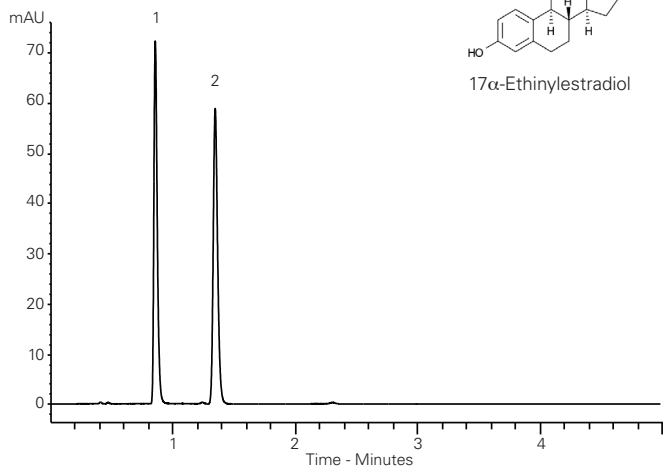
1. Ethylparaben
2. 17α-Ethinylestradiol



Ethylparaben



17α-Ethinylestradiol



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

## USP Monograph – Amlodipine Besylate

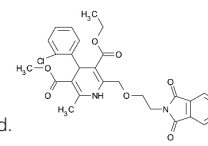
Application #AN2550

### Conditions

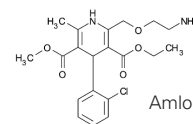
**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 75 x 3.0 mm  
**Part Number:** CORE-25A-7503U  
**Mobile Phase:** MeOH/MeCN/buffer pH 3.0 (35:15:50 v/v/v)  
**Buffer:** 7.0 mL triethylamine in 900 mL H<sub>2</sub>O to 1000 mL volumetric flask. Adjust to pH 3.0 with phosphoric acid. Dilute to volume with H<sub>2</sub>O  
**Flow Rate:** 0.8 mL/min  
**Injection:** 5 µL  
**Temperature:** 25 °C  
**Detection:** UV, 237 nm

### Analytes

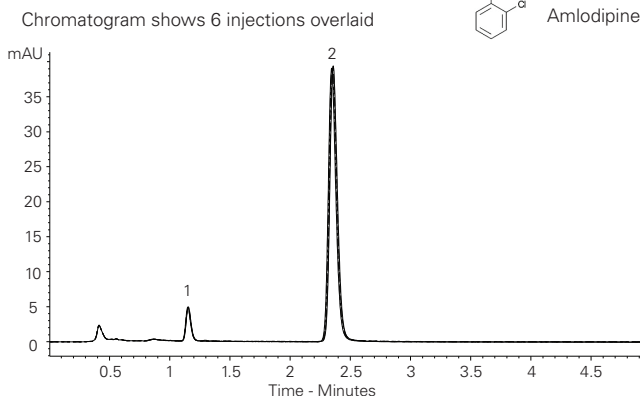
1. Impurity A
2. Amlodipine



Impurity A



Amlodipine



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

## USP Monograph – Budesonide

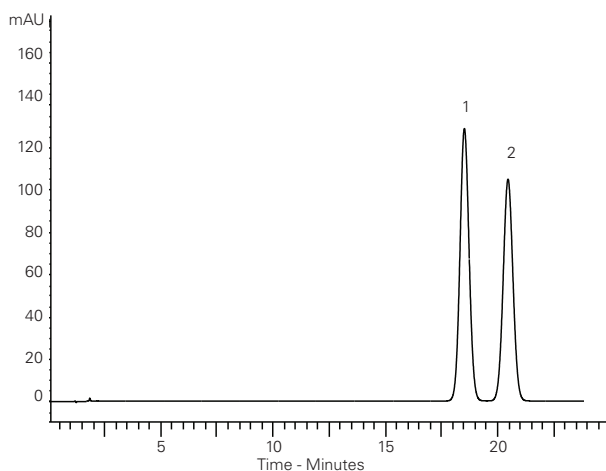
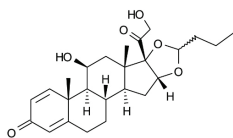
Application #AN1720

## Conditions

**Column:** ACE 5 C18  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-121-1546  
**Mobile Phase:** 18 mM monobasic sodium phosphate pH 3.2 in H<sub>2</sub>O/MeCN (68:32 v/v)  
**Flow Rate:** 1.5 mL/min  
**Injection:** 20 µL  
**Temperature:** Ambient (22 °C)  
**Detection:** UV, 254 nm

## Analytes

1. Budesonide B
2. Budesonide A



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

## USP Monograph – Doxepin

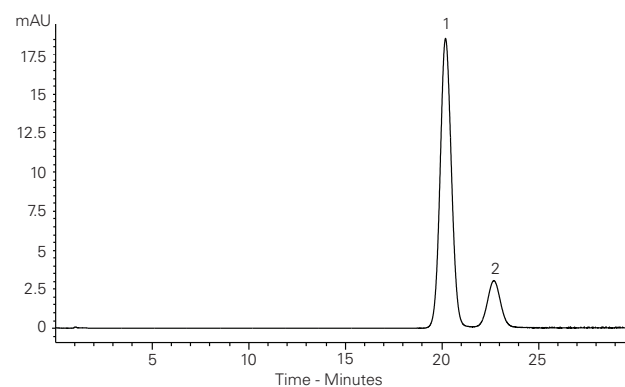
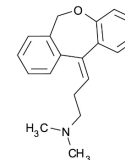
Application #AN1730

## Conditions

**Column:** ACE 3 C8  
**Dimensions:** 50 x 4.6 mm  
**Part Number:** ACE-112-0546  
**Mobile Phase:** 0.2 M monobasic NaH<sub>2</sub>PO<sub>4</sub> pH 2.5 in H<sub>2</sub>O/MeOH (30:70 v/v)  
**Flow Rate:** 0.56 mL/min  
**Injection:** 4.5 µL  
**Temperature:** 50 °C  
**Detection:** UV, 254 nm

## Analytes

1. Doxepin isomer
2. Doxepin isomer



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

## USP Monograph – Estradiol

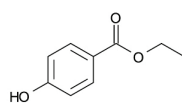
Application #AN1740

## Conditions

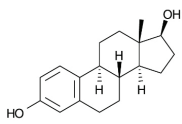
**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 100 x 4.6 mm  
**Part Number:** CORE-25A-1046U  
**Mobile Phase:** H<sub>2</sub>O/MeCN (45:55 v/v)  
**Flow Rate:** 1.39 mL/min  
**Injection:** 10.1 µL  
**Temperature:** Ambient (22 °C)  
**Detection:** UV, 205 nm

## Analytes

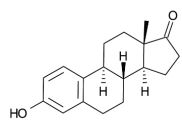
1. Ethylparaben
2. Estradiol
3. Estrone



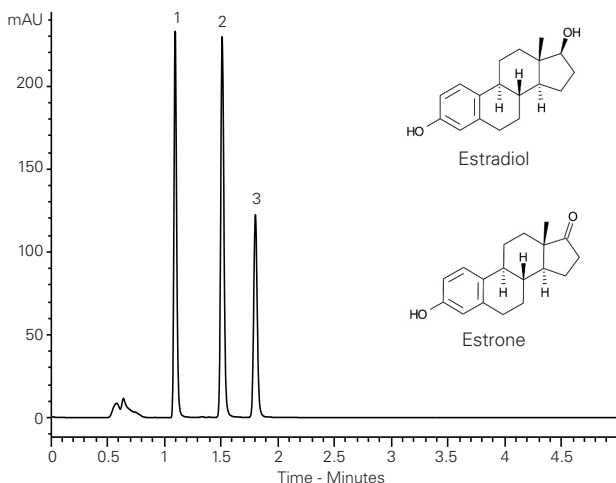
Ethylparaben



Estradiol



Estrone



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

## USP Monograph – Glimepiride

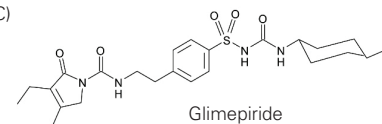
Application #AN1760

## Conditions

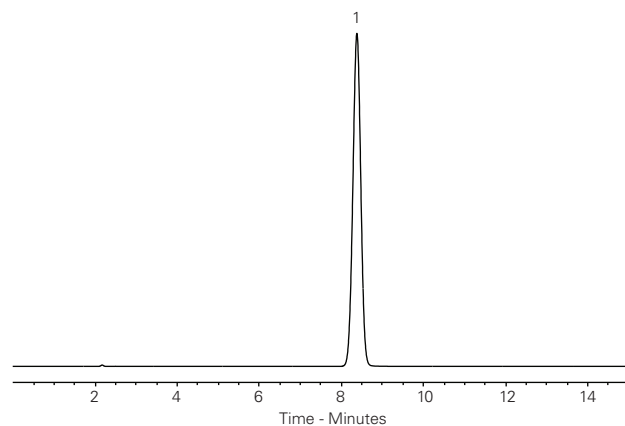
**Column:** ACE 5 C18  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-121-1546  
**Mobile Phase:** 8 mM monobasic sodium phosphate pH 2.4/MeCN (1:1 v/v)  
**Flow Rate:** 1.32 mL/min  
**Injection:** 16 µL  
**Temperature:** Ambient (22 °C)  
**Detection:** UV, 228 nm

## Analyte

1. Glimepiride



Glimepiride



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.



### USP Monograph – Guaifenesin

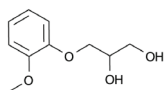
Application #AN1750

#### Conditions

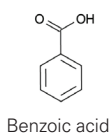
**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 50 x 3.0 mm  
**Part Number:** CORE-25A-0503U  
**Mobile Phase:** H<sub>2</sub>O/MeOH/Glacial acetic acid (60:40:1.5 v/v/v)  
**Flow Rate:** 0.85 mL/min  
**Injection:** 1.5 µL  
**Temperature:** Ambient (22 °C)  
**Detection:** UV, 276 nm

#### Analytes

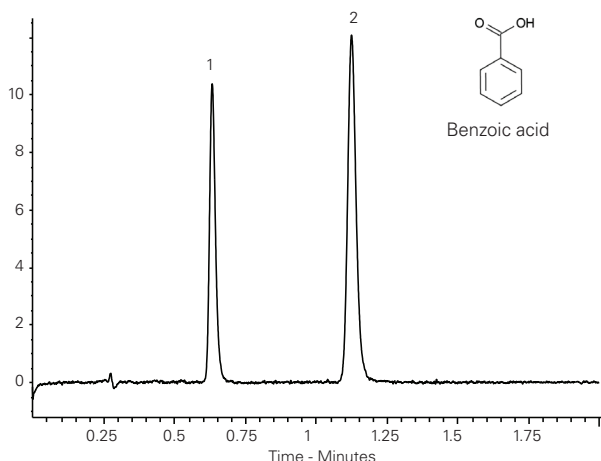
1. Guaifenesin
2. Benzoic acid



Guaifenesin



Benzoic acid



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

### USP Monograph – Hydrocortisone

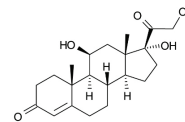
Application #AN1770

#### Conditions

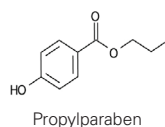
**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 100 x 4.6 mm  
**Part Number:** CORE-25A-1046U  
**Mobile Phase:** H<sub>2</sub>O/MeCN/MeOH (50:25:25 v/v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 5.8 µL  
**Temperature:** Ambient (22 °C)  
**Detection:** UV, 254 nm

#### Analytes

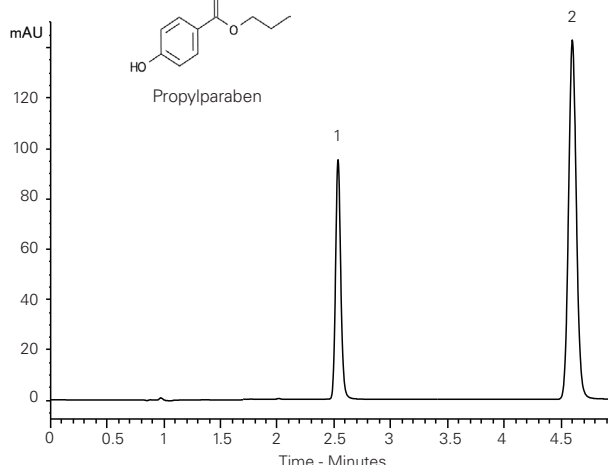
1. Hydrocortisone
2. Propylparaben



Hydrocortisone



Propylparaben



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

### USP Monograph – Hydroquinone

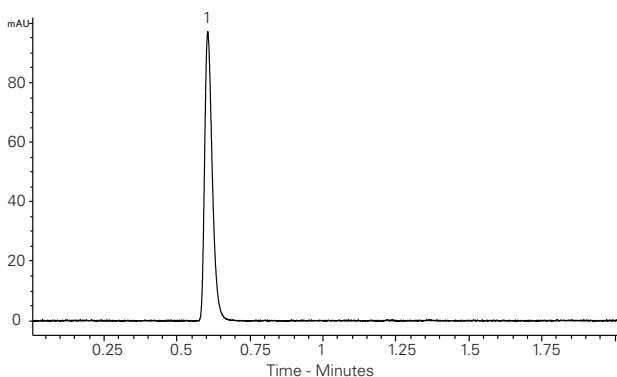
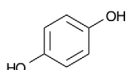
Application #AN1780

#### Conditions

**Column:** ACE Excel 2 C18  
**Dimensions:** 50 x 3.0 mm  
**Part Number:** EXL-101-0503U  
**Mobile Phase:** H<sub>2</sub>O/MeOH (45:55 v/v)  
**Flow Rate:** 0.45 mL/min  
**Injection:** 0.9 µL  
**Temperature:** Ambient (22 °C)  
**Detection:** UV, 280 nm

#### Analyte

1. Hydroquinone



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

### USP Monograph – Indomethacin

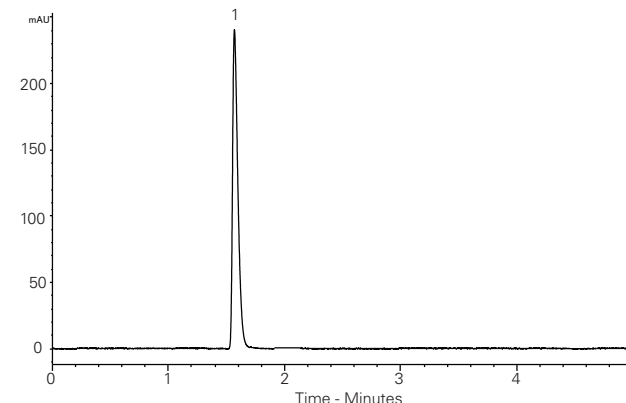
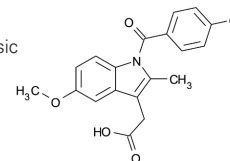
Application #AN1790

#### Conditions

**Column:** ACE 5 C18  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-121-1546  
**Mobile Phase:** 0.01 M monobasic sodium phosphate and 0.01 M dibasic sodium phosphate in MeCN/H<sub>2</sub>O (1:1 v/v)  
**Flow Rate:** 1.32 mL/min  
**Injection:** 13 µL  
**Temperature:** Ambient (22 °C)  
**Detection:** UV, 254 nm

#### Analyte

1. Indomethacin



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

USP Monograph – Metronidazole

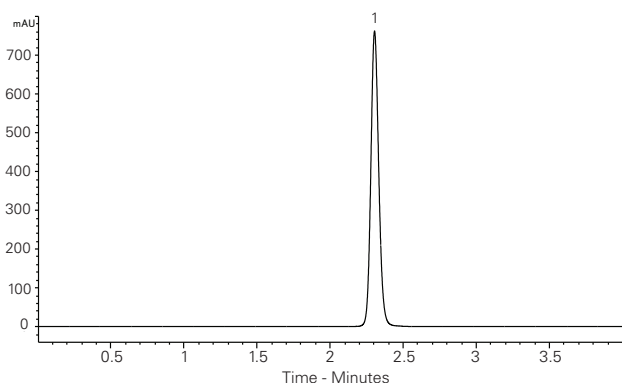
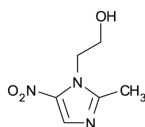
Application #AN1800

Conditions

**Column:** ACE 3 C8  
**Dimensions:** 75 x 4.6 mm  
**Part Number:** ACE-112-7546  
**Mobile Phase:** H<sub>2</sub>O/MeOH (4:1 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 15 µL  
**Temperature:** 30 °C  
**Detection:** UV, 319 nm

Analyte

1. Metronidazole



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

USP Monograph – Naproxen

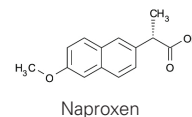
Application #AN1810

Conditions

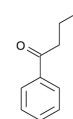
**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 50 x 3.0 mm  
**Part Number:** CORE-25A-0503U  
**Mobile Phase:** H<sub>2</sub>O with glacial acetic acid (49:1)/MeCN (50:50 v/v)  
**Flow Rate:** 0.51 mL/min  
**Injection:** 2.8 µL  
**Temperature:** Ambient (22 °C)  
**Detection:** UV, 254 nm

Analytes

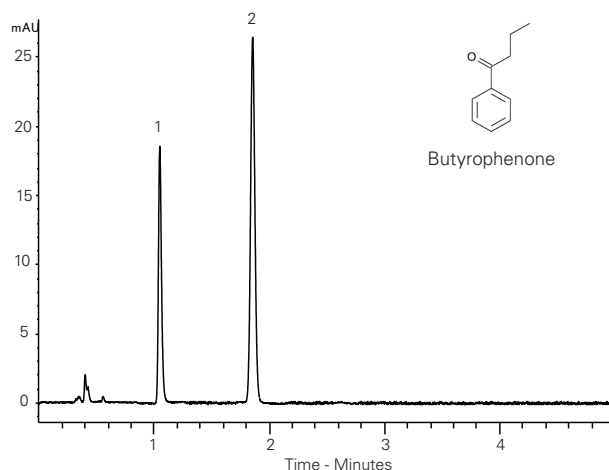
1. Naproxen  
 2. Butyrophenone



Naproxen



Butyrophenone



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

USP Monograph – Paracetamol/Aspirin/Caffeine

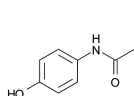
Application #AN1820

Conditions

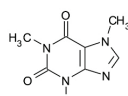
**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 50 x 4.6 mm  
**Part Number:** CORE-25A-0546  
**Mobile Phase:** H<sub>2</sub>O with glacial acetic acid (69:3)/MeOH (72:28 v/v)  
**Flow Rate:** 2 mL/min  
**Injection:** 2.5 µL  
**Temperature:** 45 °C  
**Detection:** UV, 275 nm

Analytes

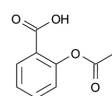
1. Paracetamol  
 2. Caffeine  
 3. Aspirin  
 4. Benzoic acid  
 5. Salicylic acid



Paracetamol



Caffeine



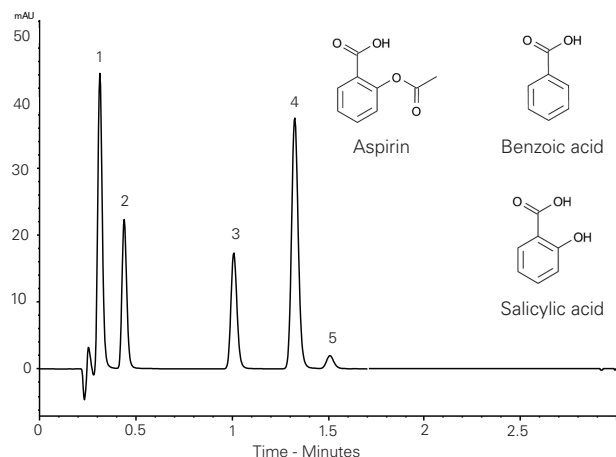
Aspirin



Benzoic acid



Salicylic acid



Translated method according to USP <621> guidance. Always check the latest and official method information from the relevant pharmacopoeia prior to analysis.

Please enquire for details of our chromatography training, technical advice, applications support, batch reservation service and custom packing facility

email: [info@ace-hplc.com](mailto:info@ace-hplc.com)





Vanilla Flavourings – Natural and Artificial

Application #AN4390

Conditions

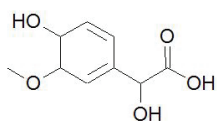
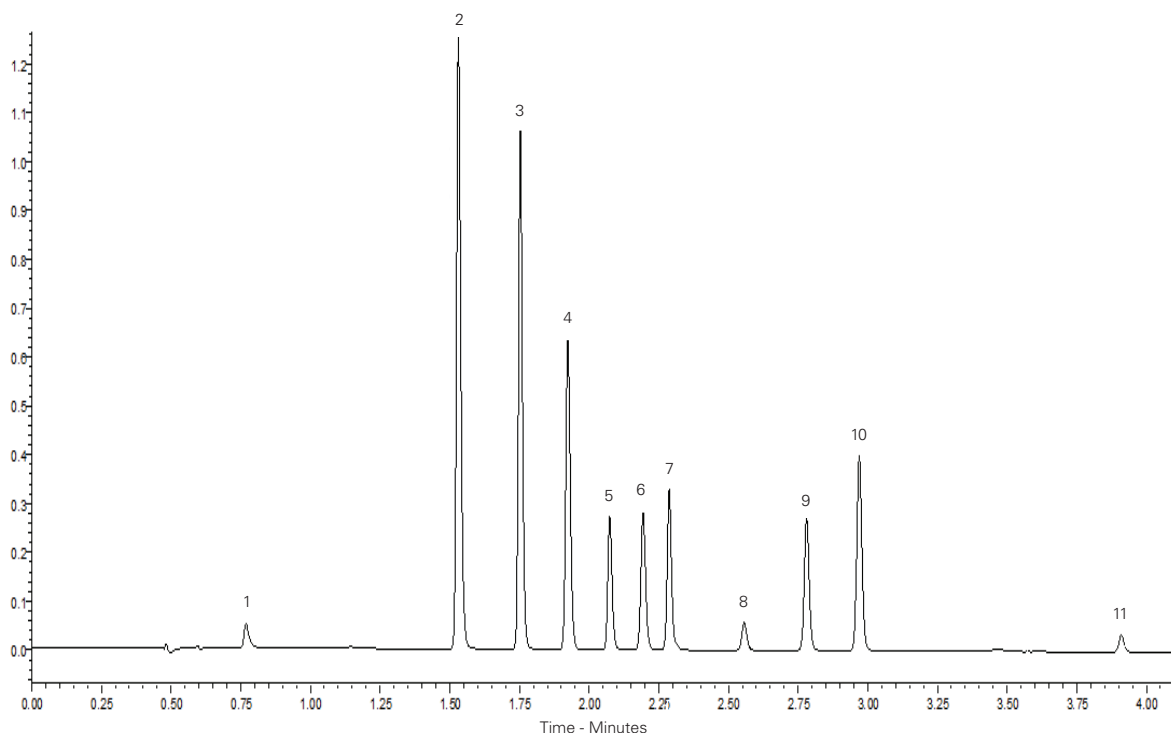
**Column:** ACE UltraCore 2.5 SuperPhenylHexyl  
**Dimensions:** 100 x 2.1 mm  
**Part Number:** CORE-25B-1002U  
**Mobile Phase:** A: 10 mM ammonium formate in H<sub>2</sub>O  
 B: MeCN  
**Gradient:**

Time (mins)	%B
0.0	5
5.5	70

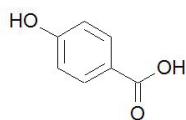
  
**Flow Rate:** 0.5 mL/min  
**Injection:** 3 µL  
**Temperature:** 50 °C  
**Detection:** UV, 254 nm

Analytes

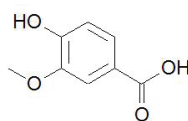
1. Vanillylmandelic acid
2. 4-Hydroxybenzoic acid
3. Vanillic acid
4. 4-Hydroxybenzaldehyde
5. p-Coumaric acid
6. Vanillin
7. Ferulic acid
8. Guaiacol
9. Ethyl vanillin
10. Coumarin
11. Eugenol



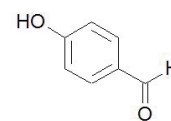
Vanillylmandelic acid



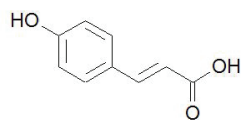
4-Hydroxybenzoic acid



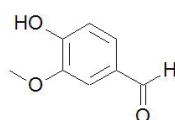
Vanillic acid



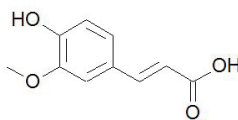
4-Hydroxybenzaldehyde



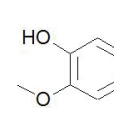
p-Coumaric acid



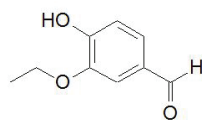
Vanillin



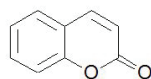
Ferulic acid



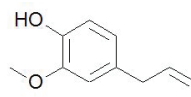
Guaiacol



Ethyl vanillin



Coumarin



Eugenol

## Vanillins

Application #AN1620

## Conditions

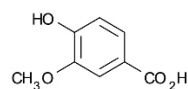
**Column:** ACE Excel 3 C18-Amide  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** EXL-1112-1546U  
**Mobile Phase:** A: 0.1% formic acid in H<sub>2</sub>O  
 B: 0.1% formic acid in MeCN  
**Gradient:**

Time (mins)	%B
0.0	30
10.0	55
10.5	55
15.0	30
20.0	30

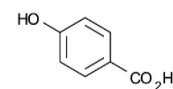
**Flow Rate:** 1 mL/min  
**Injection:** 5 µL  
**Temperature:** 40 °C  
**Detection:** UV, 260 nm

## Analytes

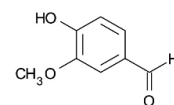
1. Vanillic acid
2. 4-Hydroxybenzoic acid
3. Vanillin
4. 4-Hydroxybenzaldehyde
5. Guaiacol
6. Ethyl Vanillin
7. Eugenol



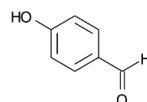
Vanillic acid



4-Hydroxybenzoic acid



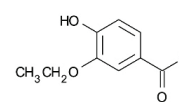
Vanillin



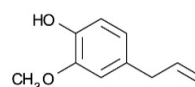
4-Hydroxybenzaldehyde



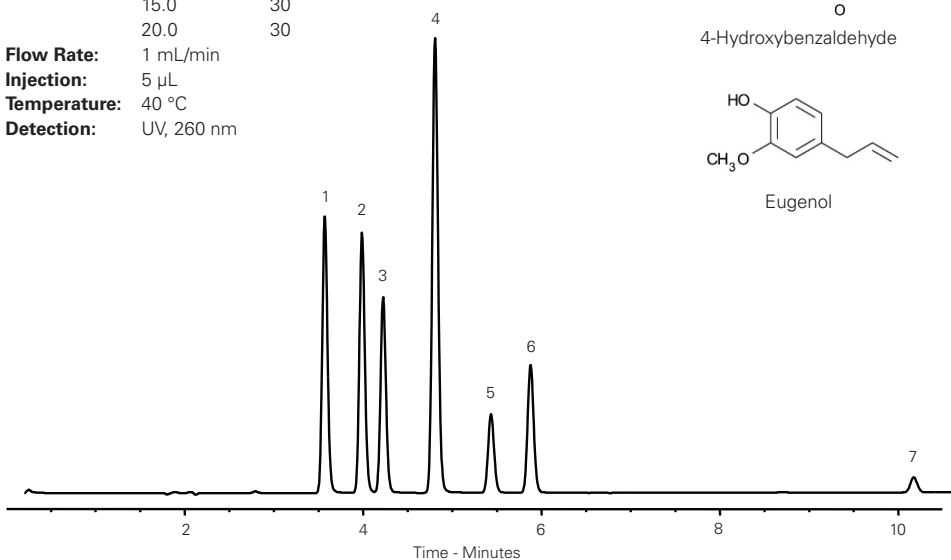
Guaiacol



Ethyl Vanillin



Eugenol



## Vanillins – Fast Analysis

Application #AN2240

## Conditions

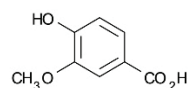
**Column:** ACE Excel 1.7 C18-Amide  
**Dimensions:** 50 x 3.0 mm  
**Part Number:** EXL-1712-0503U  
**Mobile Phase:** A: 0.1% formic acid in H<sub>2</sub>O  
 B: 0.1% formic acid in MeCN  
**Gradient:**

Time (mins)	%B
0.0	25
1.32	75
1.49	75
1.60	25

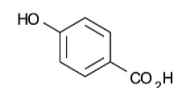
**Flow Rate:** 1.3 mL/min  
**Injection:** 1 µL  
**Temperature:** 45 °C  
**Detection:** UV, 260 nm

## Analytes

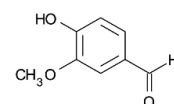
1. Vanillic acid
2. 4-Hydroxybenzoic acid
3. Vanillin
4. 4-Hydroxybenzaldehyde
5. Guaiacol
6. o-Vanillin
7. Ethyl Vanillin
8. Eugenol



Vanillic acid



4-Hydroxybenzoic acid



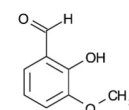
Vanillin



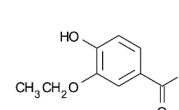
4-Hydroxybenzaldehyde



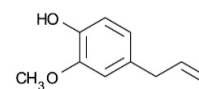
Guaiacol



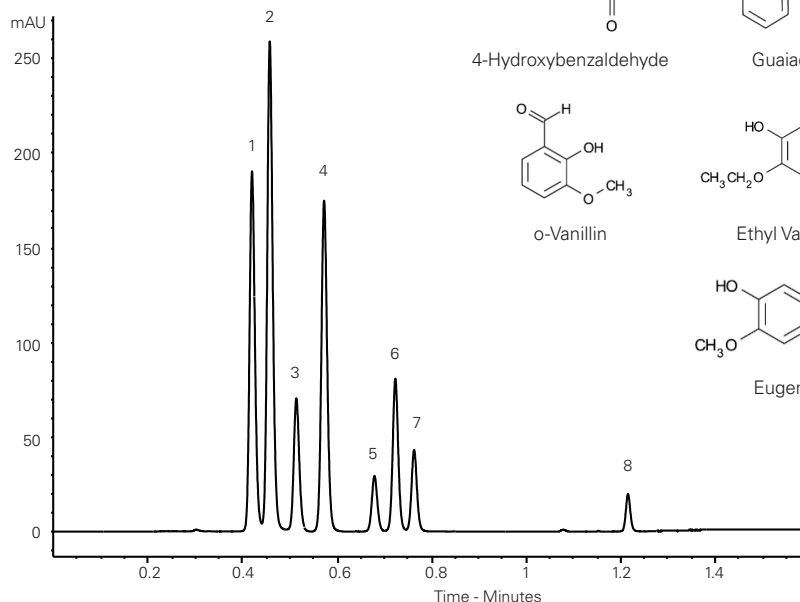
o-Vanillin



Ethyl Vanillin



Eugenol





Vitamin D2/D3

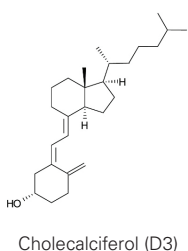
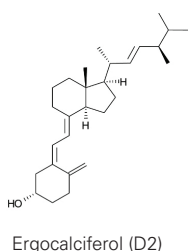
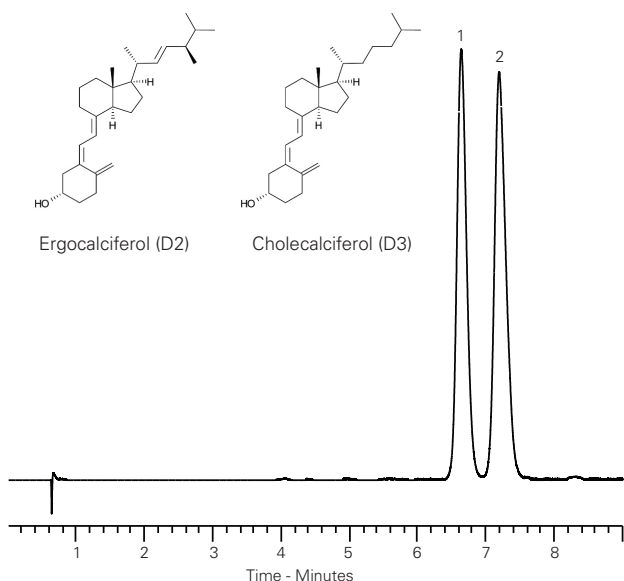
Application #AN1840

Conditions

**Column:** ACE Excel 2 C18-Amide  
**Dimensions:** 50 x 3.0 mm  
**Part Number:** EXL-1012-0503U  
**Mobile Phase:** 100% MeCN  
**Flow Rate:** 0.43 mL/min  
**Injection:** 2 µL  
**Temperature:** 20 °C  
**Detection:** UV, 265 nm

Analytes

1. Ergocalciferol (D2)
2. Cholecalciferol (D3)



ACE columns are available in an extensive range of phases, particle sizes and dimensions

visit: [www.ace-hplc.com](http://www.ace-hplc.com)  
 or  
 email: [info@ace-hplc.com](mailto:info@ace-hplc.com)

25-Hydroxy Vitamin D in Serum by LC-MS/MS

Application #AN2390

Conditions

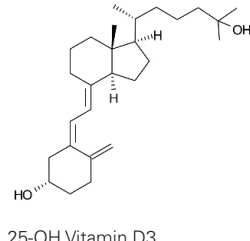
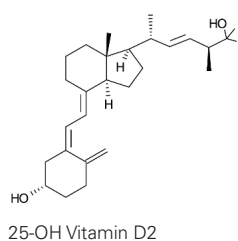
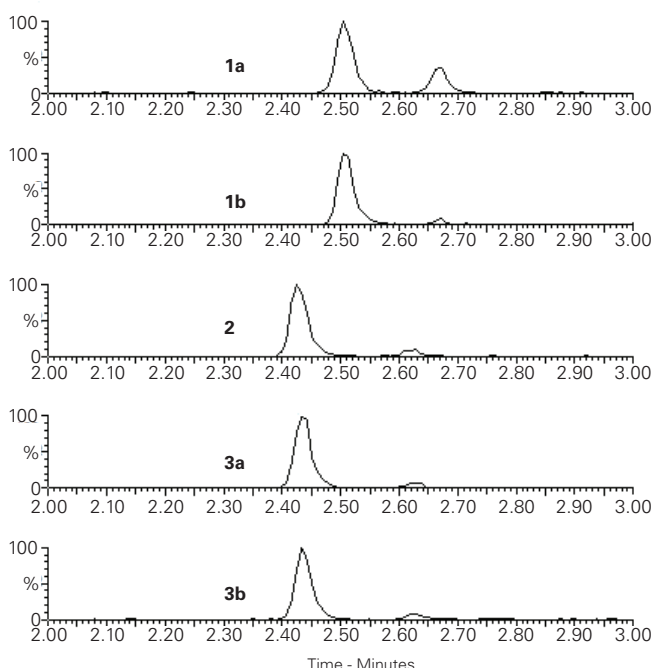
**Column:** ACE Excel 2 C18-PFP  
**Dimensions:** 100 x 2.1 mm  
**Part Number:** EXL-1010-1002U  
**Mobile Phase:** A: 2 mM ammonium acetate, 0.1% formic acid in H<sub>2</sub>O  
 B: 0.1% formic acid in MeOH  
**Gradient:**

Time (mins)	%B
0.0	75
3.0	100
4.0	100

**Flow Rate:** 0.4 mL/min  
**Injection:** 15 µL  
**Temperature:** 40 °C  
**Detection:** Quattro Premier XE triple quad MS  
 MRM positive ESI mode  
 Desolvation temperature: 450 °C  
 Ion source temperature: 150 °C

Analytes

- 1a. 25-OH Vitamin D2  
(*m/z* 395.5 → 269.5)
- 1b. 25-OH Vitamin D2  
(*m/z* 395.5 → 119.2)
2. d6-25-OH Vitamin D3 (IS)  
(*m/z* 389.6 → 263.5)
- 3a. 25-OH Vitamin D3  
(*m/z* 383.5 → 257.5)
- 3b. 25-OH Vitamin D3  
(*m/z* 383.5 → 107.2)



## 1,25-Dihydroxyvitamins D2 and D3 in Serum by LC-MS/MS

Application #AN4070

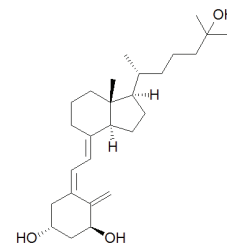
## Conditions

**Column:** ACE UltraCore 2.5 SuperC18  
**Dimensions:** 50 x 2.1 mm  
**Part Number:** CORE-25A-0502U  
**Mobile Phase:** MeCN/H<sub>2</sub>O (50:50 v/v) containing 30  $\mu$ L methylamine per 500 mL  
**Flow Rate:** 0.5 mL/min  
**Injection:** 20  $\mu$ L  
**Temperature:** 40 °C  
**Detection:** AB Sciex 5500 triple quad MS  
 ESI in positive ion mode  
 IonSpray Voltage: 5500 V  
 Temperature: 550 °C

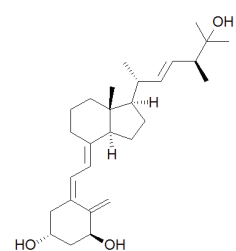
**Sample:** 1,25 diOH vitamin D2 and 1,25 diOH vitamin D3 metabolites are extracted from serum using supported liquid extraction. Sensitivity of LC-MS/MS analysis is maximised through use of PTAD (9-phenyl-1,2,4-triazole-3,5-dione) derivatisation and complexation with methylamine.

## Analytes

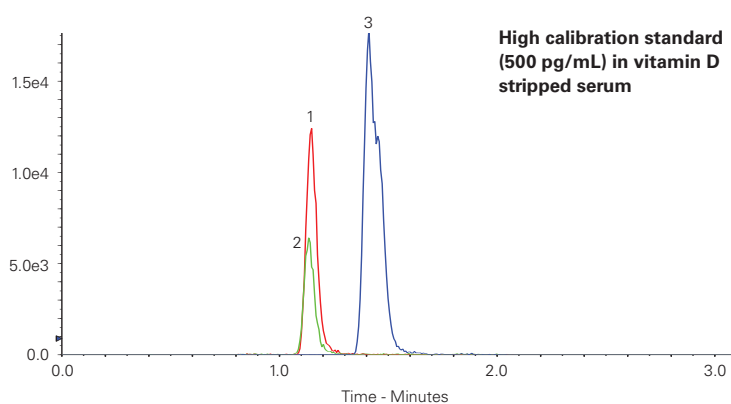
- 1,25-diOH vitamin D3-PTAD-methylamine complex  
(*m/z* 623.4  $\rightarrow$  314.1)
- d3-1,25-diOH vitamin D3-PTAD-methylamine complex (I.S.)  
(*m/z* 626.4  $\rightarrow$  317.1)
- 1,25-diOH vitamin D2-PTAD-methylamine complex  
(*m/z* 635.4  $\rightarrow$  314.1)



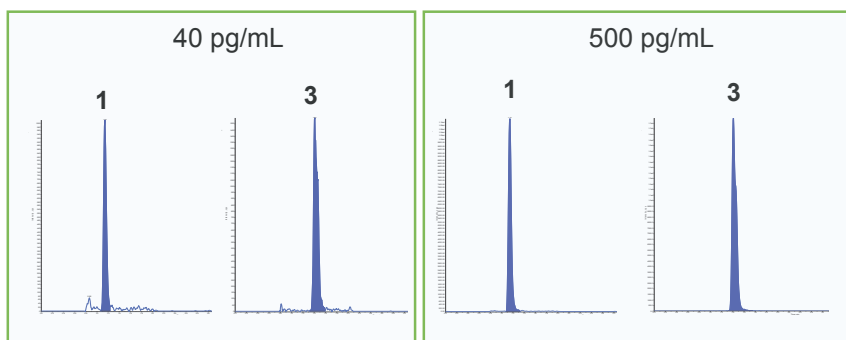
1,25-dihydroxy vitamin D3



1,25-dihydroxy vitamin D2



Low and high calibration standards in charcoal stripped (vitamin D free) serum, analysed as PTAD-methylamine complexes



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Vitamins – Fat Soluble

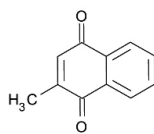
Application #AN2420

Conditions

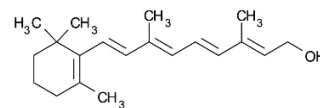
**Column:** ACE Excel 3 C18-Amide  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** EXL-1112-1546U  
**Mobile Phase:** MeOH/MeCN (90:10 v/v)  
**Flow Rate:** 1 mL/min  
**Temperature:** 20 °C  
**Detection:** UV, 280 nm

Analytes

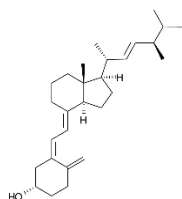
1. Menadione (Vitamin K3)
2. Retinol (Vitamin A)
3. Vitamin A acetate
4. Ergocalciferol (Vitamin D2)
5. Cholecalciferol (Vitamin D3)
6. Vitamin E acetate
7. α-Tocopherol (Vitamin E)
8. Vitamin K1



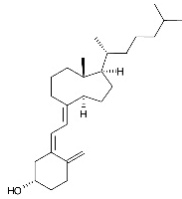
Menadione (Vitamin K3)



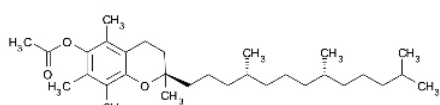
Retinol (Vitamin A)



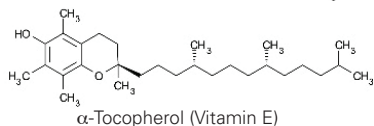
Ergocalciferol (Vitamin D2)



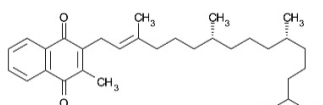
Cholecalciferol (Vitamin D3)



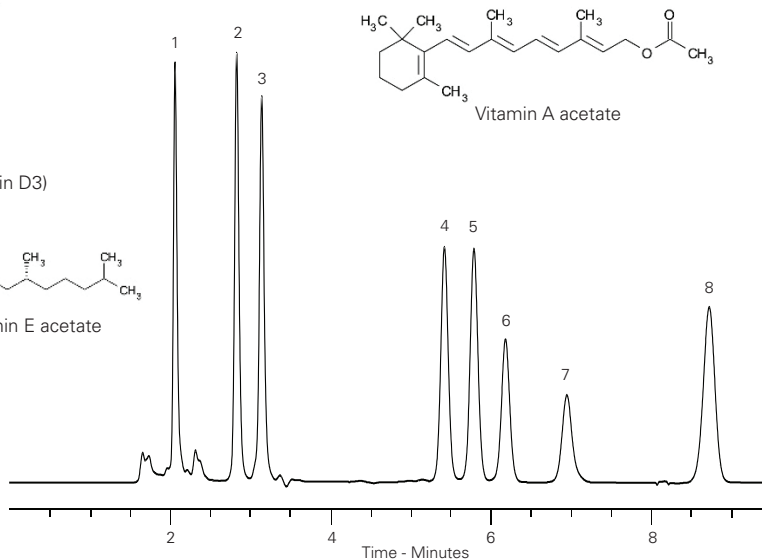
Vitamin E acetate



α-Tocopherol (Vitamin E)



Vitamin K1



Vitamins – Water Soluble (Gradient I)

Application #AN2940

Conditions

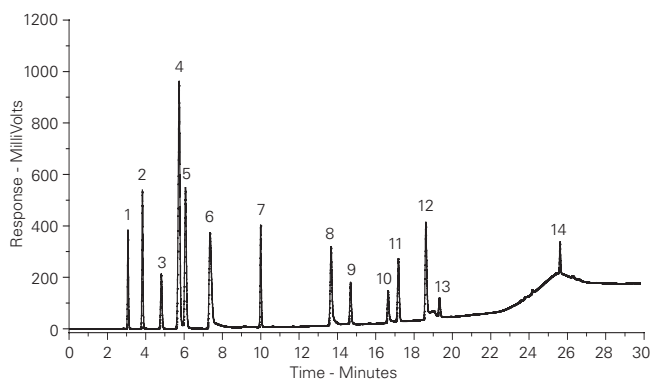
**Column:** ACE 5 C8  
**Dimensions:** 250 x 4.6 mm  
**Part Number:** ACE-122-2546  
**Mobile Phase:** A: 50 mM KH<sub>2</sub>PO<sub>4</sub> pH 2.5 in H<sub>2</sub>O  
 B: MeOH  
**Gradient:**

Time (mins)	%B
0.0	0
3.0	0
16.5	45
19.5	80

  
**Flow Rate:** 1 mL/min  
**Temperature:** Ambient  
**Detection:** UV, 205 nm

Analytes

1. Pyridoxamine
2. Thiamine (Vitamin B1)
3. L-Ascorbic acid (Vitamin C)
4. Niacinamide (Vitamin B3)
5. Nicotinic acid
6. Pyridoxal
7. Pyridoxine
8. p-Aminobenzoic acid
9. Pantothenic acid (Vitamin B5)
10. Folic acid (Vitamin B9)
11. Cyanocobalamin (Vitamin B12)
12. Riboflavin (Vitamin B2)
13. d-Biotin (Vitamin B7)
14. Thiocctic acid



Vitamins – Water Soluble (Gradient II)

Application #AN2930

Conditions

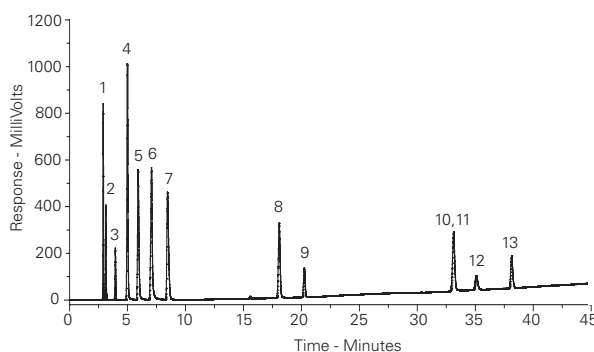
**Column:** ACE 5 C18  
**Dimensions:** 250 x 4.6 mm  
**Part Number:** ACE-121-2546  
**Mobile Phase:** A: 50 mM KH<sub>2</sub>PO<sub>4</sub> pH 3.0 in H<sub>2</sub>O  
 B: MeOH  
**Gradient:**

Time (mins)	%B
0	3
5	3
45	45
50	80

  
**Flow Rate:** 1 mL/min  
**Temperature:** Ambient  
**Detection:** UV, 205 nm

Analytes

1. Pyridoxamine
2. Thiamine (Vitamin B1)
3. L-Ascorbic acid (Vitamin C)
4. Nicotinic acid
5. Pyridoxal
6. Impurity
7. Pyridoxine
8. p-Aminobenzoic acid
9. Pantothenic acid (Vitamin B5)
10. Folic acid (Vitamin B9)
11. Cyanocobalamin (Vitamin B12)
12. d-Biotin (Vitamin B7)
13. Riboflavin (Vitamin B2)



Vitamins – Water Soluble (Gradient III)

Application #AN1870

Conditions

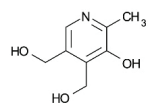
**Column:** ACE 3 C18-AR  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-119-1546  
**Mobile Phase:** A: 20 mM potassium phosphate pH 2.83 in H<sub>2</sub>O  
 B: 20 mM potassium phosphate pH 2.83 in MeOH  
 H<sub>2</sub>O (50:50 v/v)  
**Gradient:**

Time (mins)	%B
0	20
15	70

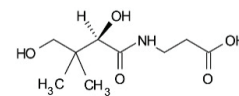
  
**Flow Rate:** 1.5 mL/min  
**Injection:** 1 µL  
**Temperature:** 40 °C  
**Detection:** UV, 205 nm

Analytes

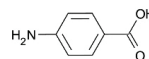
1. Pyridoxine (Vitamin B6)
2. Pantothenic acid (Vitamin B5)
3. p-Aminobenzoic acid
4. Folic acid (Vitamin B9/Vitamin M)
5. D-Biotin (Vitamin B7/ Vitamin H)
6. Cyanocobalamin (Vitamin B12)
7. Riboflavin (Vitamin B2)



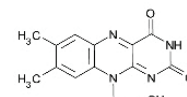
Pyridoxine (Vitamin B6)



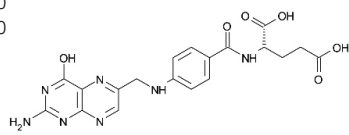
Pantothenic acid (Vitamin B5)



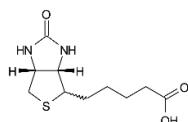
p-Aminobenzoic acid



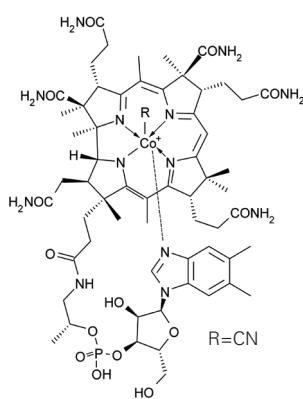
Riboflavin (Vitamin B2)



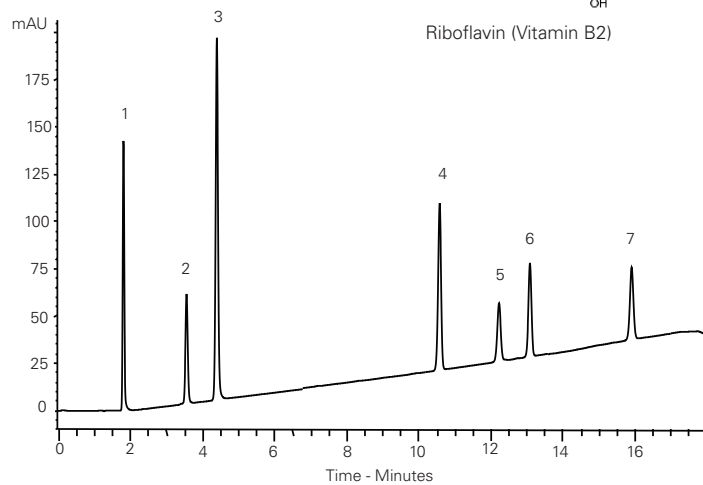
Folic acid (Vitamin B9/Vitamin M)



D-Biotin (Vitamin B7/Vitamin H)



Cyanocobalamin (Vitamin B12)



Vitamins – Water Soluble (Gradient IV)

Application #AN1880

Conditions

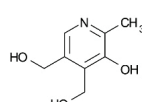
**Column:** ACE Ultracore 2.5 SuperPhenylHexyl  
**Dimensions:** 50 x 2.1 mm  
**Part Number:** CORE-25B-0502U  
**Mobile Phase:** A: 20 mM KH<sub>2</sub>PO<sub>4</sub>, pH 2.7  
 B: 20 mM KH<sub>2</sub>PO<sub>4</sub>, pH 2.7 in MeOH/H<sub>2</sub>O (50:50 v/v)  
**Gradient:**

Time (mins)	%B
0.00	20
1.50	60
3.00	70
3.75	70
4.50	20
9.00	20

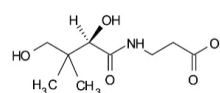
  
**Flow Rate:** 0.4 mL/min  
**Injection:** 1 µL  
**Temperature:** 40 °C  
**Detection:** UV, 205 and 254 nm

Analytes

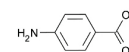
1. Pyridoxine
2. Pantothenic acid
3. p-Aminobenzoic acid
4. Folic acid
5. D-Biotin
6. Cyanocobalamin
7. Riboflavin



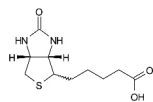
Pyridoxine



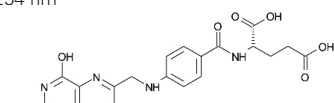
Pantothenic acid



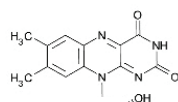
p-Aminobenzoic acid



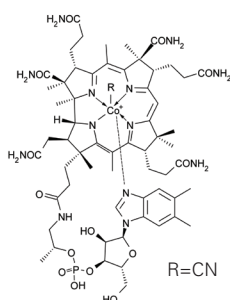
D-Biotin



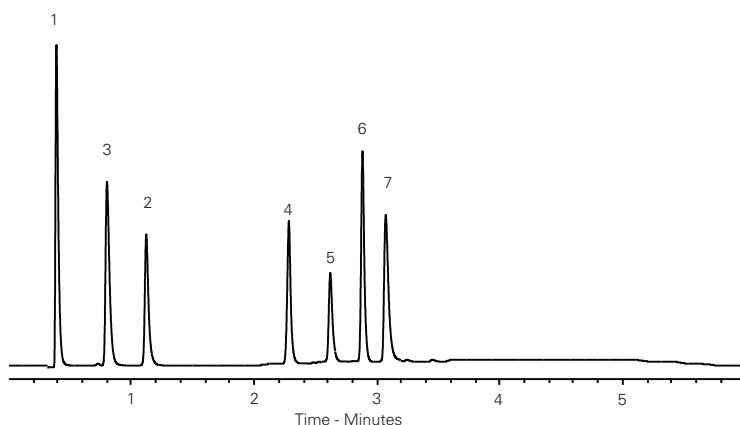
Folic acid



Riboflavin



Cyanocobalamin





Vitamins – Water Soluble (Isocratic I)

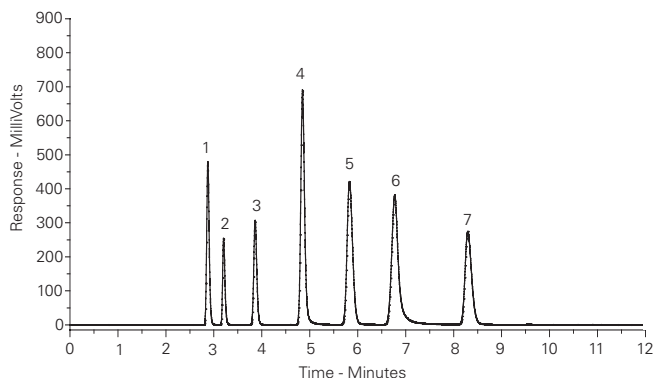
Application #AN2990

Conditions

**Column:** ACE 5 C18  
**Dimensions:** 250 x 4.6 mm  
**Part Number:** ACE-121-2546  
**Mobile Phase:** 50 mM KH<sub>2</sub>PO<sub>4</sub> pH 3.0 in H<sub>2</sub>O/MeOH (97:3 v/v)  
**Flow Rate:** 1 mL/min  
**Temperature:** Ambient  
**Detection:** UV, 205 nm

Analytes

1. Pyridoxamine
2. Thiamine (Vitamin B1)
3. L-Ascorbic acid (Vitamin C)
4. Nicotinic acid
5. Pyridoxal
6. Impurity
7. Pyridoxine



Vitamins – Water Soluble (Isocratic II)

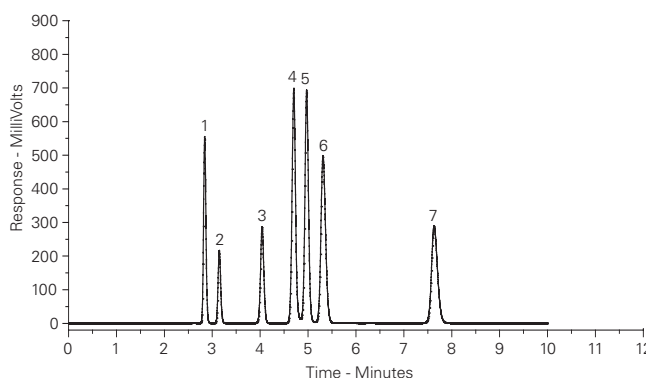
Application #AN2980

Conditions

**Column:** ACE 5 C8  
**Dimensions:** 250 x 4.6 mm  
**Part Number:** ACE-122-2546  
**Mobile Phase:** 50 mM KH<sub>2</sub>PO<sub>4</sub> pH 2.5 in H<sub>2</sub>O/MeOH (97:3 v/v)  
**Flow Rate:** 1 mL/min  
**Temperature:** Ambient  
**Detection:** UV, 205 nm

Analytes

1. Pyridoxamine
2. Thiamine (Vitamin B1)
3. L-Ascorbic acid (Vitamin C)
4. Nicotinamide (Vitamin B3)
5. Pyridoxal
6. Nicotinic acid
7. Pyridoxine



Vitamins in Fruit Juice by Fast LC-MS

Application #AN2610

Conditions

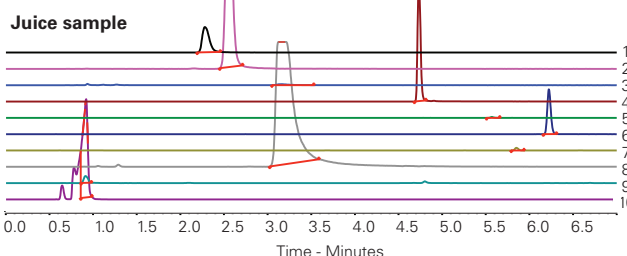
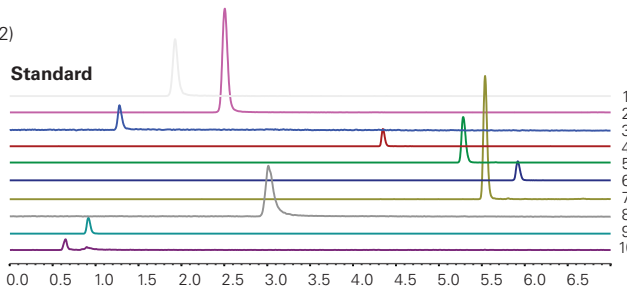
**Column:** ACE Excel 3 C18-PFP  
**Dimensions:** 100 x 2.1 mm  
**Part Number:** EXL-1110-1002U  
**Mobile Phase:** A: 15 mM formic acid, adjusted to pH 3.8 with ammonia solution  
 B: MeOH

Gradient:	Time (mins)	%B
	0.00	1
	1.00	1
	3.00	8
	3.10	25
	6.00	50
	6.50	50
	6.51	1
	9.00	1

**Flow Rate:** 0.4 mL/min  
**Temperature:** 30 °C  
**Detection:** LCMS-8040 triple quad MS  
 ESI positive mode (ESI negative for ascorbic and citric acid)  
 DL temperature: 250 °C  
 Heat block temperature: 400 °C

Analytes

1. Thiamine (Vitamin B1) (*m/z* 266.10 → 122.15)
2. Pyridoxine (Vitamin B6) (*m/z* 170.20 → 152.15)
3. Nicotinic acid (Vitamin B3) (*m/z* 124.00 → 78.00)
4. Pantothenic acid (Vitamin B5) (*m/z* 220.30 → 90.05)
5. Cyanocobalamin (Vitamin B12) (*m/z* 678.50 → 147.05)
6. Riboflavin (Vitamin B2) (*m/z* 377.20 → 243.10)
7. Biotin (Vitamin B7) (*m/z* 245.10 → 227.05)
8. Nicotinamide (Vitamin B3) (*m/z* 123.20 → 80.05)
9. Ascorbic acid (Vitamin C) (*m/z* 175.10 → 114.80)
10. Citric acid (*m/z* 191.10 → 87.15)





## Vitamins in Green Vegetables by LC-MS/MS - Water Soluble

Application #AN1860

## Conditions

**Column:** ACE 3 C4-300  
**Dimensions:** 150 x 2.1 mm  
**Part Number:** ACE-213-1502  
**Mobile Phase:** A: 10 mM ammonium acetate  
 pH 4.5 in H<sub>2</sub>O  
 B: 0.1% acetic acid in MeOH  
 C: 0.3% acetic acid in MeOH

Gradient:	Time (mins)	%A	%B	%C
	0	90	10	0
	3	90	10	0
	4	50	0	50
	7	50	0	50
	10	0	100	0

**Flow Rate:** 0.2 mL/min

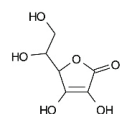
**Injection:** 10 µL

**Temperature:** 20 °C

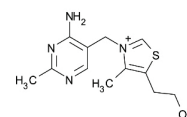
**Detection:** TSQ triple quad MS; SRM mode  
 -ESI for vitamin C  
 +ESI for vitamin B

## Analytes

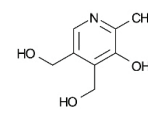
1. Ascorbic acid
2. Thiamine
3. Pyridoxine
4. Nicotinamide
5. Pantothenic acid
6. Hippuric acid (IS)
7. Folic acid
8. Riboflavin



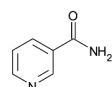
Ascorbic acid



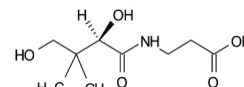
Thiamine



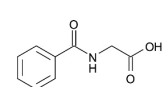
Pyridoxine



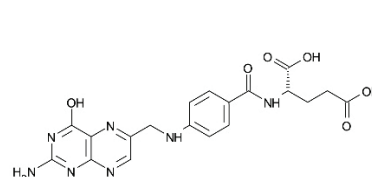
Nicotinamide



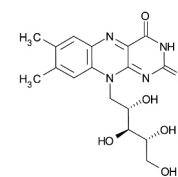
Pantothenic acid



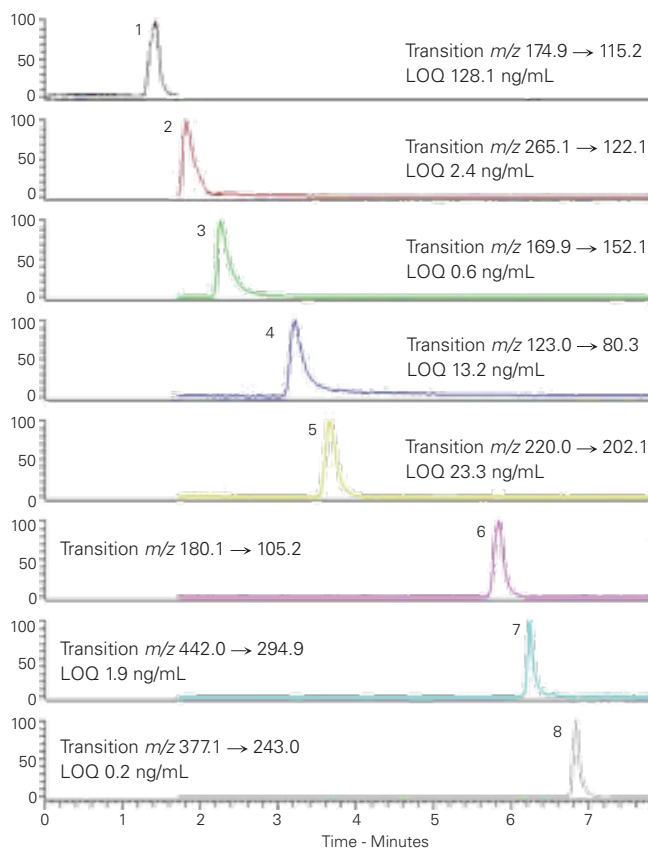
Hippuric acid (IS)



Folic acid



Riboflavin



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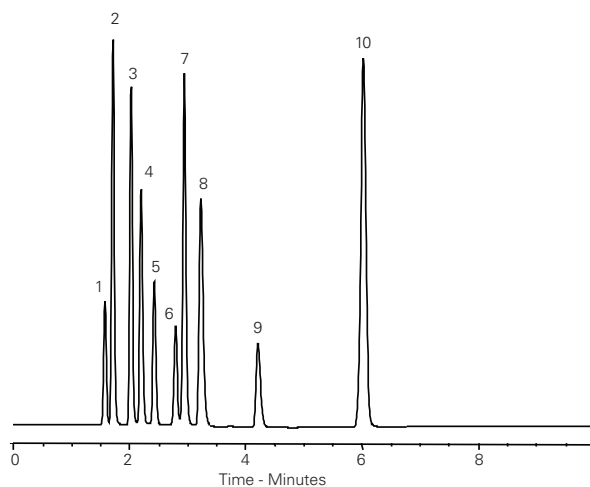
**Vitamins and Polar Molecules - Water Soluble**  
Application #AN1850

**Conditions**

**Column:** ACE 3 C18-AR  
**Dimensions:** 150 x 4.6 mm  
**Part Number:** ACE-119-1546  
**Mobile Phase:** 0.1 % phosphoric acid in H<sub>2</sub>O/MeOH (96.5:3.5 v/v)  
**Flow Rate:** 1 mL/min  
**Injection:** 2 µL  
**Temperature:** 22 °C  
**Detection:** UV, 260 nm

**Analytes**

1. Pyridoxamine (Vitamin B6)
2. Thiamine (Vitamin B1)
3. Isonicotinamide
4. Nicotinamide
5. L-Ascorbic acid (Vitamin C)
6. Orotic Acid
7. Hypoxanthine
8. Pyridoxal (Vitamin B6)
9. Pyridoxine (Vitamin B6)
10. p-Aminobenzoic acid



**Water Soluble Artificial Colours**  
Application #AN3010

**Conditions**

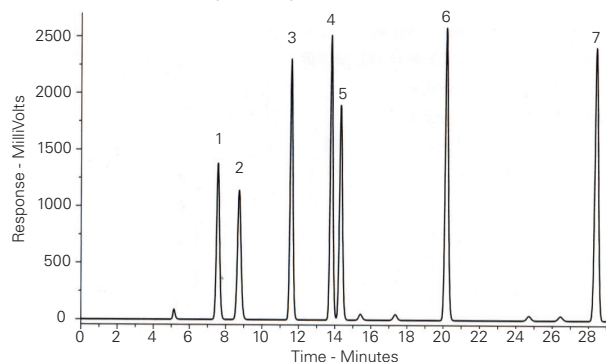
**Column:** ACE 3 C18  
**Dimensions:** 100 x 4.6 mm  
**Part Number:** ACE-111-1046  
**Mobile Phase:** A: 3 mM tetrabutylammonium bromide and 5 mM KH<sub>2</sub>PO<sub>4</sub> in H<sub>2</sub>O  
 B: 5 mM tetrabutylammonium bromide in MeOH  
**Gradient:**

Time (mins)	%B
0	45
20	70
30	45
40	45

  
**Flow Rate:** 0.8 mL/min  
**Injection:** 10 µL  
**Temperature:** Ambient  
**Detection:** UV-Vis, 420 nm, 520 nm and 600 nm

**Analytes**

1. Amaranth
2. Sunset Yellow
3. Allura Red
4. Red 2G
5. Ponceau 4R
6. Carmoisine
7. Erythrosine



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**Whey Proteins from Whole Milk**  
Application #AN3000

**Conditions**

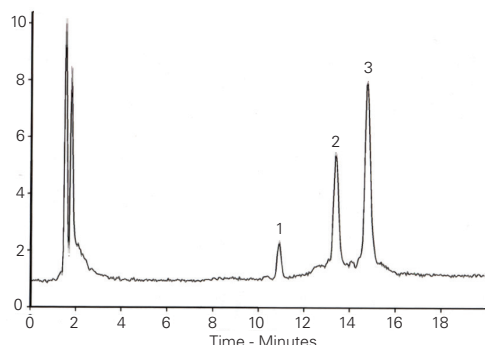
**Column:** ACE 3 C4-300  
**Dimensions:** 150 x 2.1 mm  
**Part Number:** ACE-213-1502  
**Mobile Phase:** A: 0.5% formic acid in H<sub>2</sub>O  
 B: 0.5% formic acid in MeCN  
**Gradient:**

Time (mins)	%B
0	35
16	43
17	80
20	80
21	35
31	35

  
**Flow Rate:** 0.4 mL/min  
**Injection:** 10 µL  
**Temperature:** 40 °C  
**Detection:** ESI-MS (+ve)

**Analytes**

1. α-Lactalbumin
2. β-Lactoglobulin B
3. β-Lactoglobulin A



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## Wine Acid Analysis

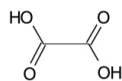
Application #AN1890

## Conditions

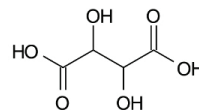
**Column:** ACE Excel 3 C18-Amide  
**Dimensions:** 250 x 2.1 mm  
**Part Number:** EXL-1112-2502U  
**Mobile Phase:** 40 mM ammonium phosphate pH 2.5 in H<sub>2</sub>O  
**Flow Rate:** 0.21 mL/min  
**Injection:** 5  $\mu$ L  
**Temperature:** 25  $^{\circ}$ C  
**Detection:** UV, 214 nm

## Analytes

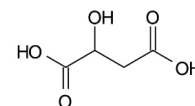
1. Oxalic acid
2. Tartaric acid
3. Malic acid
4. Lactic acid
5. Ascorbic acid
6. Citric acid



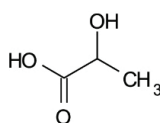
Oxalic acid



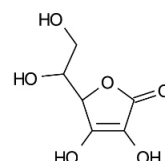
Tartaric acid



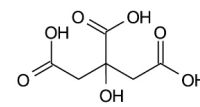
Malic acid



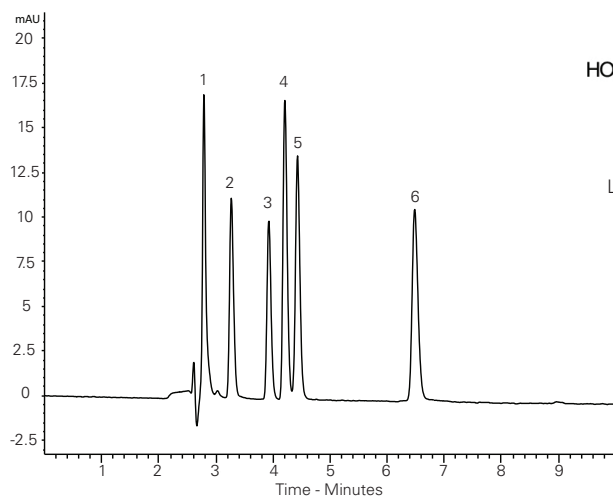
Lactic acid



Ascorbic acid



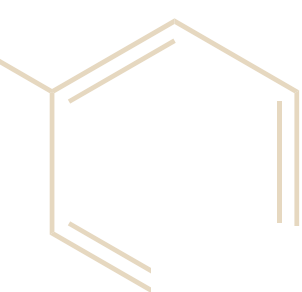
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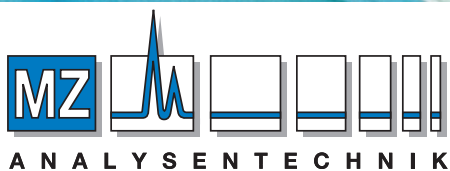
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