UHPLC-Separation of different benzodiazepines

Benzodiazepines are a group of psychotropic substances whose core chemical structure is the fusion of a benzene ring and a diazepine ring. They are used as relaxing and calming agents (tranquilizers) or as sleeping pills (hypnotics).
Benzodiazepines mainly differ in their speed and duration of effect.

Depending on the symptoms, a specific benzodiazepine is required. Due to their toxicological properties there is a huge demand for qualitative and quantitative determination of benzodiazepines.

Separation of five benzodiazepines using YMC-Triart Phenyl in less than 2 minutes!

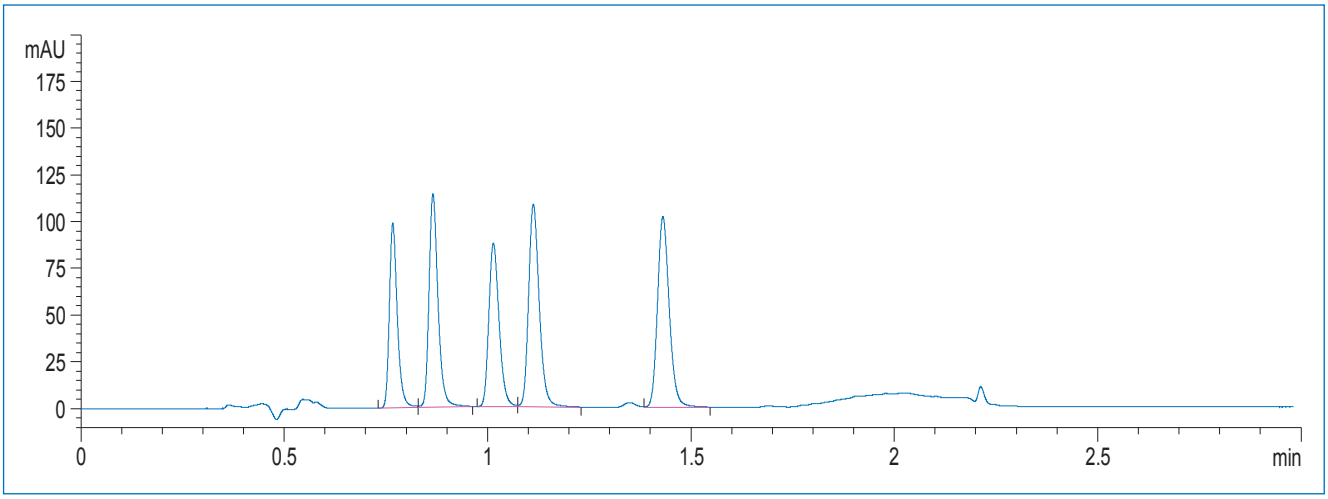

Figure 1: UHPLC-separation of benzodiazepines

Table 1: Chromatographic conditions

Column:	YMC-Triart Phenyl (1.9 µm, 12 nm) 100 x 2.0 mm ID	
Part No.:	TPH12SP9-1002PT	
Eluent:	A) water B) acetonitrile	
Gradient:	Time [min]	Eluent B [%]
	0	52
	1.1	54
	1.2	95
	3	95
Flow rate:	0.5 mL/min	
Temperature:	35 °C	
Detection:	UV at 254 nm	
Injection:	2 µL (each 0.02 mg/mL)	

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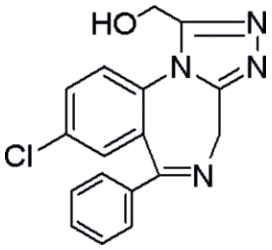
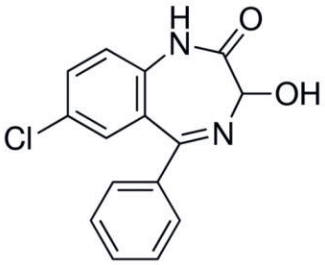
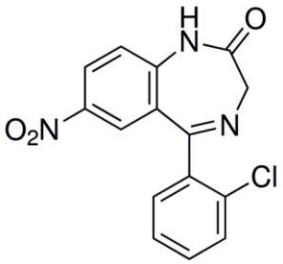
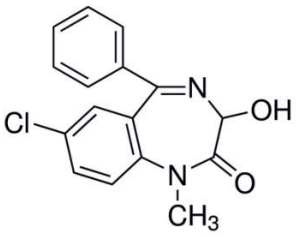
Table 2: Benzodiazepines analysed

Retention time	Analyte	Structure
0.8 min	α-Hydroxyalprazolam	
0.9 min	Oxazepam	
1.0 min	Clonazepam	
1.1 min	Temazepam	
1.4 min	Diazepam