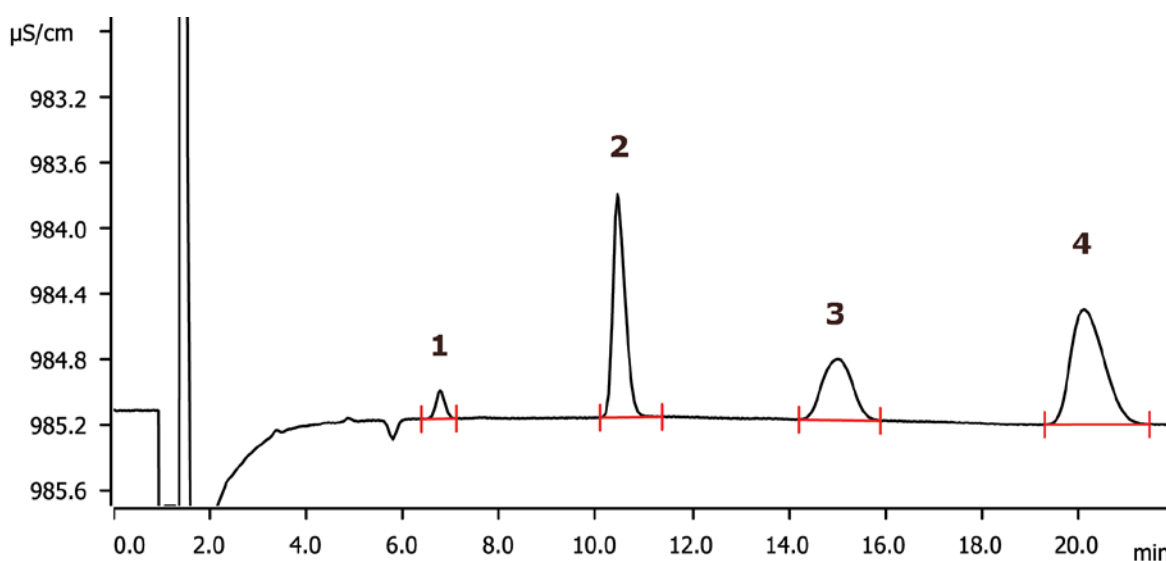


Determination of ammonium in tobacco after sulfuric acid extraction



Ammonia is present in tobacco – either naturally or added – and is released during smoking. Ammonia increases the appeal of smoking, and is therefore considered to increase the addictive potential. The determination of ammonium in tobacco is performed by acid extraction and ion chromatographic separation followed by non-suppressed conductivity detection.

Results

Cation	Concentration in solution [mg/L]	Concentration in tobacco [g/kg]	Recovery (spiked) [%]
1 Ammonium	0.33	1.32	98
2 Potassium	7.97	-	-
3 Magnesium	1.40	-	-
4 Calcium	5.11	-	-

Sample

Ground tobacco

Sample preparation

0.25 g tobacco extracted with 50 mL of 12.5 mmol/L sulfuric acid. Subsequent filtration and dilution to 1 L.

Columns

Metrosep C 6 - 150/4.0	6.1050.420
Metrosep RP 2 Guard/3.5	6.1011.030

Solutions

Eluent	15 mmol/L tartaric acid
Extraction	12.5 mmol/L sulfuric acid

Analysis

Direct conductivity detection

Instrumentation

940 Professional IC Vario ONE	2.940.1100
IC Conductivity Detector	2.850.9010
919 IC Autosampler plus	2.919.0020

Parameters

Flow rate	0.9 mL/min
Injection volume	25 μ L
P _{max}	25 MPa
Recording time	22 min
Column temperature	30 °C

