

Application Data Sheet

No.28

GCMS

Gas Chromatograph Mass Spectrometer

Analysis of a Benzodiazepine-Based Drug Using GC-MS

Benzodiazepine drugs are commonly used in sleeping aids and tranquilizers, and sometimes in crimes or suicide. Therefore, these chemical substances are often analyzed by forensic laboratories for criminal or academic investigations. This datasheet shows the results from using GC-MS to measure 9 types of benzodiazepine drugs.

Analysis Conditions

Table 1: Analysis Conditions

GC-MS	:GCMS-QP2010 Ultra	[MS]	
Column	: Rxi®-5Sil MS (30 mL, X 0.25 mmI.D., df=0.25 µm, Shimadzu GLC P/N:13623)	Interface temperature	: 280°C
Glass insert	:Silanized splitless insert (P/N: 221-48876-03)	Ion source temperature	: 200°C
[GC]		Solvent elution time	: 2.0 min
Vaporization chamber temperature	: 260°C	Measurement mode	: Scan
Column oven temperature	: 60°C (2min) -> (10°C/min) -> 320°C (10min)	Mass range	: m/z 35-600
Injection mode	: Splitless	Event time	: 0.3 sec
Sampling time	: 1 min	Emission current	: 150 µA (high sensitivity)
High pressure injection method	: 250 kPa (1.5 min)		
Carrier gas	: Helium		
Control mode	: Linear velocity (45.6 cm/sec)		
Purge flow rate	: 3.0 ml/min		
Sample injection quantity	: 1.0 µL		

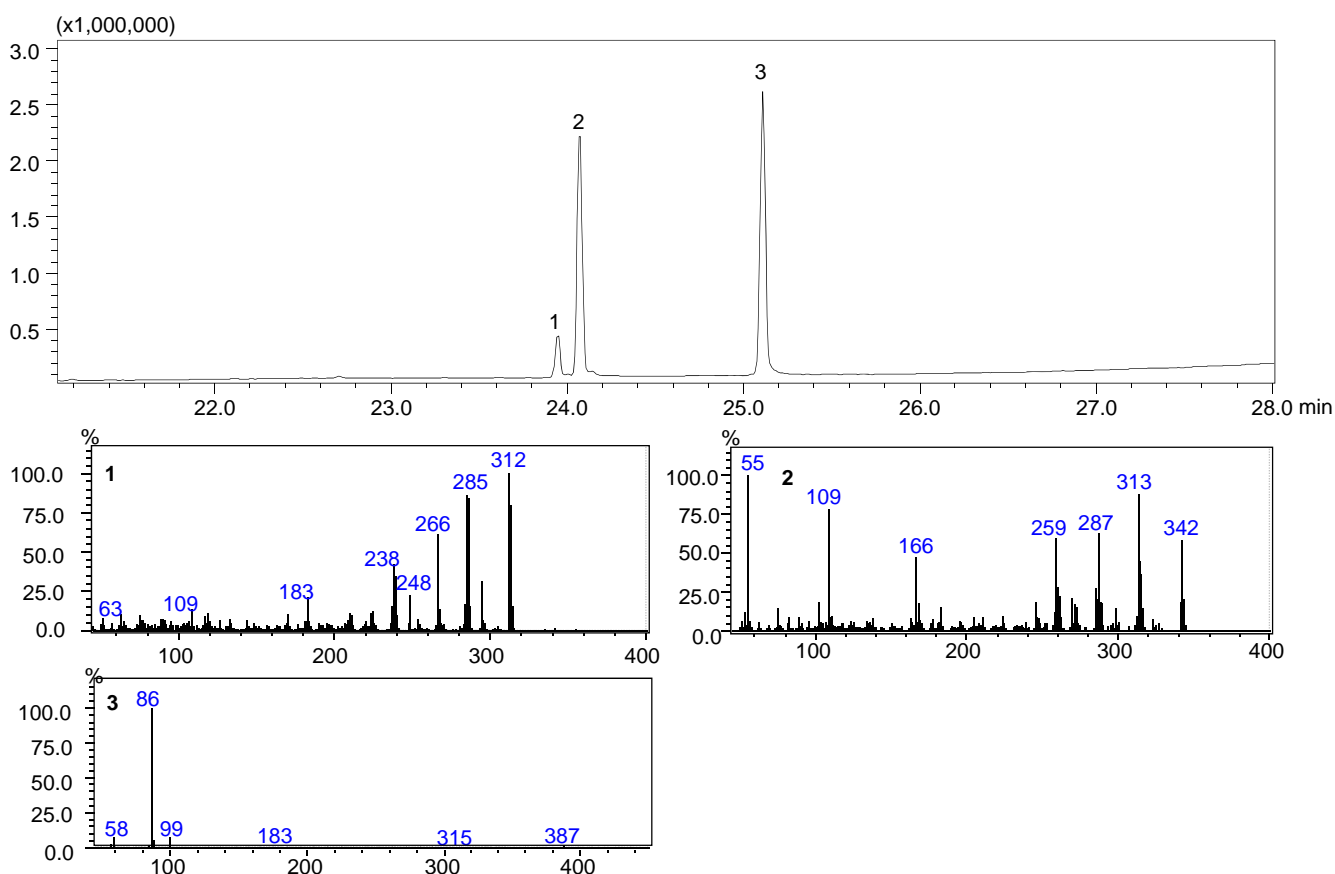


Fig. 1: Total Ion Current Chromatogram and Mass Spectra
 1: Flunitrazepam, 2: Flutoprazepam, 3: Flurazepam

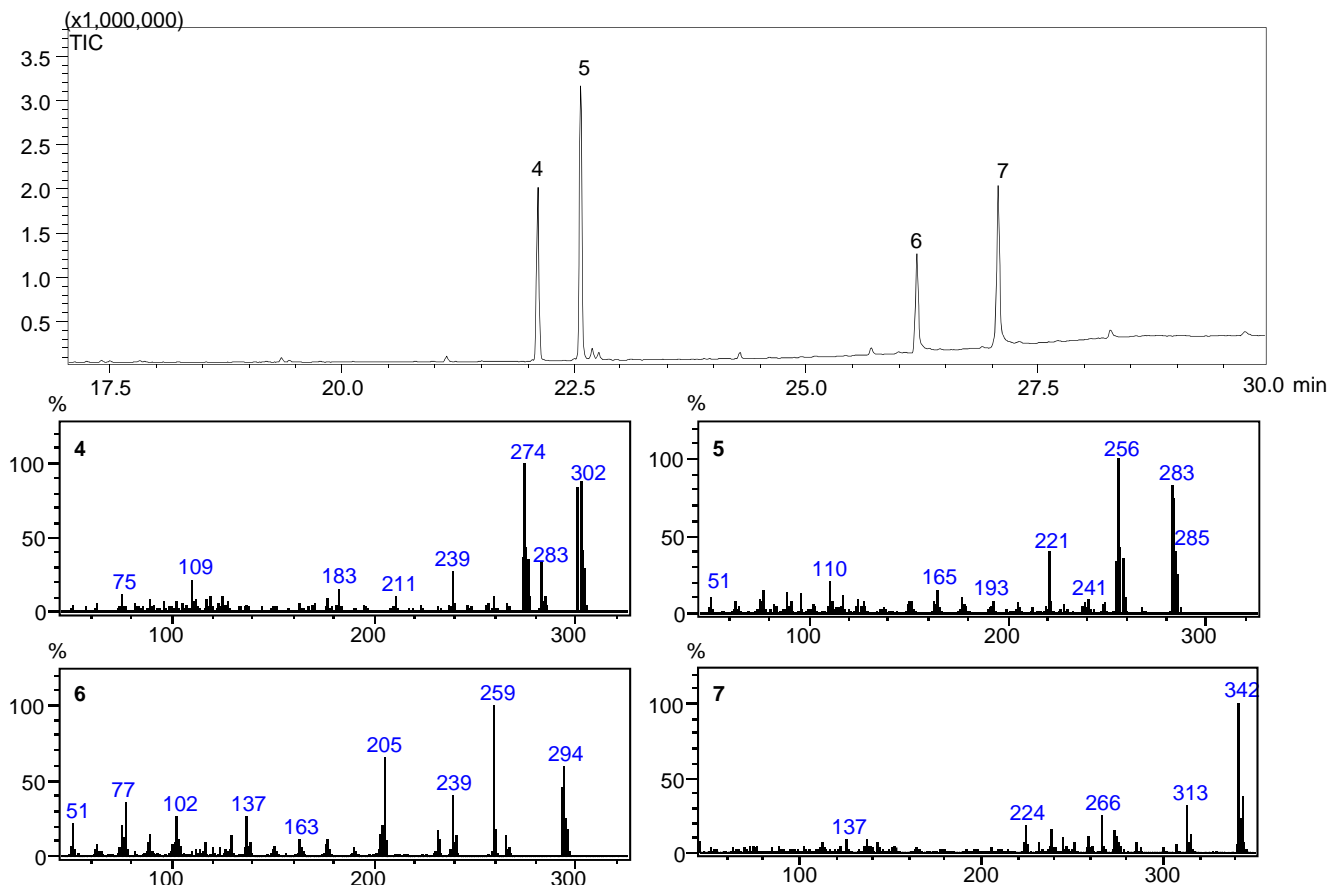


Fig. 2: Total Ion Current Chromatogram and Mass Spectra
4: Fludiazepam, 5: Diazepam, 6: Estazolam, 7: Etizolam

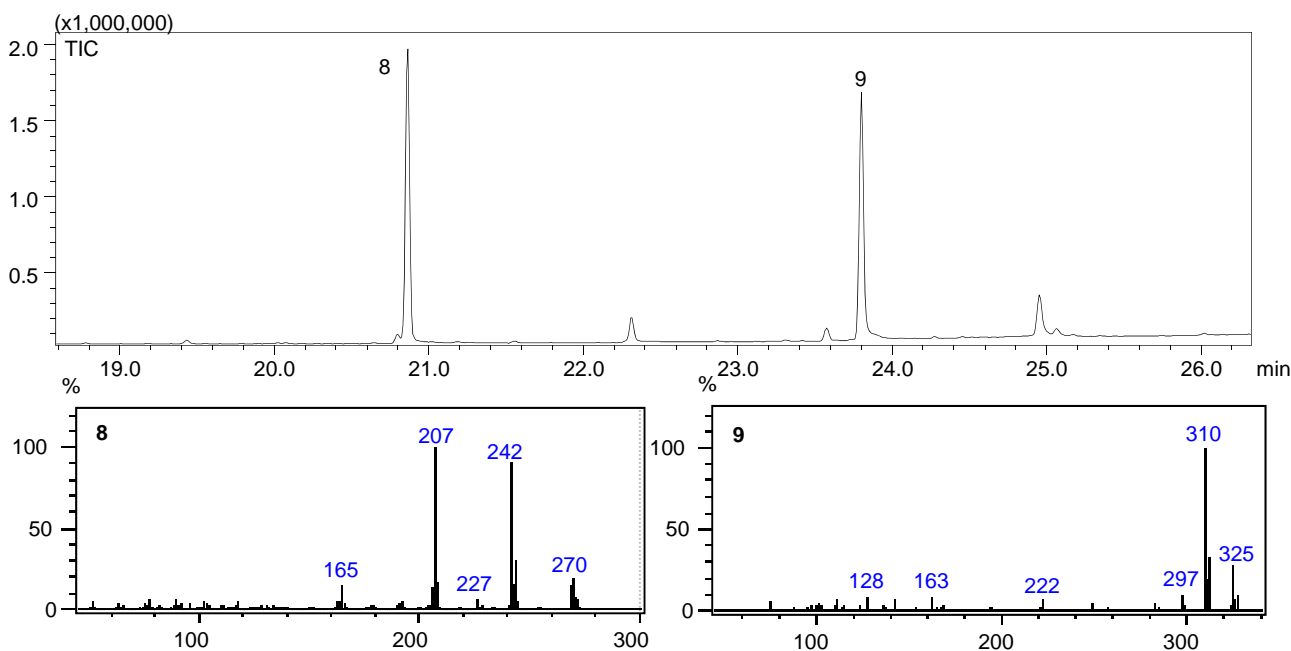


Fig. 3: Total Ion Current Chromatogram and Mass Spectra
8: Medazepam, 9: Midazolam

