Introduction

Gas chromatography with an Agilent CP-Sil 5 CB Low Bleed/MS column separates 35 components in beech leaf cuticular wax in 70 minutes.
Conditions

Technique: GC-capillary

Column: Agilent CP-Sil 5 CB Low Bleed/MS, 0.32 mm x 25 m fused silica WCOT CP-Sil 5 CB (df = 0.12 μm) (Part no. CP7846)

Temperature: 50 °C (2 min) → 200 °C, 40 °C/min; 200 °C (2 min) → 320 °C, 3 °C/min; 320 °C (45 min)

Carrier Gas: H₂, 50 kPa (0.5 bar, 7.2 psi) (41 min) → 150 kPa (1.5 bar, 21 psi), 10 kPa/min (0.1 bar/min, 1.4 psi/min)

Injector: On-column

Detector: FID, T = 340 °C

Sample preparation:
400 μL of a 0.05% wax solution in chloroform was evaporated to dryness in a nitrogen stream. 10 μL BSTFA and 10 μL pyridine were added and the mixture was heated at 70 °C for 30 min. Without removal of silylation reagents the reaction mixture was diluted to the original volume by addition of chloroform.

Peak identification

1. n-eicosanol (TMS)
2. n-tetracosane (I.S.)
3. n-eicosanoic acid (TMS)
4. n-pentacosane
5. n-docosanol (TMS)
6. n-docosanoic acid (TMS)
7. n-heptacosane
8. n-tetracosanol (TMS)
9. n-hexacosanol
10. n-tetracosanoic acid (TMS)
11. n-nonacosane
12. n-hexacosanol (TMS)
13. n-octacosanol
14. n-hexacosanoic acid (TMS)
15. n-heptacosanol (TMS)
16. n-octacosanol (TMS)
17. n-octacosanoic acid (TMS)
18. E-octadecyl-p-coumarate (TMS)
19. Z-eicosyl-p-coumarate (TMS)
20. E-eicosyl-p-coumarate (TMS)
22. E-docosyl-p-coumarate (TMS)
23. Z-tetracosyl-p-coumarate (TMS)
24. C₃₉ n-alkyl ester
25. E-tetracosyl-p-coumarate (TMS)
26. Z-hexacosyl-p-coumarate (TMS)
27. C₃₉ n-alkylester
28. E-hexacosyl-p-coumarate (TMS)
29. Z-octacosyl-p-coumarate (TMS)
30. C₃₉ n-alkyl ester
31. E-octacosyl-p-coumarate (TMS)
32. C₃₉ n-alkyl ester
33. C₄₀ n-alkyl ester
34. C₄₂ n-alkyl ester
35. C₄₄ n-alkyl ester