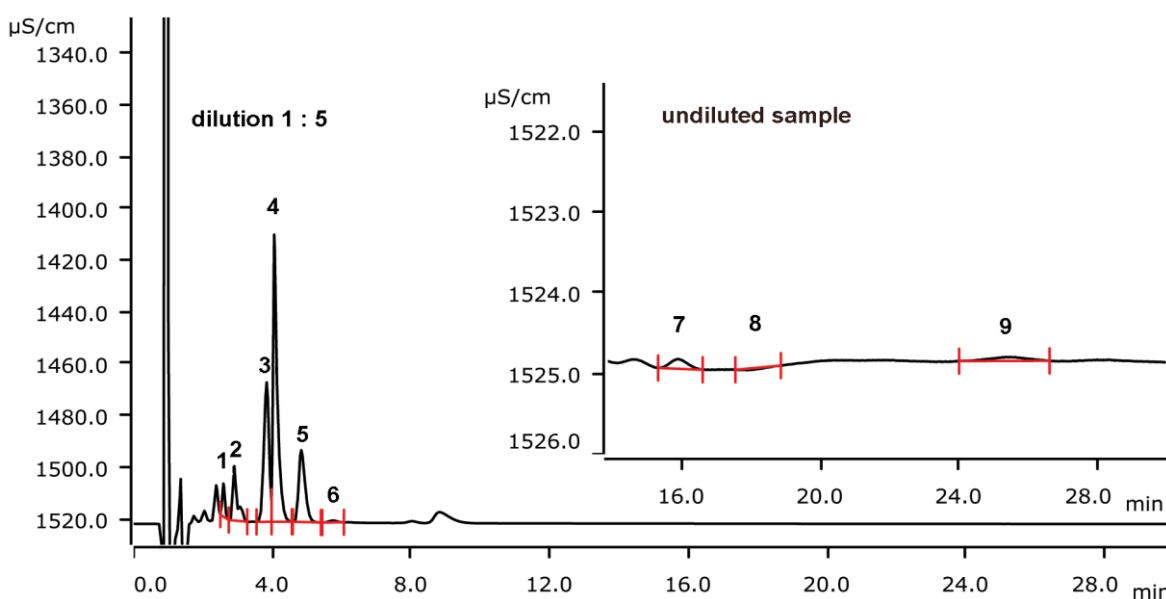


Trimethylamine N-oxide and biogenic amines besides standard cations in white wine



Biogenic amines and trimethylamine N-oxide (TMAO) are indicators for the quality of grape fermentation. Consumption of white wine with elevated amine concentrations can lead to headaches for which reason their concentration has to be controlled. Analysis of trimethylamine N-oxide, putrescine, cadaverine, and histamine besides standard cations in white wine is best performed on a Metrosep C 6 - 100/4.0 column with subsequent direct conductivity detection.

Results

Cation	Conc. [mg/L]	RSD [%]	Cation	Conc. [mg/L]	RSD [%]
1 Sodium	30.3	0.2	6 TMAO	10.2	0.4
2 Ammonium	38.8	0.2	7 Putrescine	0.8	1.9
3 Magnesium	110.8	0.1	8 Cadaverine	n.d.	
4 Potassium	638.8	0.1	9 Histamine	< 0.5	
5 Calcium	117.5	0.1			

Sample

White wine

Sample preparation

Undiluted sample for quantification of the TMAO and the biogenic amines, dilution 1:5 for the standard cations.

Columns

Metrosep C 6 - 100/4.0	6.1051.410
Metrosep C 4 Guard/4.0	6.1050.500

Solutions

Eluent	5.0 mmol/L nitric acid 10% acetone
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Analysis

Direct conductivity detection

Parameters

Flow rate	0.9 mL/min
Injection volume	20 µL
P _{max}	20 MPa
Recording time	30 min
Column temperature	30 °C

Instrumentation

930 Compact IC Oven/Deg	2.930.2160
IC Conductivity Detector	2.850.9010
863 IC Compact Autosampler	2.863.0010

