Organic acids

Analysis of organic acids and sucrose in roasted coffee

Application Note

Food Testing & Agriculture

Authors

Agilent Technologies, Inc.

Introduction

Gas chromatography using an Agilent CP-Sil 5 CB column separates 31 organic acids and sucrose in roasted coffee (TMS derivatives) in 32 minutes.

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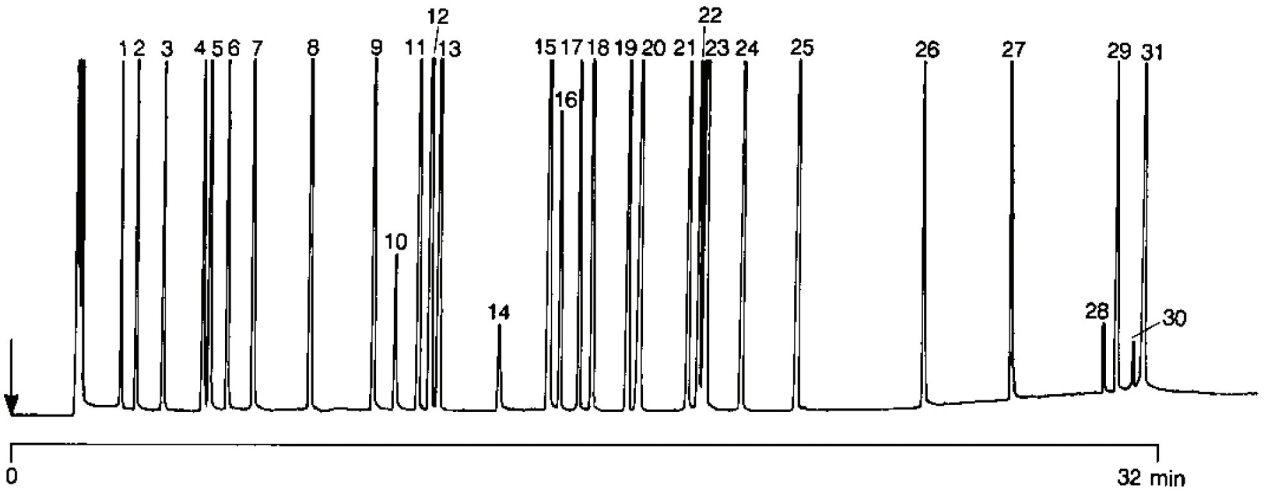
Conditions

Technique	: GC-capillary
Column	: Agilent CP-Sil 5 CB, 0.25 mm x 25 m fused silica WCOT CP-Sil 5 CB (df = 0.12 µm) (Part no. CP7710)
Temperature	: 100 °C (0 min) ⟶ 155 °C (1 min), 8 °C/min ⟶ 225 °C (0 min), 5 °C/min ⟶ 300 °C (20 min), 15 °C/min
Carrier Gas	: He, 210 kPa (2.1 bar, 30 psi), 1.0 mL/min
Injector	: Split, 90:1 T = 310 °C
Detector	: FID, 2 x 10^{-12} Afs T = 310 °C
Sample Size	: 0.2 - 0.6 µL
Courtesy	: W. J. Hughes, Dr. T. M. Thorpe, Procter & Gamble Company, Cincinnati, OHIO, USA.

Peak Identification

1. lactic acid
2. oxalic acid
3. malonic acid
4. maleic acid
5. succinic acid
6. fumaric acid
7. glutaric acid
8. malic acid
9. pimelic acid
10. glutamic acid
11. tartaric acid
12. phthalic acid
13. suberic acid
14. caffeine acid
15. citric acid
16. coumaric acid
17. sebacic acid
18. quinic acid
19. ascorbic acid
20. caffeic acid dimethylether
21. iso-ferulic acid
22. ferulic acid
23. dodecanedioic acid
24. caffeic acid
25. sinapinic acid
26. n-pentacosane (I.S.)
27. sucrose
28. iso-cholorogenic acid (3,5-dicaffeoylquinic)
29. n-chlorogenic acid (5-CQA)
30. iso-chlorogenic acid (4,5-dicaffeoylquinic)
31. neochlorogenic acid (3-CQA)



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