



Tricyclic antidepressants

Determination of tricyclic antidepressants in plasma

Application Note

BioPharma

Authors

Agilent Technologies, Inc.

Introduction

Gas chromatography using an Agilent CP-Sil 5 CB column separates 13 tricyclic antidepressants in plasma in 14 minutes.



Agilent Technologies

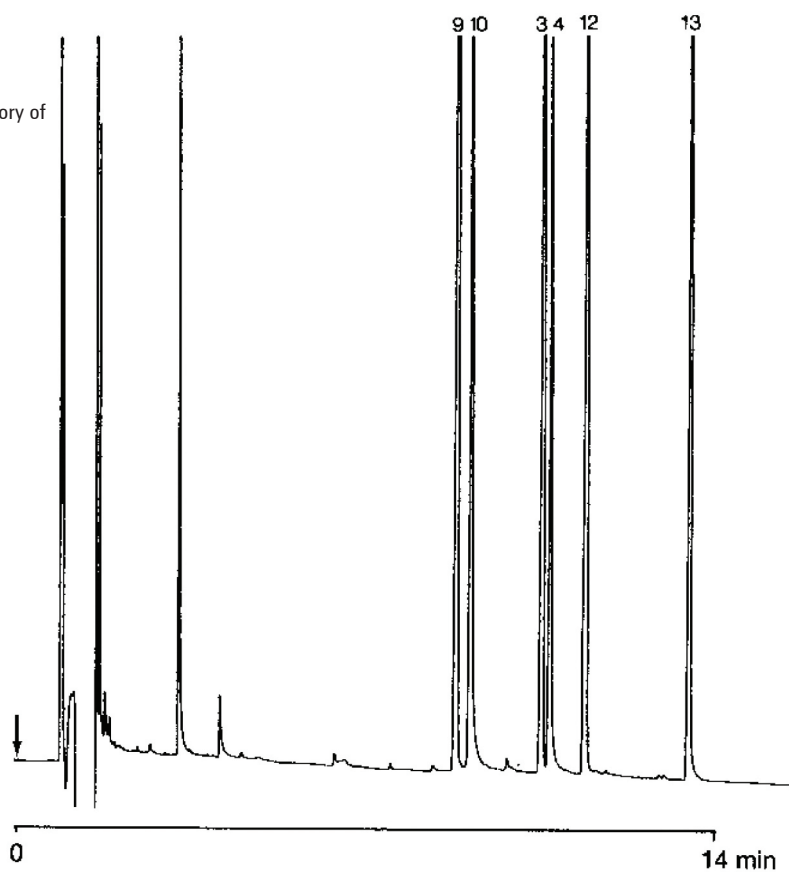
Conditions

Technique : GC-capillary
Column : Agilent CP-Sil 5 CB, 0.22 mm x 25 m fused silica
WCOT CP-Sil 5 CB (0.12 µm) (Part no. CP7710)
Temperature : 100 °C → 175 °C, 25 °C/min; → 250 °C, 10 °C/min;
→ 290 °C, 25 °C/min; 290 °C (2 min)
Carrier Gas : N₂, 1 mL/min
Injector : Splitless
T = 250 °C
Detector : NPD
T = 300 °C
Sample Size : 1-2 µL
Concentration range : 100 ng/mL

Courtesy : Stichting Ziekenhuisapotheek, Laboratory of
Pharmacy, Venray, The Netherlands

Peak identification

	Ret. time:
1. amitriptyline	8.82
2. nortriptyline	8.91
3. clomipramine	10.52
4. desmethyldesipramine	10.67
5. thioridazine	15.60
6. mesoridazine	18.47
7. sulforidazine	18.99
8. ring-sulfoxide	20.64
9. mianserine	8.79
10. imipramine	9.02
desipramine	9.16
doxepine	9.06
trimipramine	9.05
desmethyldesipramine	9.07
11. maprotyline	9.88
12. levomepromazine	11.39
13. leponex	13.45



Sample preparation

2.5 mL plasma
0.5 mL NaOH, 0.25 molar
1.0 mL molar aqueous NaHCO_3 solution, pH 9.0
50 μL standard solution
6.0 mL heptane/iso-amylalcohol (98.5/1.5 v/v)

Shake 10 minutes vigorously on Vortex.
Centrifuge. Transfer organic phase to another tube.
Add 1.5 mL 0.1 molar aqueous HCl solution. Shake 10 minutes vigorously.
Centrifuge.

Remove the organic phase and transfer aqueous phase to another tube.

Add 1.5 mL 1.0 molar aqueous NaHCO_3 buffer pH 9.0 and add 100 μL toluene - isoamylalcohol 85:15. Shake 10 minutes vigorously and remove aqueous layer.
Centrifuge.

Transfer organic phase to sample vial.

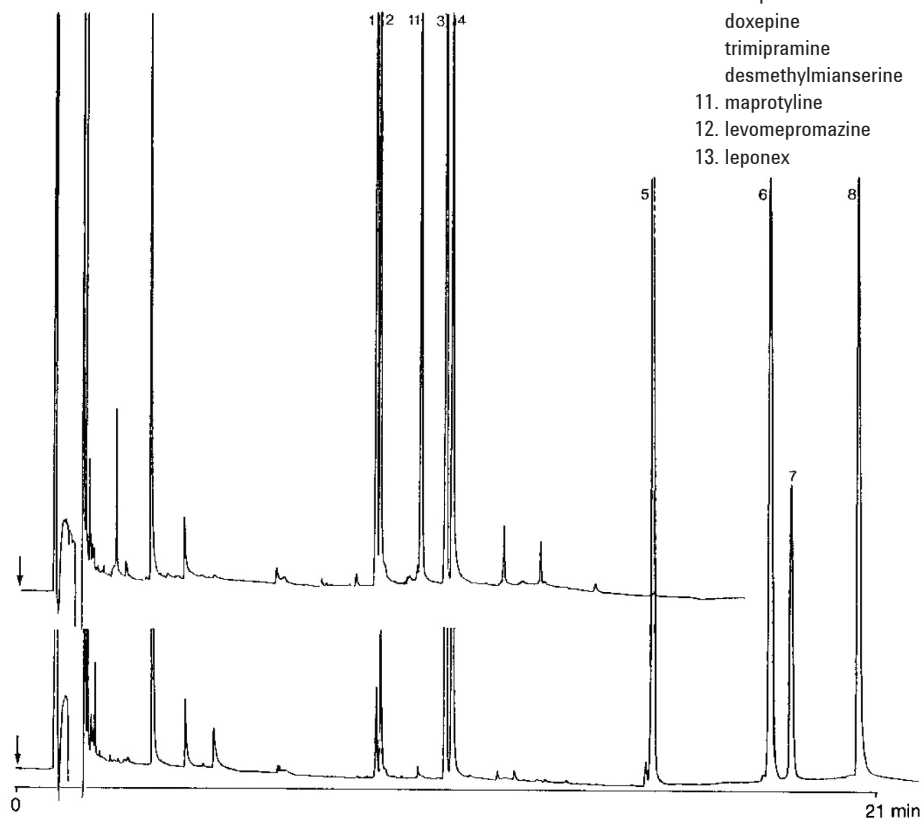
Standard solutions

Stock: Dissolve 5 mg of the base in 10 mL methanol.
Dissolve 50 μL of the stock solution in 5 mL water immediately before the analysis. Add 50 μL of this solution to 2.5 mL plasma. Concentration is 100 ng/mL plasma.

Solvents: Use p.a quality heptane. Distill toluene and iso-amylalcohol. Use 'freshly distilled aqua dest.
Carbonate buffer 1 mol pH 9: Dissolve 8.4 g NaHCO_3 in 100 mL freshly distilled aqua dest. and adjust to pH 9 with NaOH. Brown coated glassware with ground glass stoppers should be used for the analysis.

Peak identification

	Ret. time:
1. amitriptyline	8.82
2. nortriptyline	8.91
3. clomipramine	10.52
4. desmethylclomipramine	10.67
5. thioridazine	15.60
6. mesoridazine	18.47
7. sulforidazine	18.99
8. ring-sulfoxide	20.64
9. mianserine	8.79
10. imipramine	9.02
desipramine	9.16
doxepine	9.06
trimipramine	9.05
desmethyImianserine	9.07
11. maprotyline	9.88
12. levomepromazine	11.39
13. leponex	13.45



www.agilent.com/chem

This information is subject to change without notice.

© Agilent Technologies, Inc. 2011

Printed in the USA

31 October, 2011

First published prior to 11 May, 2010

A00245



Agilent Technologies