Alltesta HPLC Analyzer

Analysis of Pesticides, Dyes, and Drugs

SIELC

"Your Analysis. Your Life. Simplified."

Affordability. Accuracy. Assurance.

With over 50,000 packed columns, 20 proprietary phases, and dozens of years of HPLC experience, SIELC Technologies knows chromatography.

Today, SIELC is proud to introduce the **Alltesta HPLC-Based Analyzer**: the simple, cost-effective solution to HPLC separations that offers outstanding performance and superior repeatability.

Equip your lab with the latest in HPLC separation technology. The Alltesta HPLC-Based Analyzer offers a user-friendly interface designed for intuitive operation by non-experienced personnel.

The Analyzer is lightweight and streamlined in comparison to leading industry models, yet it does not compromise separation quality.

Maximize your efficiency. Minimize your footprint.
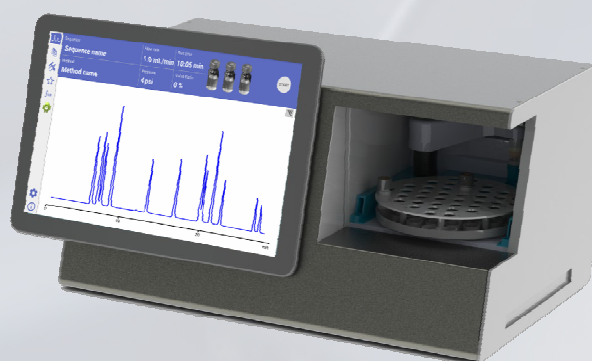
Alltesta Analyzer Small-Footprint Design

Easy on your Mind. Easy on your Budget. Just Plain Easy.

Minimal Sample Preparation.
Patented wash system uses a trap column and constant recovery wash to eliminate interference due to sample matrix and enable direct injection of complex samples, including milk.

No Bulky Hardware.
Away with the monitors, desktops, and towering HPLC machines. The Alltesta HPLC-Based Analyzer comes complete with all of the hardware required in its efficient 8"x13"x7" frame and 22 lbs.

Equipped for Out-of-the-Box Use.
Includes supplies for 200 analyses. Everything from vials and standard solutions, to the separation and trap columns, is included with the Alltesta HPLC-Based Analyzer. So you can get started right away.

Designed to Meet your Needs.
An adjustable needle depth, easily removable tray, flexible communication protocol, and up to 0.2 mL injection capacity are just some of the features that enable the Alltesta HPLC-Based Analyzer to fit your laboratory's requirements.

SIELC

Simplify your Separations.

A vast library of methods is at your fingertips, with separations averaging just 15 minutes.

All methods meet FDA and ICH specifications, leaving you one less detail to worry about.
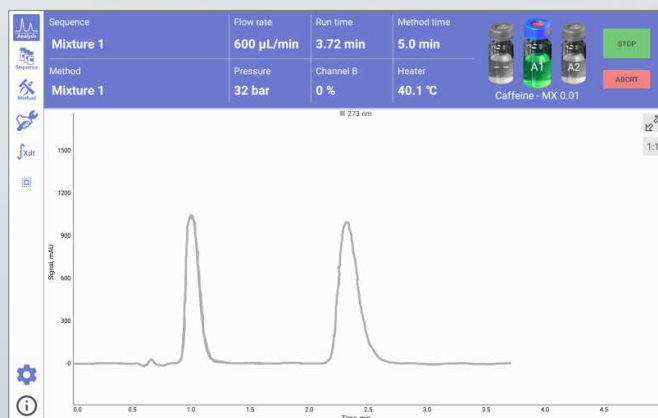
Streamlined Interface

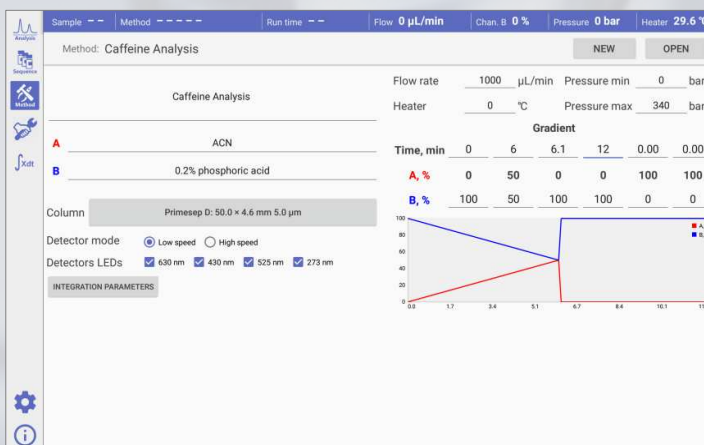# Experience the Analyzer's Renowned Sensitive Side.

Powerful Data Analysis

Detect trace amounts of analyte – down to 1 part per million.

Analyze data with superior precision, using a long-lasting light source with low noise and a start time of less than one minute.

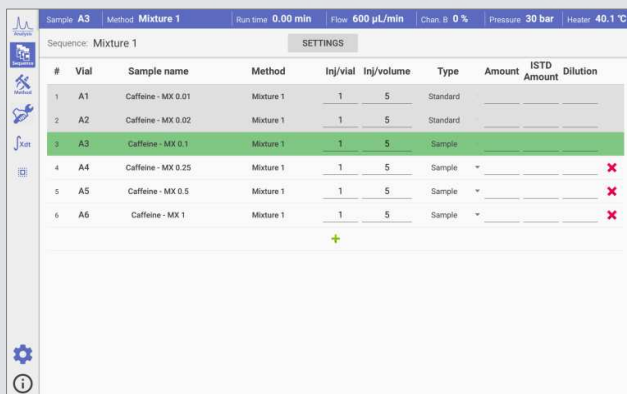# A Place in your Laboratory for the Analyzer. (A Small Place.)

Compact size and weight make the Alltesta HPLC-Based Analyzer the perfect choice for the laboratory seeking to maximize space efficiency without compromising powerful functionality.

Hassle-Free Experimental Setup

SiELC

Bring the Flow back to Workflow.

Easily navigable interface saves you time and headache.

Space-efficient panel layout means greater organization of experimental data and fewer windows to wade through.

Starts up in less than 1 minute, so you don't have to wait to separate.

Complete Confidence in the Alltesta HPLC-Based Analyzer.

Backed by a 1 year warranty and lifetime email and phone support. Guaranteed to fulfill your laboratory's needs. Trusted by numerous multinational organizations and government laboratories in the United States.

Have complete confidence in the friendly, knowledgeable scientists at SIELC, who have brought tens of thousands of columns and countless hours of method development services to companies all over the world, just like yours.
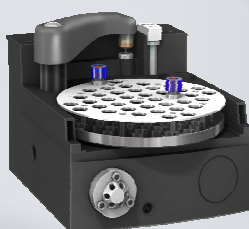
Have complete confidence in the Alltesta HPLC-Based Analyzer.

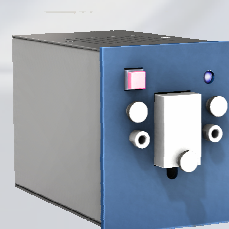**Full Line of Original Equipment Manufacturer (OEM) Products**

Pump   Autosampler   Detector

SIELC Technologies, Inc.
804 Seton Court, Wheeling, IL 60090
(847) 299-2629
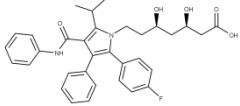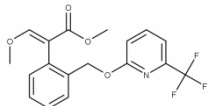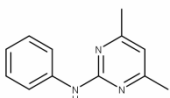mail@sielc.com

Analysis of Pesticides & Contaminants
Contaminants in Tea

Pesticides, which include herbicides, fungicides, and insecticides, are essential to the agriculture industry as a means of maximizing crop yields. However, these compounds often persist through the manufacturing process and appear in consumer products, where they may cause unknown health effects.

This analysis includes several common pesticides, as well as other chemicals known to contaminate food and natural water sources.

* * * *

Column: **Primesep 200**
Size: 4.6 x 150 mm
Mobile phase: 50% MeCN, 0.05% H_3PO_4
Flow: 1.0 mL/min
Detection: 270 nm

Sample preparation:
- Tea spiked with 0.005 mg/mL in 1:1 MeCN:water

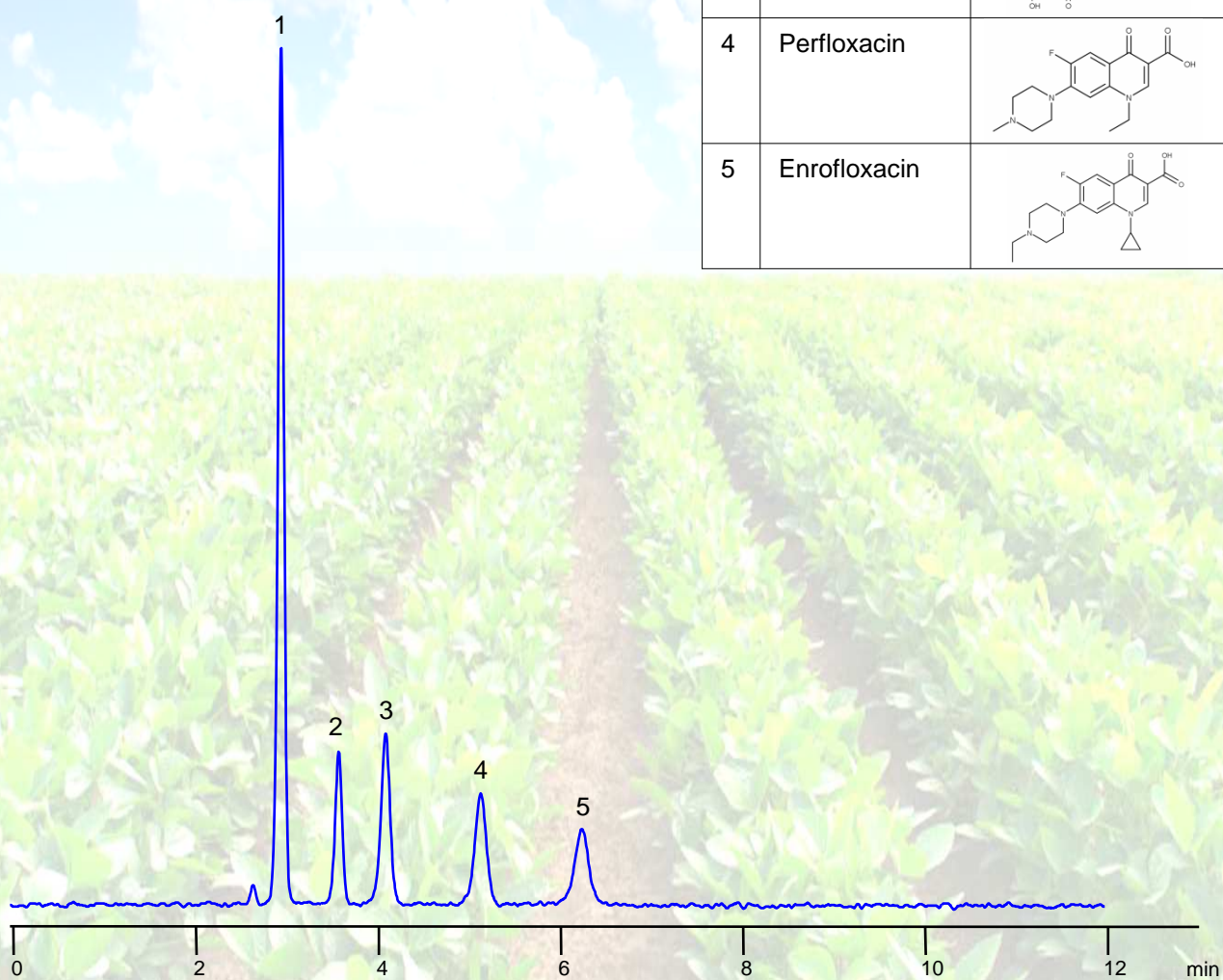| #	Compound	Structure
1	Atorvastatin	
2	Picoxystrobin	
3	Pyrimethanil	

Black Tea
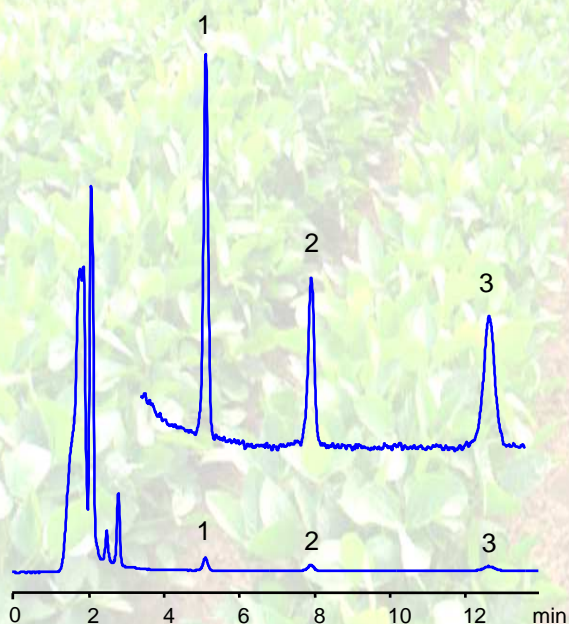
Green Tea
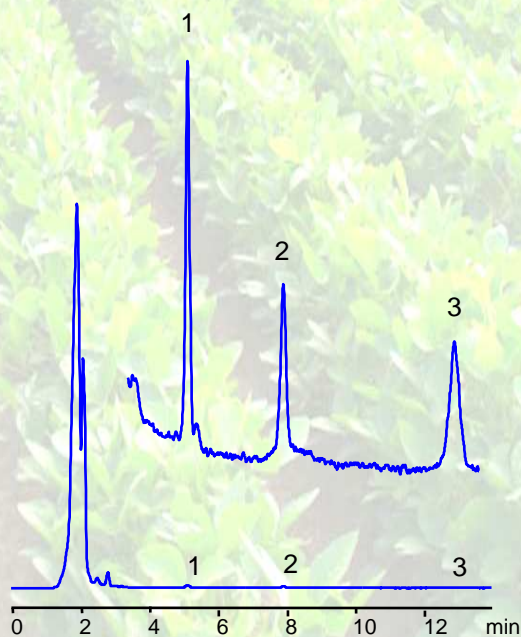
Analysis of Pesticides & Contaminants
Antibiotics in Seafood

Column: **Primesep 100**
Size: 4.6 x 150 mm
Mobile phase: 50% MeCN, 0.20% H_2SO_4
Flow: 1.0 mL/min
Detection: 270 nm

Sample preparation:
- 0.02 mg/mL in 1:1 MeCN:water

#	Compound	Structure
1	Oxolinic acid	
2	Flumequine	
3	Ciprofloxacin	
4	Perfloxacin	
5	Enrofloxacin	
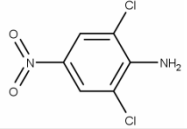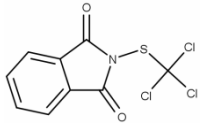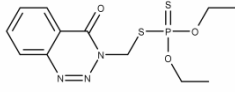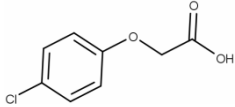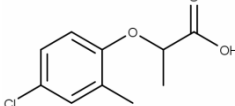
Analysis of Pesticides & Contaminants
Pesticides in a Mixture

Column: **Primesep D**
Size: 3.2 x 50 mm
Mobile phase: 35% MeCN, 0.30% H_3PO_4
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 1 mg/mL in 1:1 MeCN:water

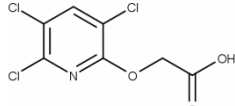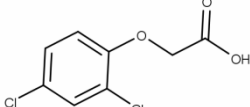| #	Compound	Structure
1	Dichloran	
2	Folpet	
3	Azinphos-ethyl	
4	4-Chloro-phenoxyacetic acid	
5	Mecoprop	
6	Triclopyr	
7	2,4-Dichloro-phenoxyacetic acid	
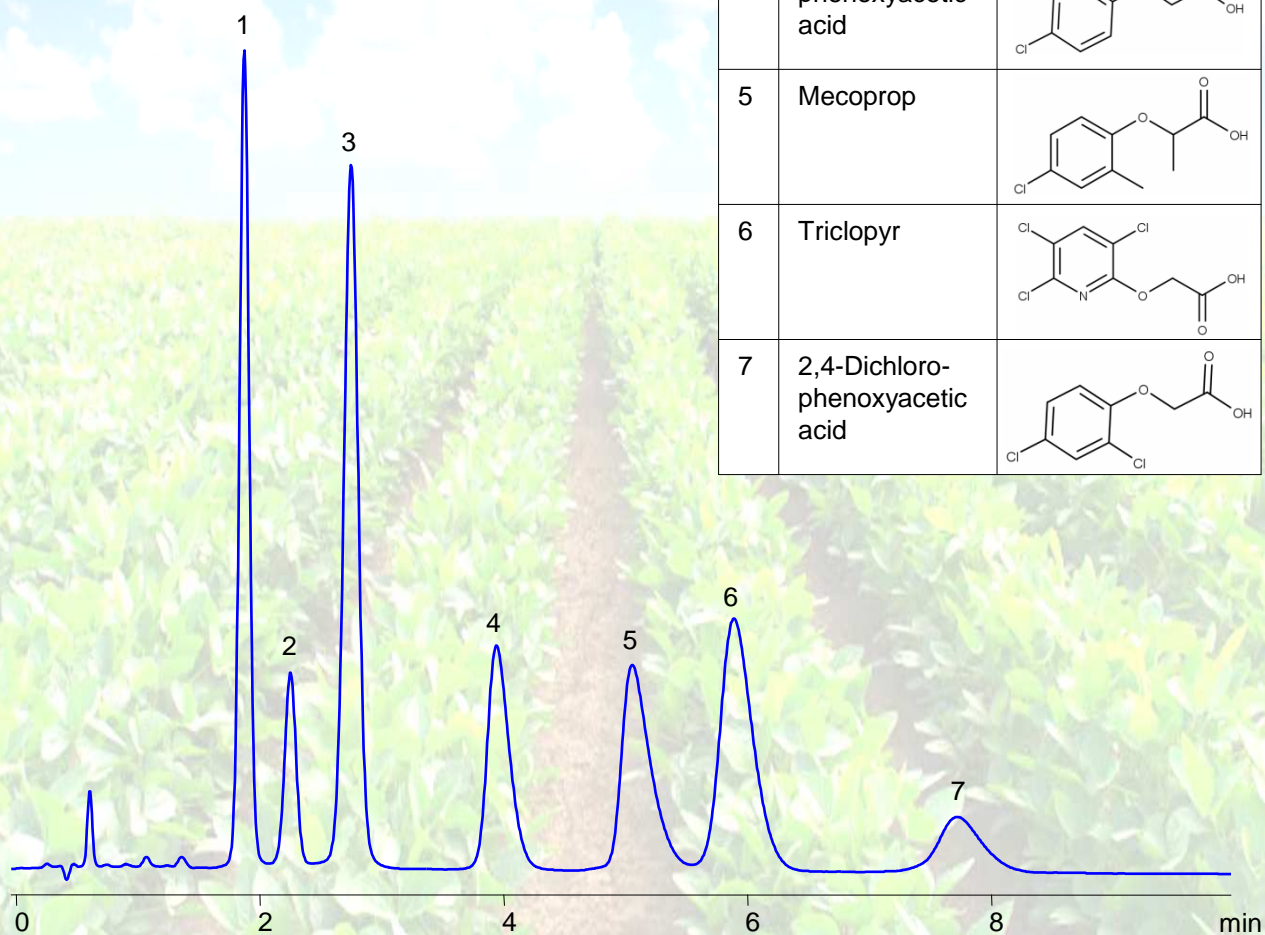
Analysis of Pesticides & Contaminants
Pesticides in a Mixture

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: 40% MeCN, 0.30% H_3PO_4
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 1 mg/mL in 1:1 MeCN:water
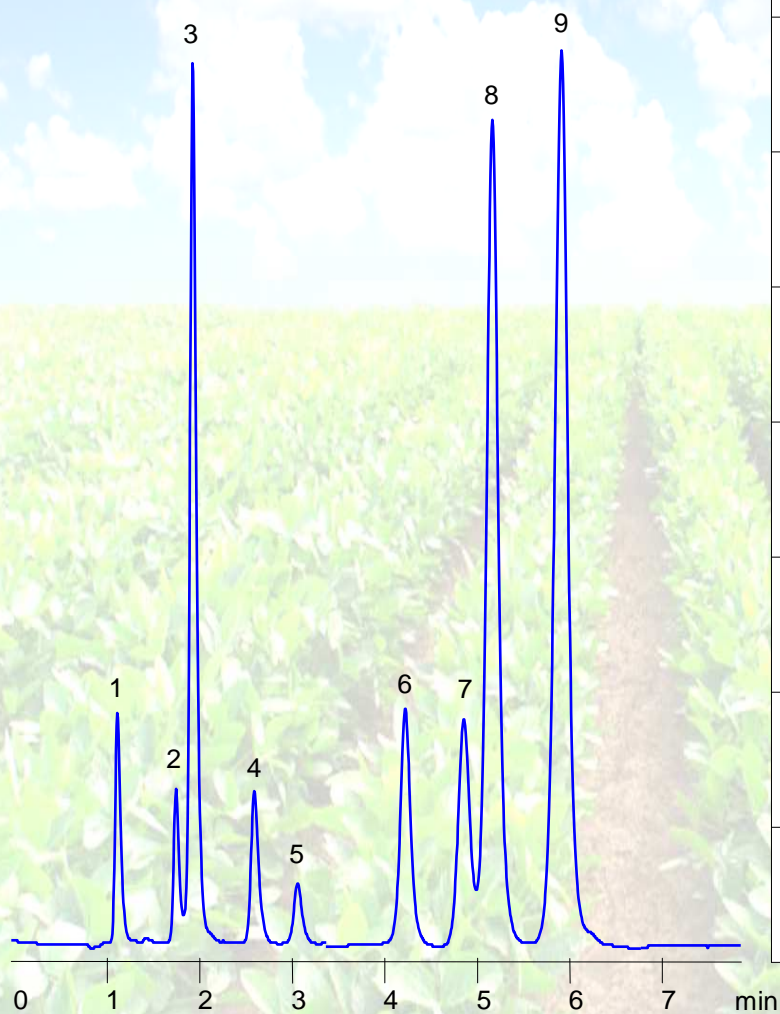
#	Compound	Structure
1	Monocrotophos	
2	Thiabendazole	
3	Carbofuran	
4	Carboxin	
5	Diphenamid	
6	Triadimefon	
7	Folpet	
8	Dichloro-butrazole	
9	Diazinon	
10	Azinphos-ethyl	

Analysis of Pesticides & Contaminants

Pesticides in a Mixture

Column: **Primesep D**
Size: 3.2 x 100 mm
Mobile phase: 45% MeCN, 0.15% H_3PO_4
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 1 mg/mL in 1:1 MeCN:water

#	Compound	Structure
1	1-Naphthylacetic acid	
2	2,4-DB	
3	Benfluralin	
4	MCPA	
5	2-Naphthoxy-acetic acid	
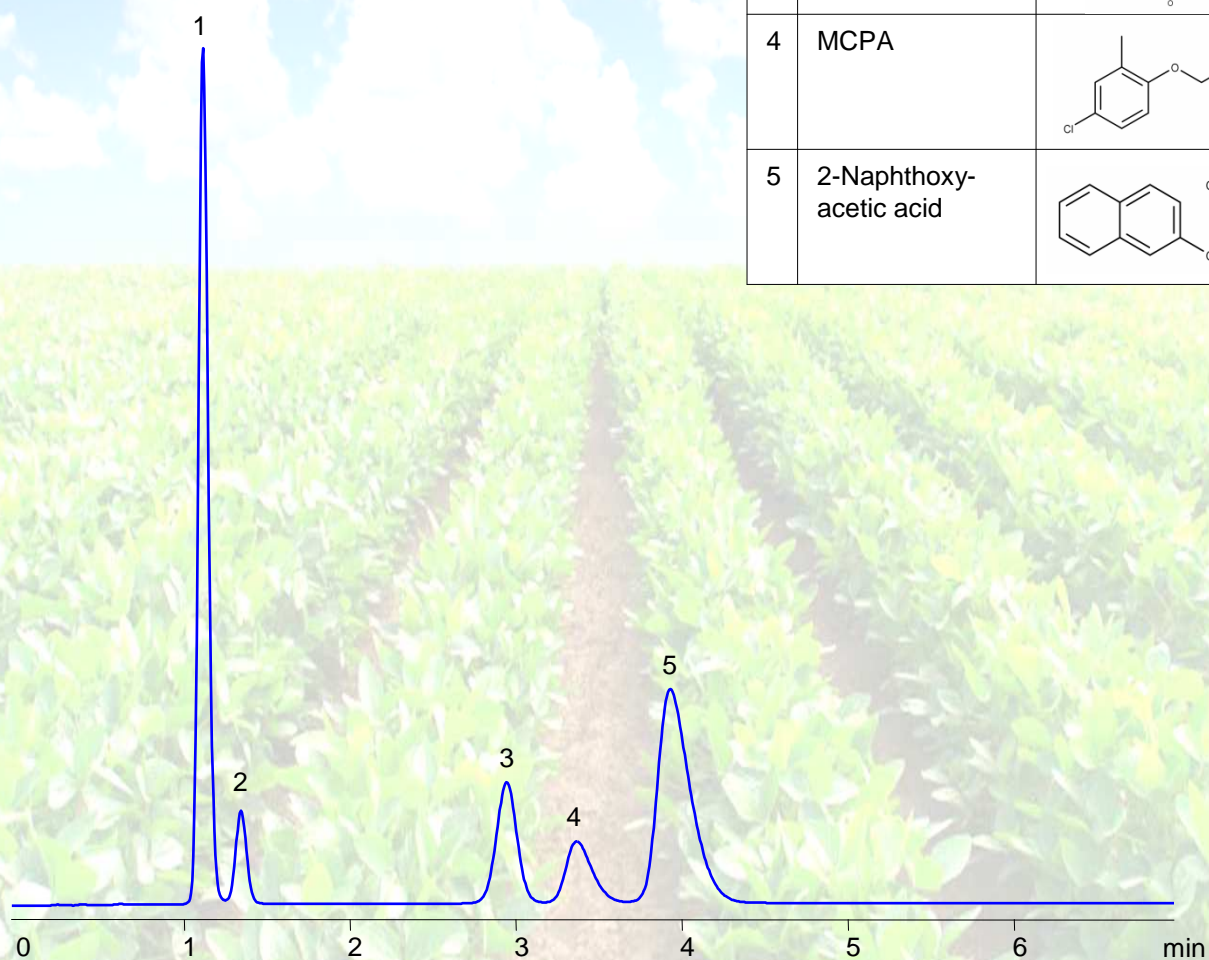
Analysis of Food Dyes in Consumer Products
Dyes in a Mixture

Despite the abundant use of artificial coloring agents by food, beverage, and pharmaceutical manufacturers to enhance their products' appearance, food dyes are tightly regulated because of health concerns regarding their use.

Of the 7 dyes generally permitted in consumer products by the Food and Drug Administration (FDA), the following 5 dyes were analyzed:

• Brilliant Blue (Blue #1)
• Sunset Yellow (Yellow #6)
• Allura Red (Red #40)
• Tartrazine (Yellow #5)
• Erythrosine (Red #3)

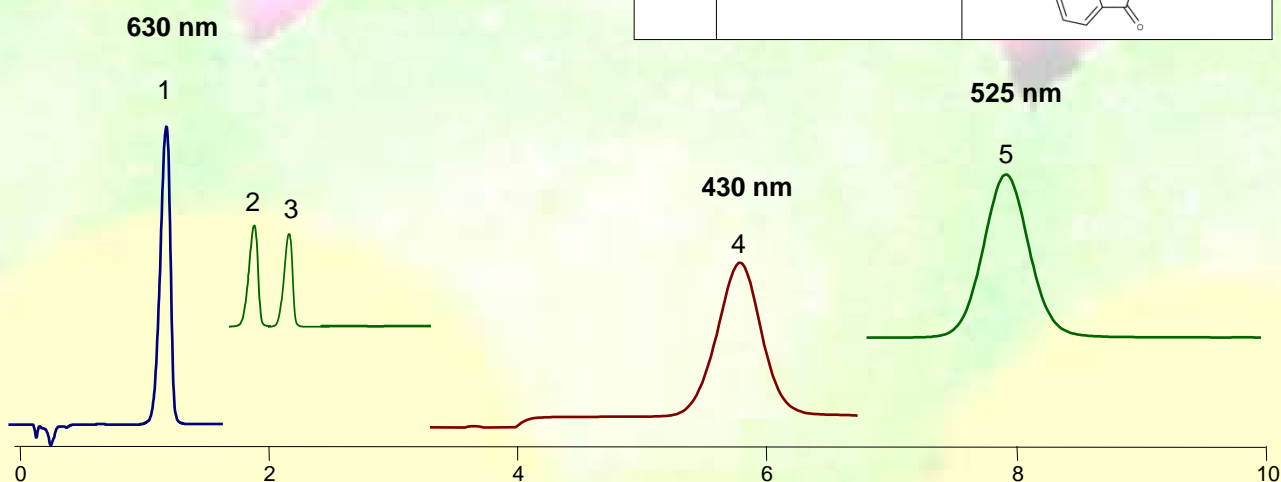The remaining dyes are Indigo Carmine (Blue #2) and Fast Green FCF (Green #3).

* * * *

Column: **Obelisc N**
Size: 3.2 x 50 mm
Mobile phase: MeCN 50%; AmFm pH 3.0, 70 mmol
Flow rate: 0.6 mL/min

Sample preparation:
- *0.1 mg/mL solutions of dyes were prepared in water*
- *1 drop of each solution was combined and diluted with 1 mL of 1:1 MeCN:water*

#	Compound	Structure
1	Brilliant Blue (Blue #1)	
2	Sunset Yellow (Yellow #6)	
3	Allura Red (Red #40)	
4	Tartrazine (Yellow #5)	
5	Erythrosine (Red #3)	

Analysis of Food Dyes in Consumer Products
Relative Abundance of Allura Red in Soft Drinks

#	Product	Image
1	Powerade Zero Fruit Punch	
2	Nice! Black Raspberry	
3	Sparkling Ice Cherry Limeade	
4	Sparkling Ice Pink Grapefruit	
5	Mountain Dew Livewire	

Column: Obelisc N
Size: 3.2 x 50 mm
Mobile phase: MeCN 50%; AmFm pH 3.0, 70 mmol
Flow rate: 0.6 mL/min
Detection: 525 nm

Sample preparation:
- 0.02 mg/mL in 1:1 MeCN:water
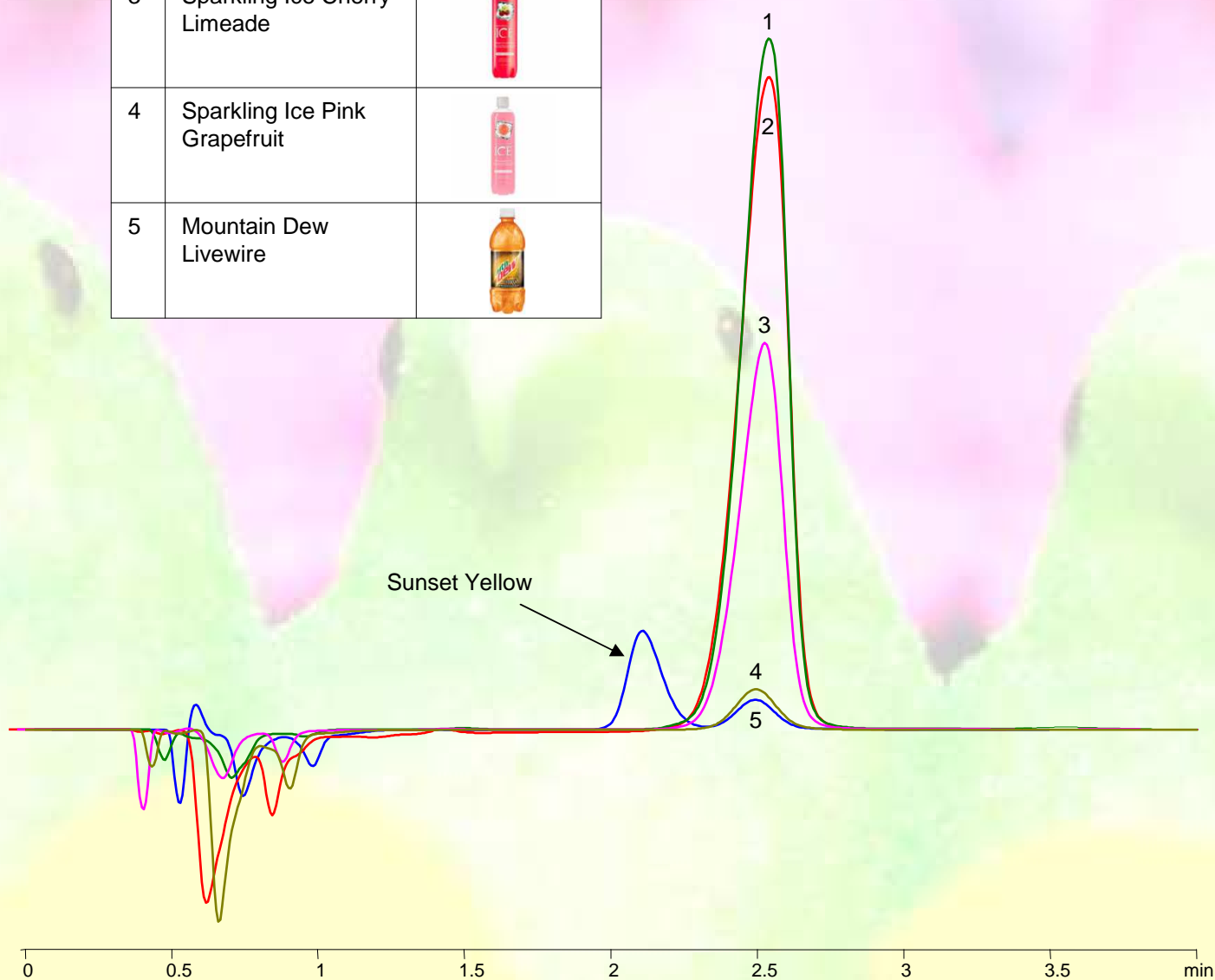
Analysis of Food Dyes in Consumer Products
Relative Abundance of Allura Red in OTC Drugs

Column: Obelisc N
Size: 3.2 x 50 mm
Mobile phase: MeCN 50%; AmFm pH 3.0, 70 mmol
Flow rate: 0.6 mL/min
Detection: 525 nm

Sample preparation:
- 0.02 mg/mL in 1:1 MeCN:water

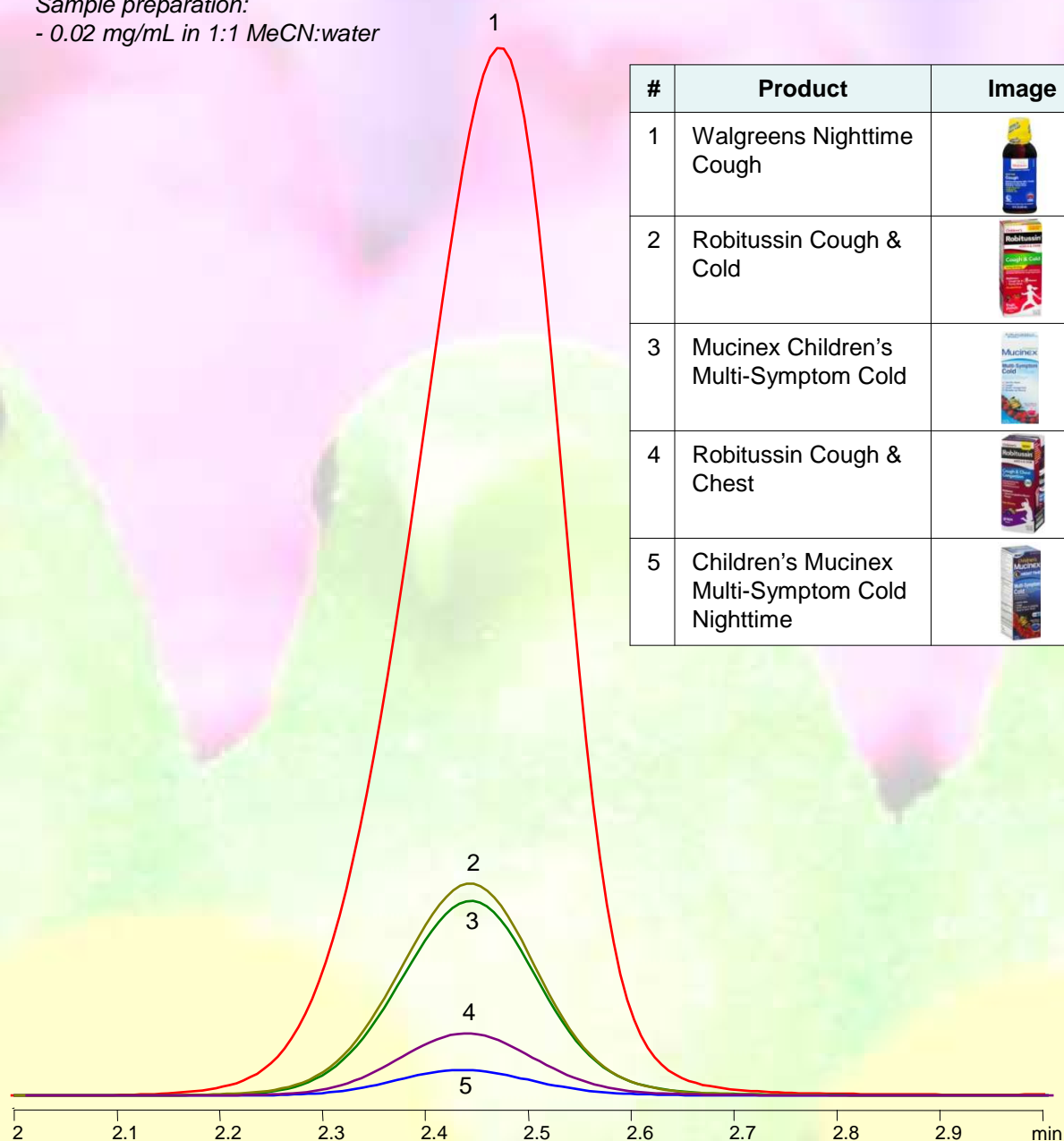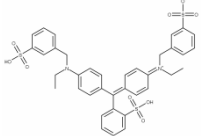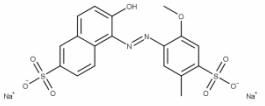| #	Product	Image
1	Walgreens Nighttime Cough	
2	Robitussin Cough & Cold	
3	Mucinex Children's Multi-Symptom Cold	
4	Robitussin Cough & Chest	
5	Children's Mucinex Multi-Symptom Cold Nighttime	

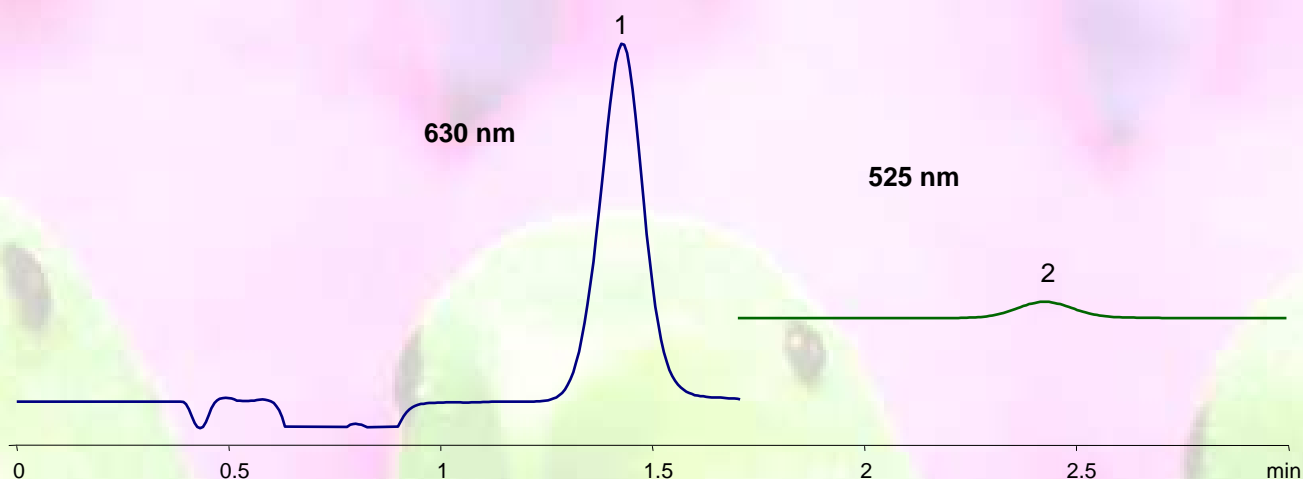# Analysis of Food Dyes in Consumer Products
Dyes in OTC Drugs

Children's Mucinex Multi-Symptom Cold Nighttime

Column: **Obelisc N**
Size: 3.2 x 50 mm
Mobile phase: MeCN 50%; AmFm pH 3.0, 70 mmol
Flow rate: 0.6 mL/min

Sample preparation:
- 1 mL was diluted 10-fold in   1:1 MeCN:water

#	Compound	Structure
1	Brilliant Blue	
2	Allura Red	

630 nm

525 nm

Walgreens Cold & Flu Non-Drowsy Daytime

Column: **Obelisc N**
Size: 3.2 x 50 mm
Mobile phase: MeCN 50%; AmFm pH 3.0, 70 mmol
Flow rate: 0.6 mL/min

Sample preparation:
- 1 mL was diluted 10-fold in 1:1 MeCN:water

#	Compound	Structure
1	Sunset Yellow (Yellow #6)	

525 nm

Analysis of Food Dyes in Consumer Products
Dyes in OTC Drugs

Dimetapp Cold & Cough

Column: **Obelisc N**
Size: 3.2 x 50 mm
Mobile phase: MeCN 50%; AmFm pH 3.0, 70 mmol
Flow rate: 0.6 mL/min

Sample preparation:
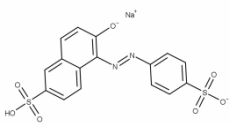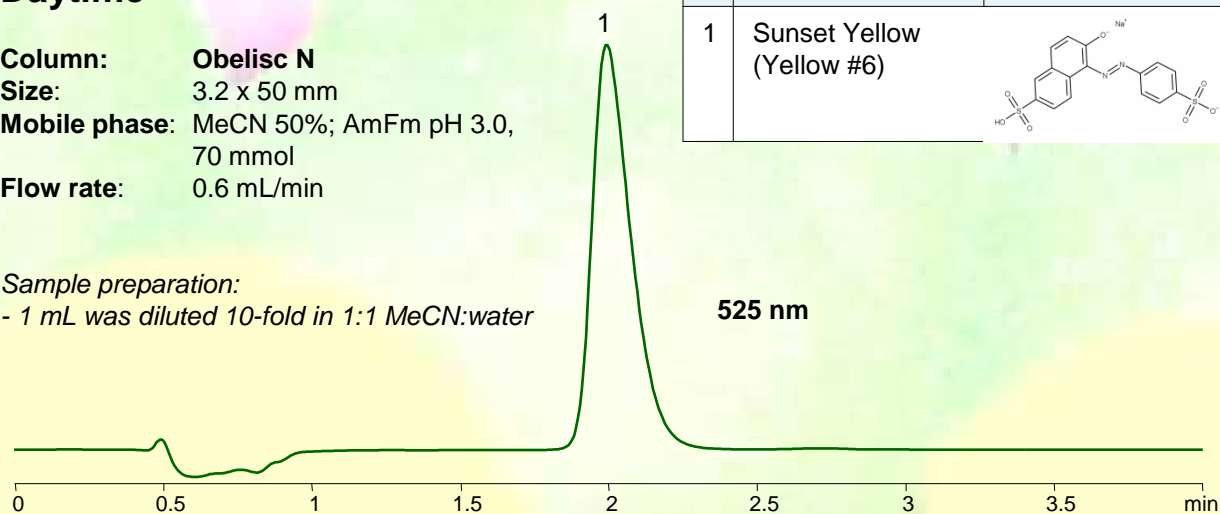*- 1 mL was diluted 10-fold in 1:1 MeCN:water*

#	Compound	Structure
1	Brilliant Blue	
2	Allura Red	
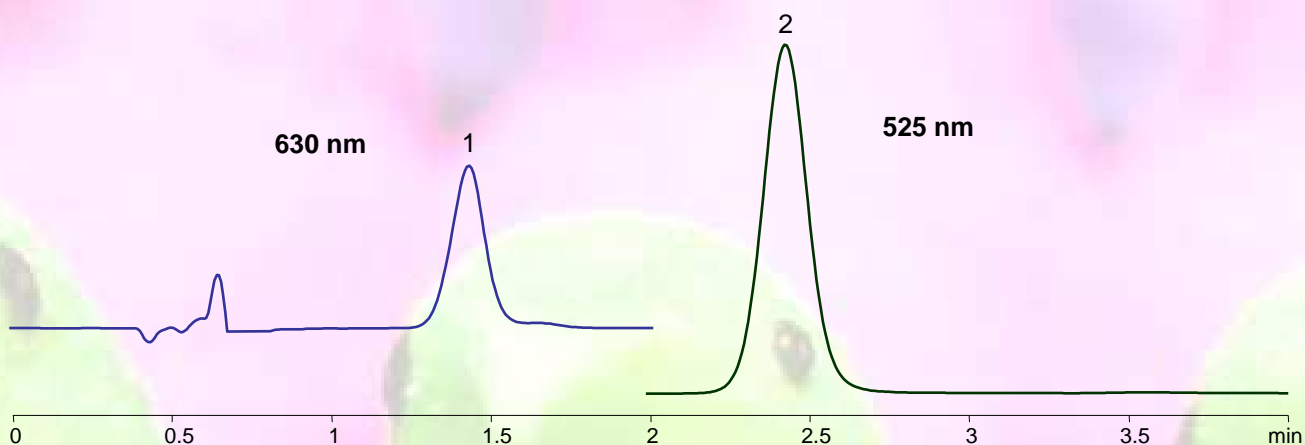
Robitussin Cough & Chest

Column: **Obelisc N**
Size: 3.2 x 50 mm
Mobile phase: MeCN 50%; AmFm pH 3.0, 70 mmol
Flow rate: 0.6 mL/min

Sample preparation:
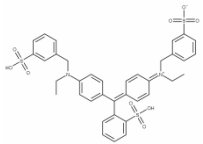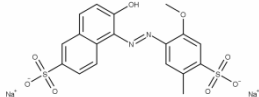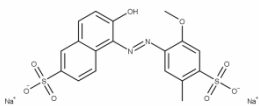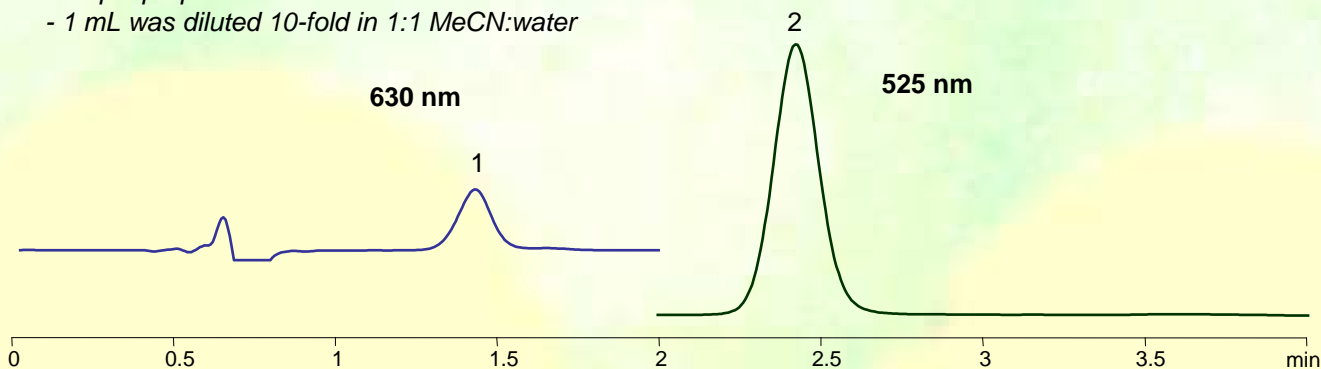*- 1 mL was diluted 10-fold in 1:1 MeCN:water*

#	Compound	Structure
1	Allura Red	

Analysis of Prescription and Over-the-Counter Drugs
Blood-Thinning Medications

Prescription drugs differ from over-the-counter (OTC) drugs in that they are vulnerable to misuse and abuse, and thus require a prescription. Compared to OTC drugs, prescription drugs:

1. Treat conditions that may require care from a medical professional
2. Contain active ingredients that may inherently be more potent or present in higher concentrations
3. Cause effects that may be psychoactive in nature
4. Target microorganisms and may contribute to microorganism resistance
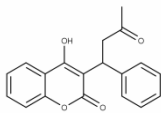
For these reasons, prescription drugs are tightly regulated by the Food and Drug Administration (FDA). The following chromatographic analysis includes a diverse sampling of prescription and OTC drugs.

* * * *

Warfarin

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 25-70% in 5 min, 4 min hold
H_3PO_4 0.05% to 0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 1 mg/mL in 1:1 MeCN:water

#	Compound	Structure
1	Warfarin	

Analysis of Prescription and Over-the-Counter Drugs
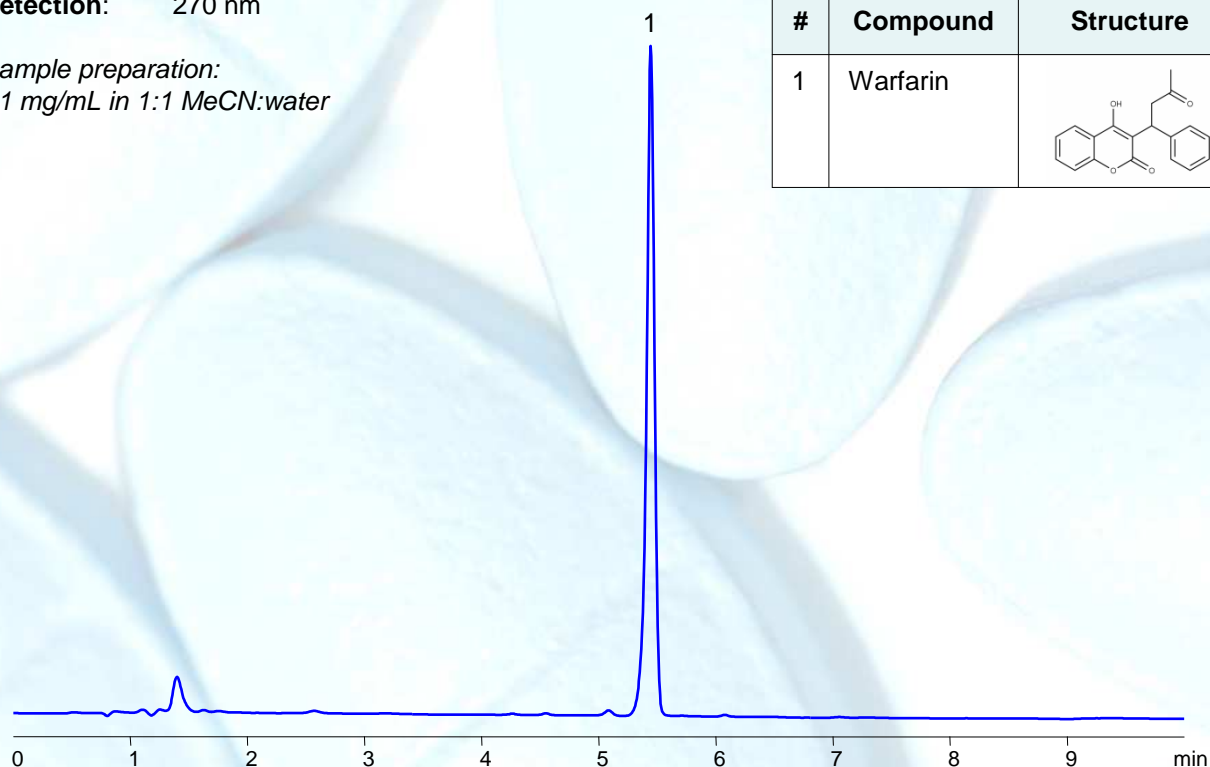## *Antihypertensive Medications*

Bystolic

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN from 30-65% in 5 min, 4 min hold
H_3PO_4 from 0.05-0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 1 mg/mL in 1:1 MeCN:water

#	Compound	Structure
1	Bystolic	

Atenolol

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN from 5-50% in 5 min, 4 min hold
H_3PO_4 from 0.05-0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
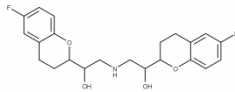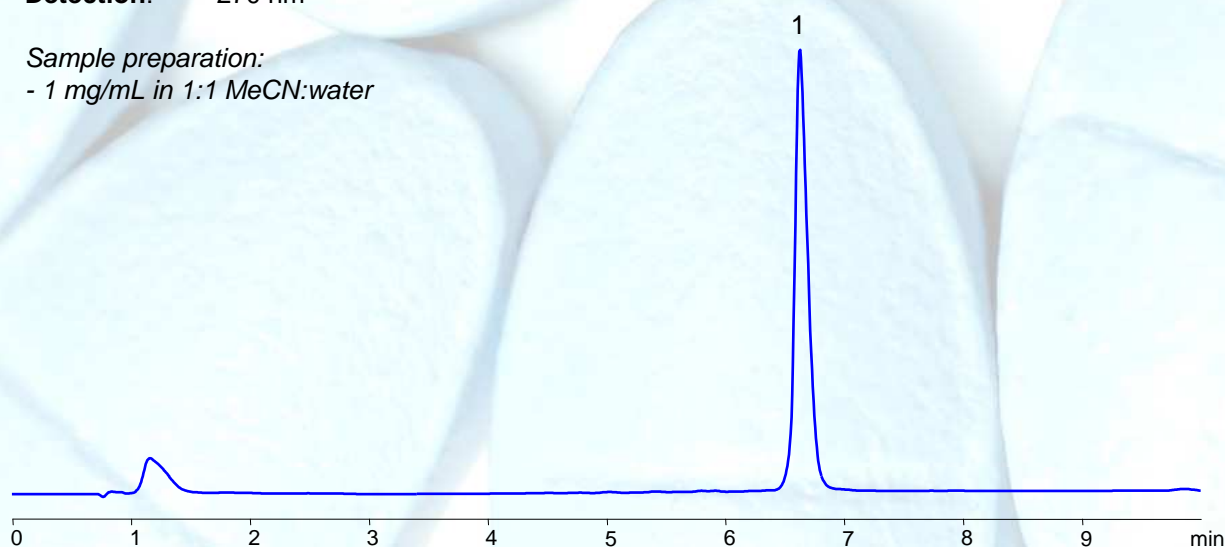*- 1 mg/mL in 1:1 MeCN:water*

#	Compound	Structure
1	Atenolol	

Analysis of Prescription and Over-the-Counter Drugs
Anti-Inflammatory Medications

Hydrocortisone

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN from 5-50% in 5 min, 4 min hold
H$_3$PO$_4$ from 0.05-0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
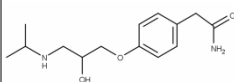**Detection**: 270 nm

Sample preparation:
- 1 mg/mL in 1:1 MeCN:water
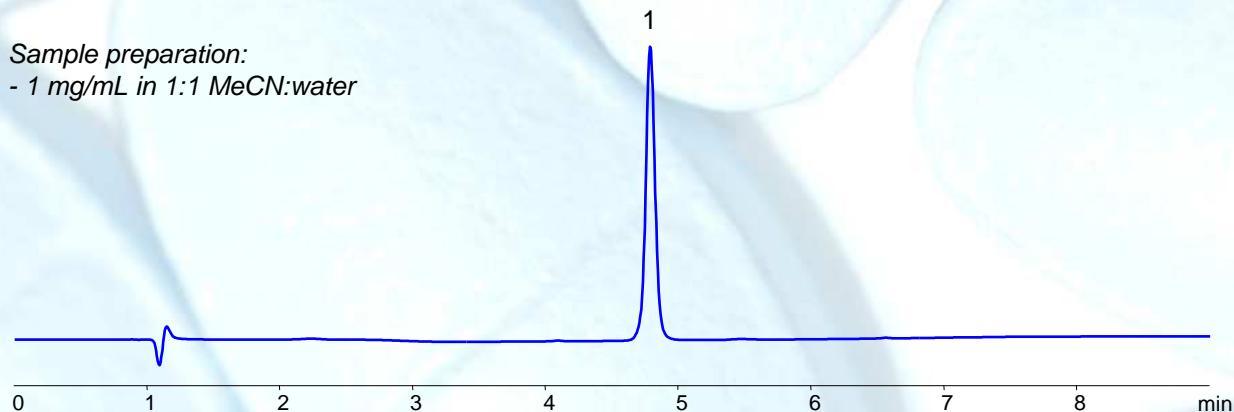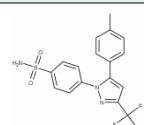
#	Compound	Structure
1	Hydro-cortisone	
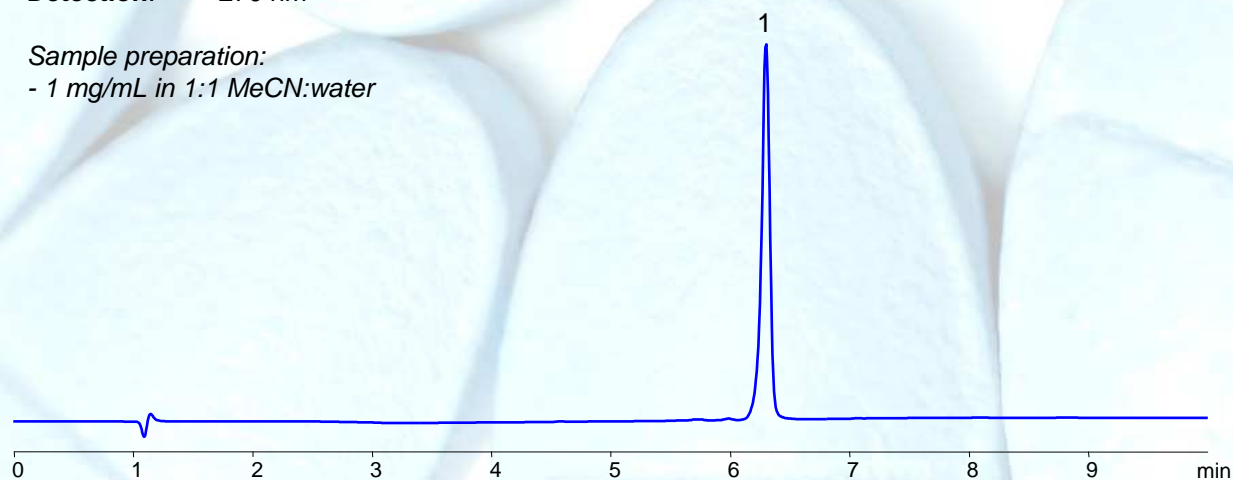
Celebrex

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 40% with 0.1% H$_3$PO$_4$
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 1 mg/mL in 1:1 MeCN:water

#	Compound	Structure
1	Celebrex	

Analysis of Prescription and Over-the-Counter Drugs
Painkiller Medications

Butorphanol

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 5-50% in 5 min, 4 min hold
    H_3PO_4 0.05% to 0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 1 mg/mL in 1:1 MeCN:water
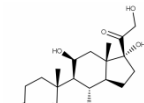
#	Compound	Structure
1	Butorphanol	
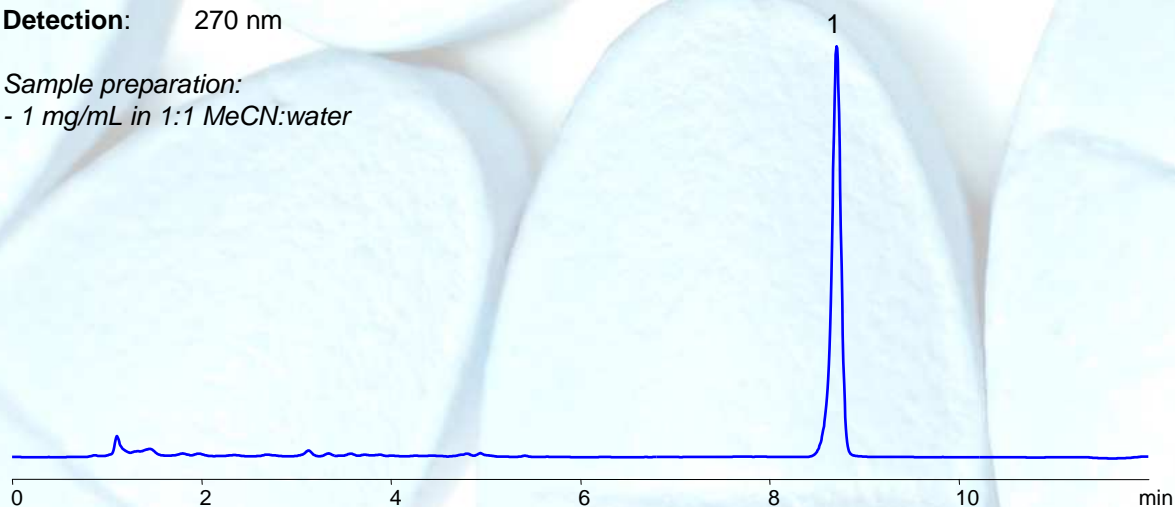
Co-Codamol

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 5-50% in 5 min, 4 min hold
    H_3PO_4 0.05% to 0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
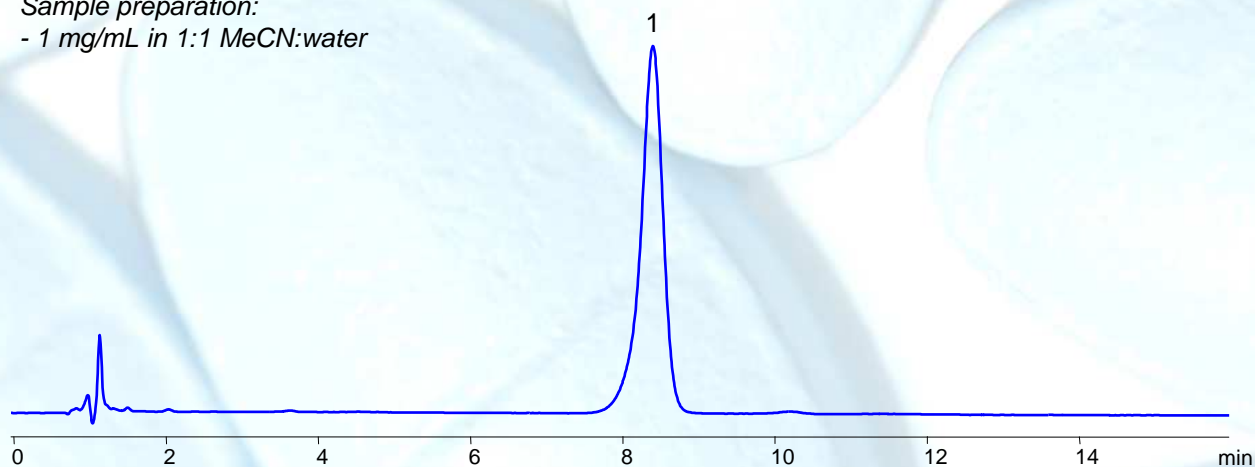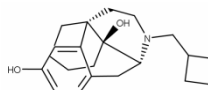*- 1 mg/mL in*
* 1:1 MeCN:water*

#	Compound	Structure
1	Acetaminophen	
2	Codeine	

Analysis of Prescription and Over-the-Counter Drugs
Cholesterol Medications

Atorvastatin (Lipitor)

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 30-65% in 5 min, 4 min hold
H_3PO_4 0.05-0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 1 mg/mL in 1:1 MeCN:water

#	Compound	Structure
1	Atorvastatin	
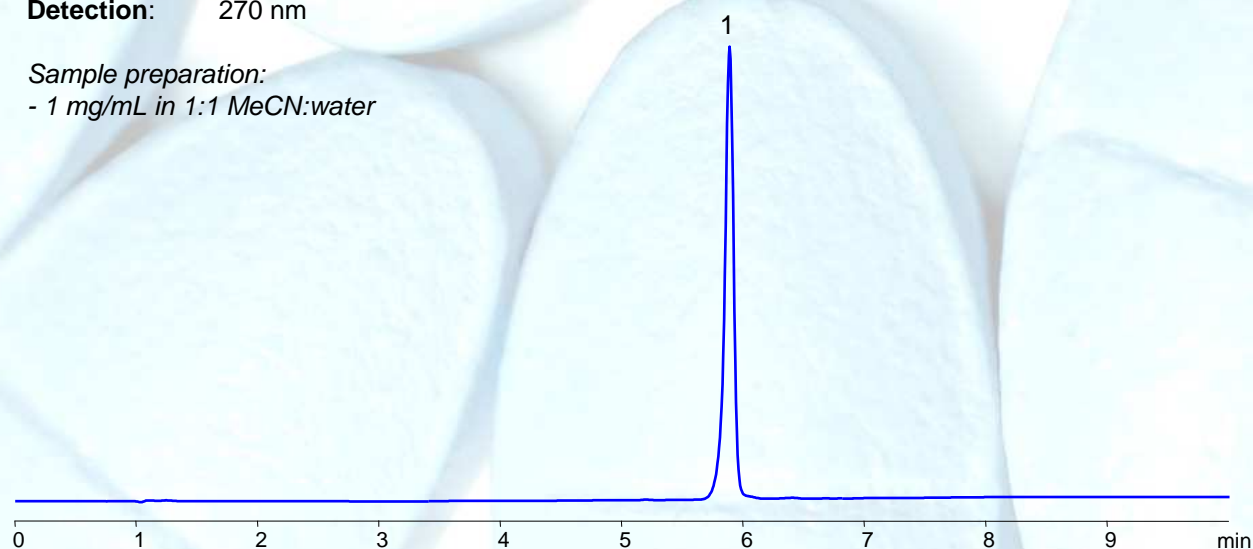
Rosuvastatin (Crestor)

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 5-50% in 5 min, 4 min hold
H_3PO_4 0.05-0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
Detection: 270 nm
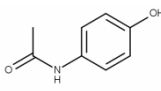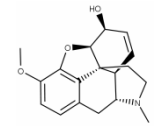
Sample preparation:
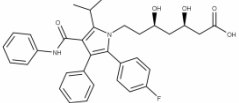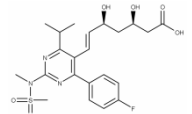*- 1 mg/mL in 1:1 MeCN:water*

#	Compound	Structure
1	Rosuvastatin	
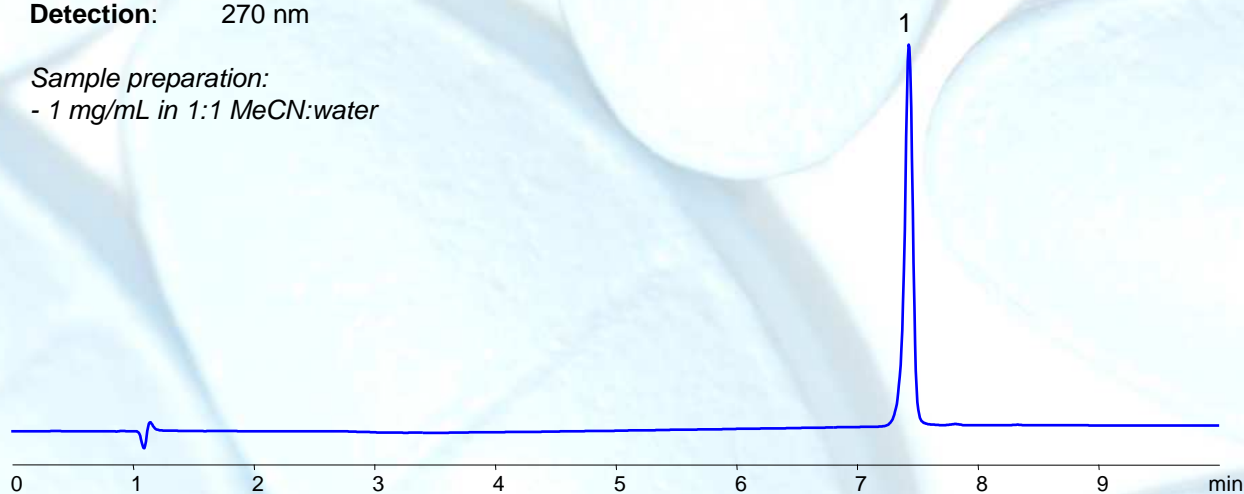
Analysis of Prescription and Over-the-Counter Drugs
Antibiotics in a Mixture

Column: **Obelisc R**
Size: 4.6 x 150 mm
Mobile phase: MeCN 0-25% in 6 min, then 70% for 14 min
Formic acid 0.05-0.3% in 6 min, 14 min hold
Flow: 1.0 mL/min
Detection: UV 270 nm

Sample preparation:
- 0.1 mg/mL was dissolved in 1:1 MeCN:water

#	Compound	Structure
1	Sulphanilamide	
2	Sulfaguanidine	
3	Sulfadiazine	
4	Norfloxacin	
5	Tylosin	
6	Josamycin	
7	Dapsone	
8	Sulphaquino-xaline	
9	Flumequine	
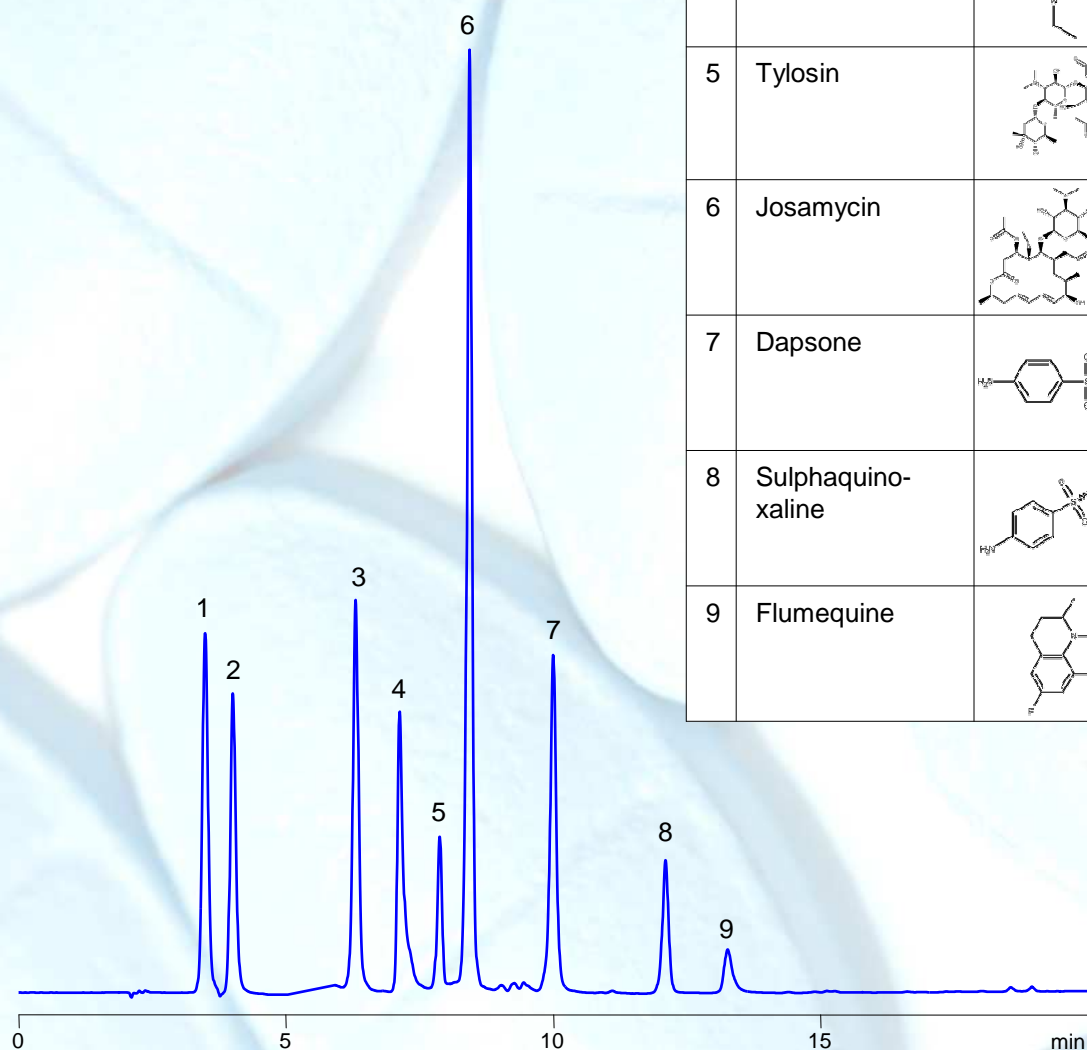
Analysis of Prescription and Over-the-Counter Drugs
Over-the-Counter Drugs

Tylenol Severe Allergy Maximum Strength Nighttime
Mini Tabs – 24 count

Active Ingredients	Amount (per caplet)
Diphenhydramine HCl	12.5 mg
Pseudoephedrine HCl	30 mg
Acetaminophen	500 mg

Inactive ingredients: carnauba wax, cellulose, corn starch, D&C Yellow #10, FD&C Blue #1, hypromellose, iron oxide, magnesium stearate, polyethylene glycol, polysorbate 80, sodium citrate, sodium starch glycolate, titanium dioxide

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: Gradient MeCN 5-50% in 5 min, 4 min hold
H2SO4 gradient 0.03% to 0.2% in 5 min, 4 min hold
Flow: 0.6 mL/min
Detection: UV 270 nm

Sample preparation:
- 1 mini tab was crushed using a mortar and pestle
- Crushed mini tab was mixed with 25 mL of 1:1 MeCN:water and stirred for 15 min
- Mixture was filtered using a 0.45 um HPLC syringe filter

#	Compound	Structure
1	Acetaminophen	
2	Pseudoephedrine	
3	Diphenhydramine	
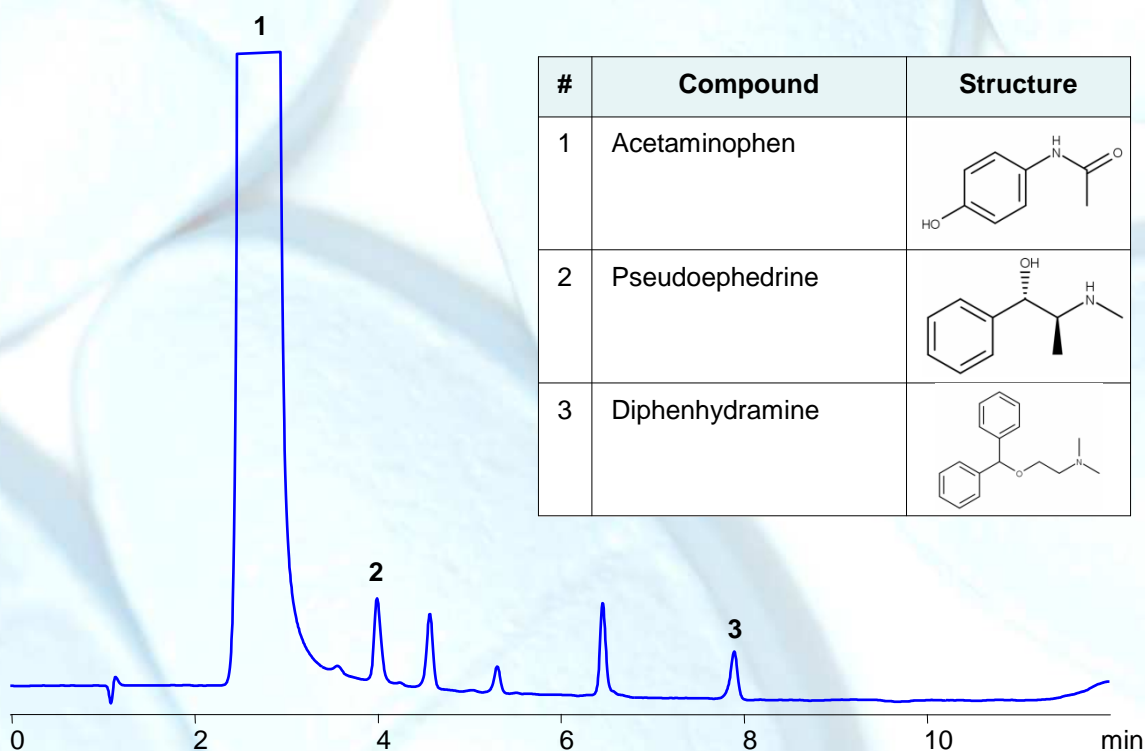
Analysis of Prescription and Over-the-Counter Drugs
Over-the-Counter Drugs

Tylenol Cold & Flu Severe
Caplets – 24 count

Active Ingredients	Amount (per caplet)
Acetaminophen	325 mg
Dextromethorphan HBr	10 mg
Guaifenesin	200 mg
Phenylephrine HBr	5 mg

Inactive ingredients: corn starch, crospovidone, D&C yellow #10 aluminum lake, flavor, magnesium stearate, maltodextrin, microcrystalline cellulose, polyethylene glycol, polyvinyl alcohol, povidone, silicon dioxide, sodium starch glycolate, stearic acid, sucralose, talc, titanium dioxide
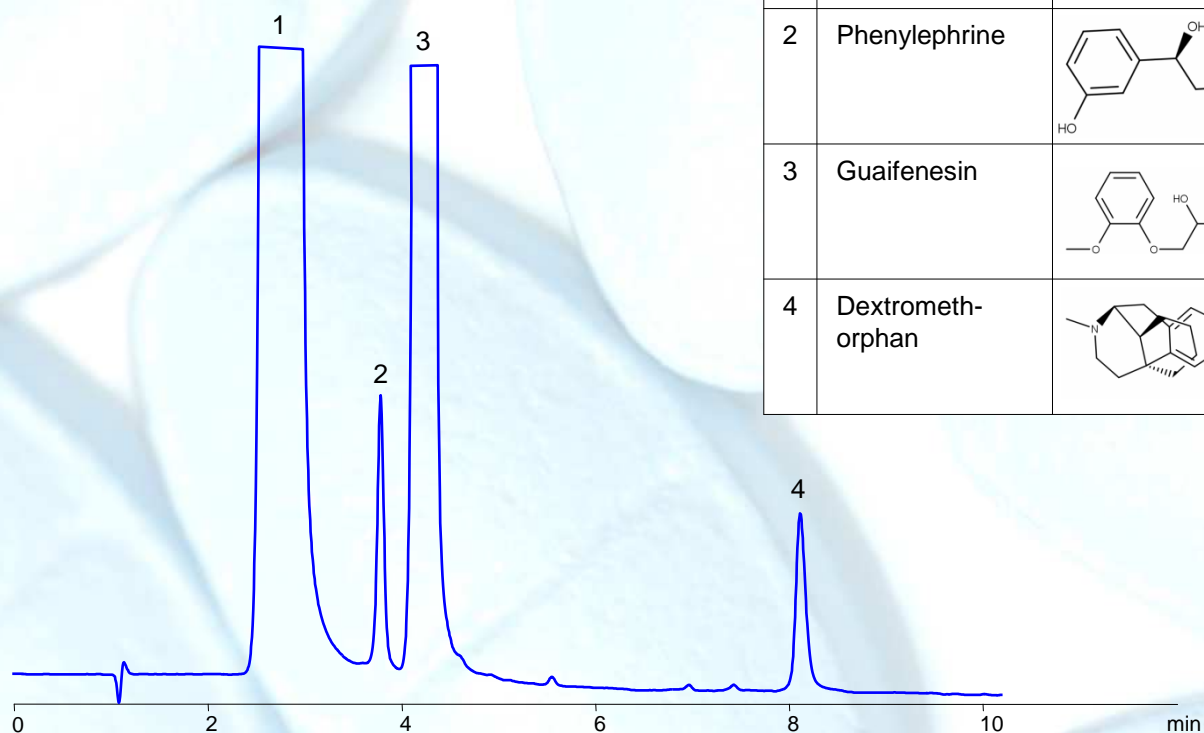
Column: Primesep 200
Size: 3.2 x 100 mm
Mobile phase: Gradient MeCN 5-50% in 5 min, 4 min hold
H3PO4 gradient 0.05% to 0.3% in 5 min, 4 min hold
Flow: 0.6 mL/min
Detection: UV 270 nm

Sample preparation:
- *1 caplet was crushed using a mortar and pestle*
- *Crushed caplet was mixed with 25 mL of 1:1 MeCN:water and stirred for 15 min*
- *Mixture was filtered using a 0.45 um HPLC syringe filter*

#	Compound	Structure
1	Acetaminophen	
2	Phenylephrine	
3	Guaifenesin	
4	Dextromethorphan	

Analysis of Prescription and Over-the-Counter Drugs
Over-the-Counter Drugs

Tylenol Cold Multi-Symptom Daytime
Caplets – 24 count

Active Ingredients	Amount (per caplet)
Acetaminophen	325 mg
Dextromethorphan HBr	10 mg
Phenylephrine HBr	5 mg

Inactive ingredients: anhydrous citric acid, carnauba wax, corn starch, flavors, hypromellose, magnesium stearate, microcrystalline cellulose, potassium serrate, powdered cellulose, pregelatinized starch, sodium benzoate, sodium citrate, sodium starch glycolate, sucralose
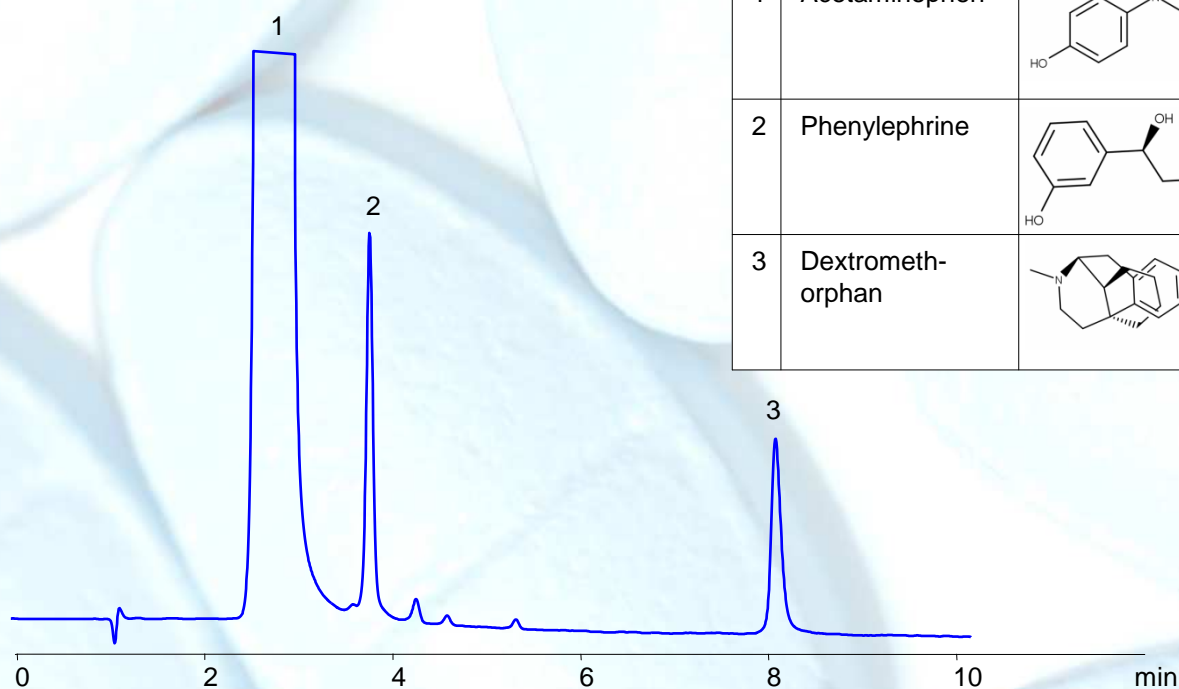
Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: Gradient MeCN 5-50% in 5 min, 4 min hold
H3PO4 gradient 0.05% to 0.3% in 5 min, 4 min hold
Flow: 0.6 mL/min
Detection: UV 270 nm

Sample preparation:
- 1 caplet was crushed using a mortar and pestle
- Crushed caplet was mixed with 25 mL of 1:1 MeCN:water
 and stirred for 15 min
- Mixture was filtered using a 0.45 um HPLC syringe filter

#	Compound	Structure
1	Acetaminophen	
2	Phenylephrine	
3	Dextromethorphan	

Analysis of Prescription and Over-the-Counter Drugs
Over-the-Counter Drugs

Children's Mucinex Multi-Symptom Cold Nighttime
4.0 fl oz

Active Ingredients	Amount (per softgel)
Acetaminophen	325 mg
Diphenhydramine HCl	12.5 mg
Phenylephrine HCl	5 mg

Inactive ingredients: anhydrous citric acid, edetate disodium, FD&C blue #1, FD&C red #40, flavors, glycerin, propylene glycol, propyl gallate, purified water, sodium benzoate, sorbitol, sucralose, trisodium citrate, dihydrate, xanthan gum
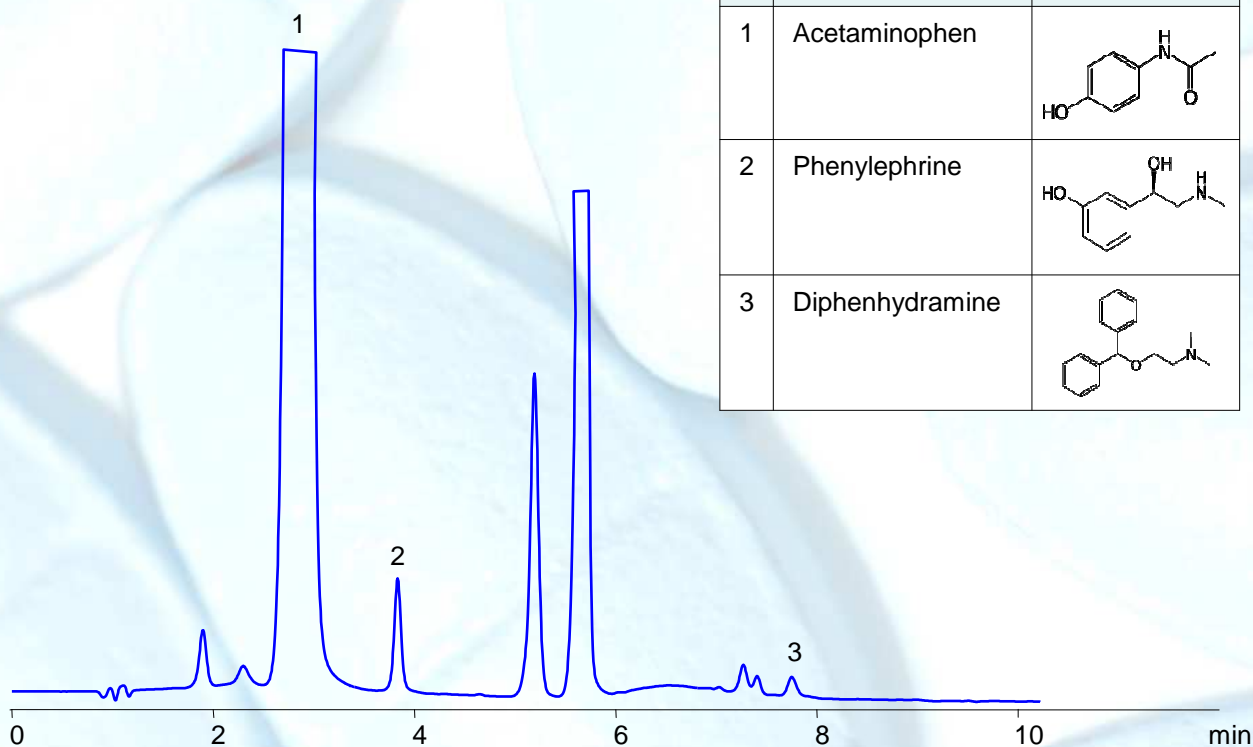
Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: Gradient MeCN 5-50% in 5 min, 4 min hold
H3PO4 gradient 0.05% to 0.3% in 5 min, 4 min hold
Flow: 0.6 mL/min
Detection: UV 270 nm

Sample preparation:
- 1 mL was diluted 10-fold in 1:1 MeCN:water

#	Compound	Structure
1	Acetaminophen	
2	Phenylephrine	
3	Diphenhydramine	

Analysis of Drugs of Abuse
Separation of Cannabinols

In 2013, 18 million Americans, roughly 5% of the population, reported using an illegal drug in the previous month. The most commonly used drugs included marijuana, cocaine, and amphetamines.
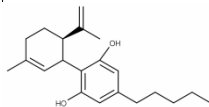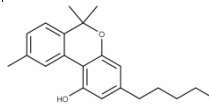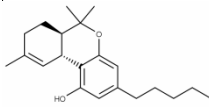
Marijuana is unique among these because its use is increasing. This is likely influenced by the recent legalization of marijuana in several states, which has created a demand for chromatographic methods to quantify levels of cannabinoids in now-legal marijuana products.
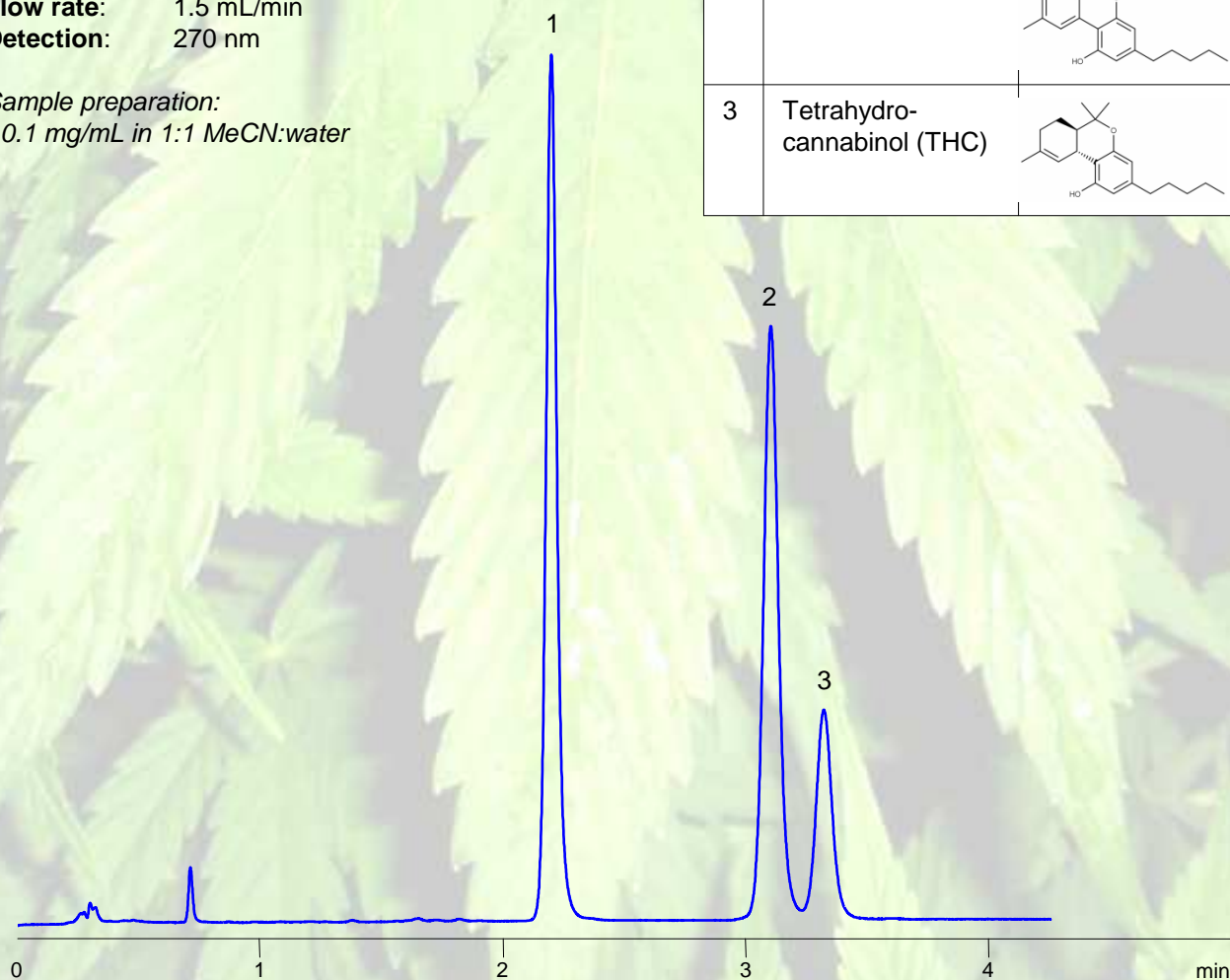
The following analysis includes marijuana and
Other commonly used illegal drugs.

* * * *

Column: **Coresep 100**
Size: 3.2 x 100 mm (2.7 µm, 90 A)
Mobile phase: MeCN 50% with 0.1% H_3PO_4
Flow rate: 1.5 mL/min
Detection: 270 nm

Sample preparation:
- 0.1 mg/mL in 1:1 MeCN:water

#	Compound	Structure
1	Cannabidiol	
2	Cannabinol	
3	Tetrahydro-cannabinol (THC)	
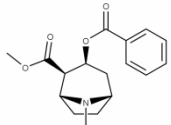
Analysis of Drugs of Abuse
Cocaine and Amphetamine

Cocaine

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 5-50% in 5 min, 4 min hold
                     H_3PO_4 0.05% to 0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
Detection: 270 nm

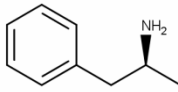*Sample preparation:*
- 0.5 mg/mL in 1:1 MeCN:water

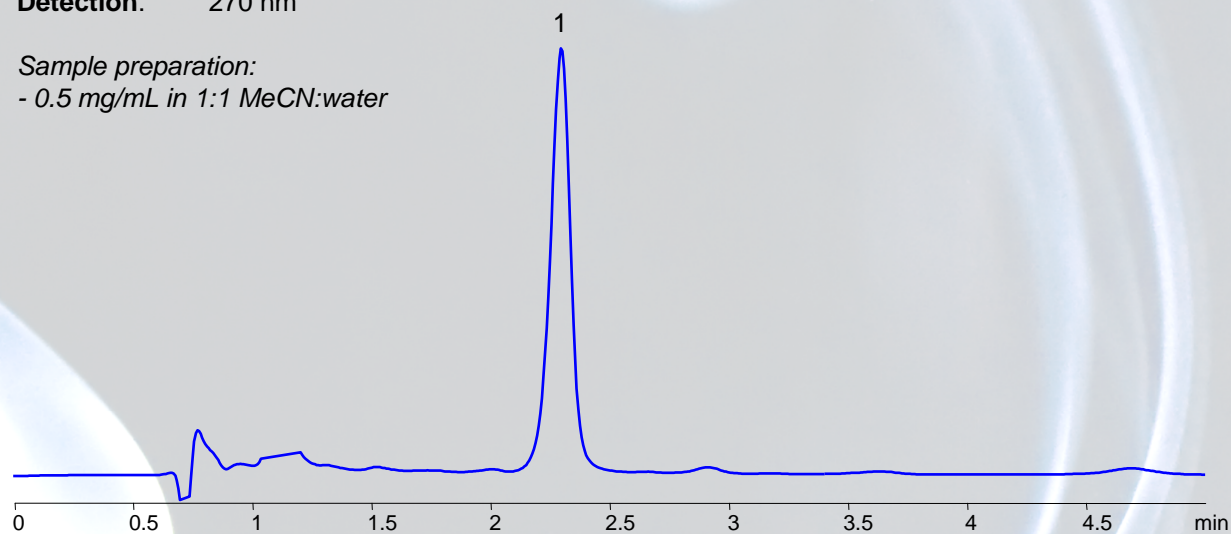| #	Compound	Structure
1	Cocaine	
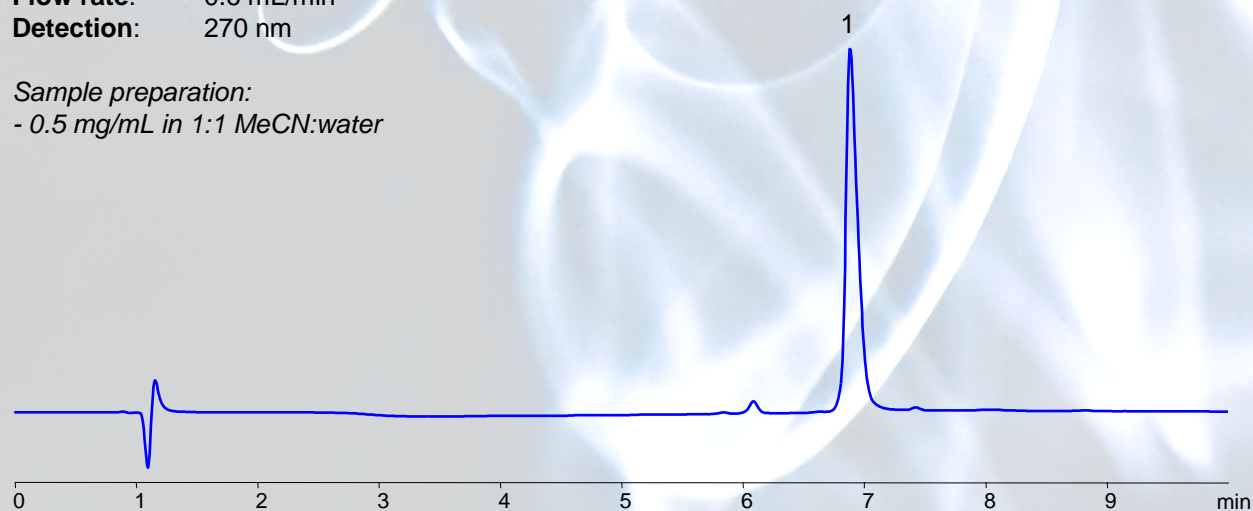
Amphetamine

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 40% with 0.1% H_3PO_4
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 0.5 mg/mL in 1:1 MeCN:water

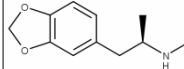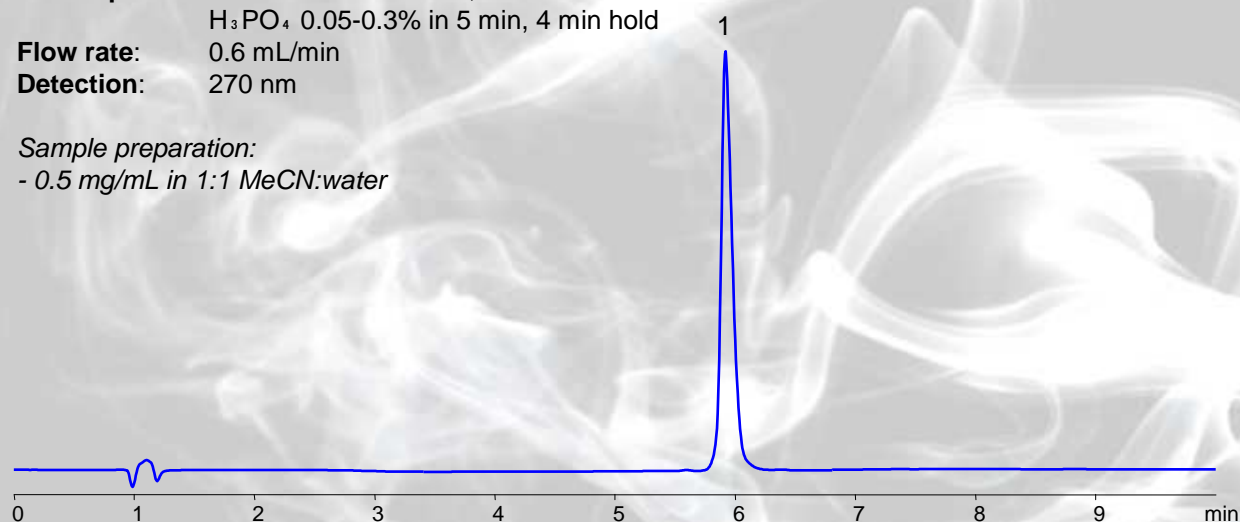| #	Compound	Structure
1	Amphetamine	

Analysis of Drugs of Abuse
Amphetamines

3,4-Methylenedioxymethamphetamine (MDMA)

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 5-50% in 5 min, 4 min hold
H$_3$PO$_4$ 0.05-0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
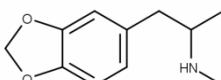**Detection**: 270 nm

Sample preparation:
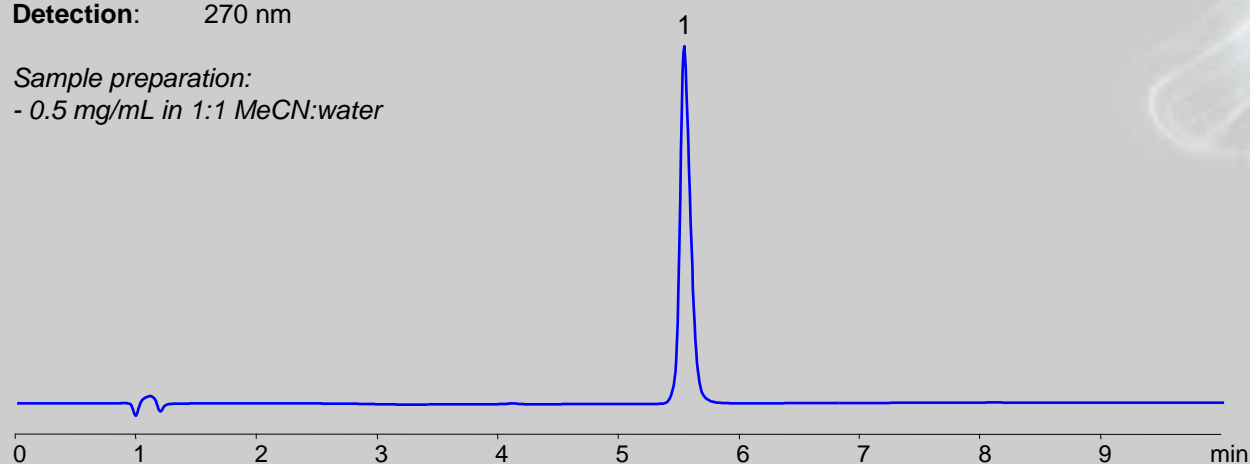*- 0.5 mg/mL in 1:1 MeCN:water*

#	Compound	Structure
1	MDMA	

3,4-Methylenedioxyamphetamine (MDA)

Column: **Primesep 200**
Size: 3.2 x 100 mm
Mobile phase: MeCN 5-50% in 5 min, 4 min hold
H$_3$PO$_4$ 0.05% to 0.3% in 5 min, 4 min hold
Flow rate: 0.6 mL/min
Detection: 270 nm

Sample preparation:
- 0.5 mg/mL in 1:1 MeCN:water

#	Compound	Structure
1	MDA	

SIELC

Contact Information

For direct contact, please call Monday through Friday from 9:00 am – 6:00 pm CST, USA.

Product Information
Call: 847 229-2629
Fax: 847 655-6079
Email: sales@sielc.com

Technical Support
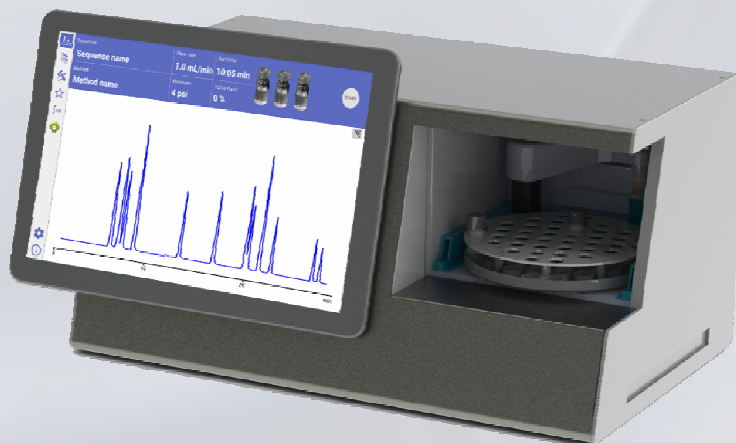**Email:** support@sielc.com

Accounts Payable
Email: finance@sielc.com

SIELC Technologies Address
SIELC Technologies
804 Seton Ct.
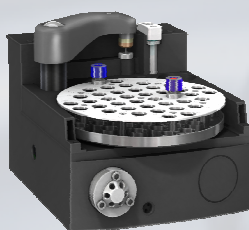Wheeling, IL USA 60090

Alltesta Analyzer Small-Footprint Design

Full Line of Original Equipment Manufacturer (OEM) Products

Pump

Autosampler

Detector

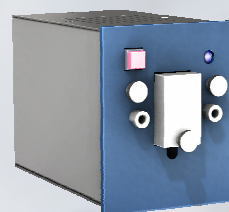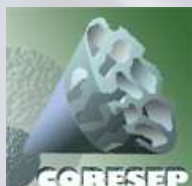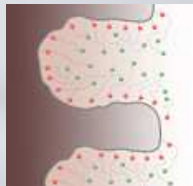## Products for liquid chromatography

Coresep™   SHARC™   Primesep®   Obelisc™   Promix™   Legacy™