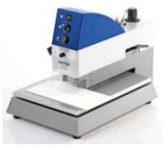
Analysis of Paracetamol in different formulations with TLC – MS

Application details

The paracetamol content of three highly complex matrices: suppositories, syrup, pills and of several standards was analyzed.
The analysis of Paracetamol is performed using an elution based “TLC – MS interface” coupled with an “expression CMS”. Because of the high matrix tolerance of TLC, very easy sample preparation methods can be applied for suppositories, pain syrup and pills.



TLC – MS Interface

expression CMS

Chromatographic Conditions	
Plate	HPTLC Silica gel 60 F_{254} MS-grade, 20x10 cm
Application volume	0.3 – 1 µL
System	TLC – MS Interface (Camag) coupled with expression CMS (Advion)
Detection	UV 254 nm ESI (+) mode MS (m/z 100 – 300)
Migration distance	5 cm
Migration time	9 min
Mobile Phase	Acetone / Toluene 1:1 + 0.1% acetic acid
Extraction solvent	Acetonitrile / Water 95:5 + 0.1% formic acid
Extraction flow	0.1 mL/ min
Sample preparation	Suppository: One suppository containing 125 mg Paracetamol dissolved in 125 mL ethanol at 36°C. Pain syrup: 0.2 mL Paracetamol pain syrup containing 4% Paracetamol dissolved in 7.8 mL methanol. Pill: One pill containing 500 mg Paracetamol dissolved in 500 mL methanol, filtered with 0.45 µm Millex® syringe filter. All samples were applied directly.
Sample application	Using the ATS4 sample applicator (CAMAG) 6 mm bandwise

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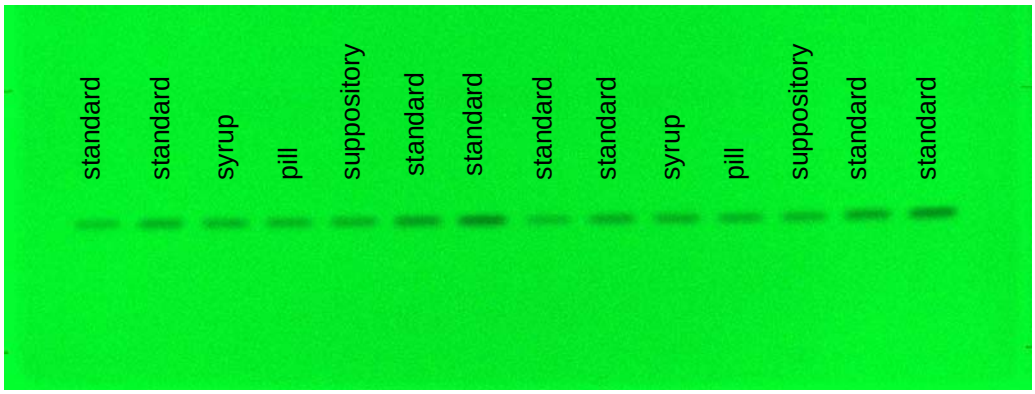
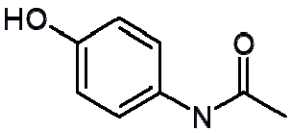
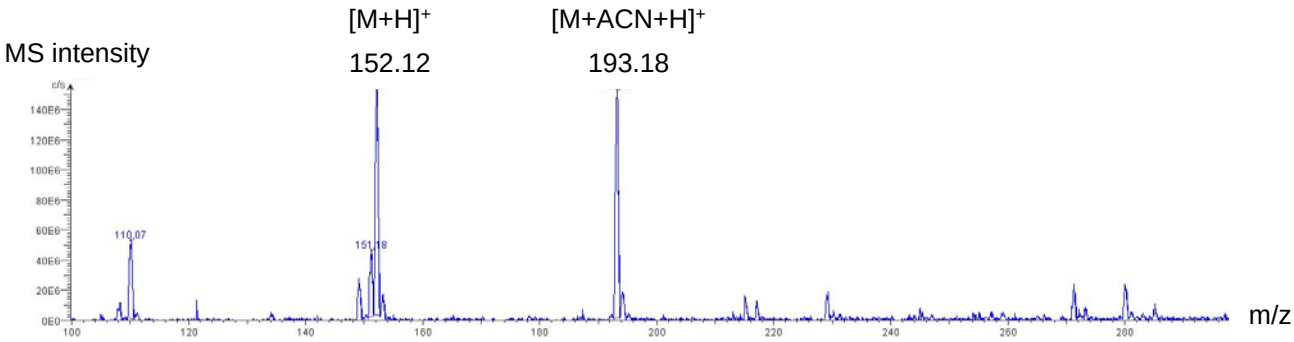




Paracetamol
151.16 g/ mol



Chromatographic Data

Track	Compound	Concentration	Applied volume	hRf	Detected mass *m/z* g/ mol
1, 8	Paracetamol Standard	0.3 mg/ mL	1 µL	45	
2, 9	Paracetamol Standard	0.5 mg/ mL	1 µL	45	
3, 10	Paracetamol syrup	0.5 mg/ mL	1 µL	45	152.1 / 193.2
4, 11	Paracetamol pill	0.5 mg/ mL	1 µL	45	152.1 / 193.2
5, 12	Paracetamol suppository	0.5 mg/ mL	1 µL	45	152.1 / 193.2
6, 13	Paracetamol Standard	0.7mg/ mL	1 µL	45	
7, 14	Paracetamol Standard	1.0 mg/ mL	1 µL	45	

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Ordering information

- HPTLC silica gel 60 F_{254} MS-grade 25 glass plates 20x10cm (Cat. No. 100934)
- Acetone for liquid chromatography LiChrosolv® (Cat. No. 100020)
- Toluene for liquid chromatography LiChrosolv® (Cat. No. 108327)
- Acetonitrile hypergrade for LC-MS LiChrosolv® (Cat. No. 100029)
- Water for chromatography LiChrosolv® (LC-MS) (Cat. No. 115333)
- Formic acid 98-100% for analysis EMSURE® (Cat. No. 100264)
- Millex® syringe driven filter unit (hydrophilic LCR, PTFE) (Cat. No. SLCR025NS)

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