

研究论文

淋洗液自动发生-离子色谱法同时测定食品中的21种有机酸

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摘要 建立了一种利用离子色谱法同时测定样品中奎尼酸、乙酸、丙酮酸、草酰乙酸、甘露酸、乳酸、琥珀酸、苹果酸、酒石酸、草酸、富马酸、抗坏血酸、 α -酮戊二酸、肉桂酸、水杨酸、柠檬酸、异柠檬酸、阿魏酸、顺乌头酸、反乌头酸、 β -香豆酸等21种有机酸的方法。样品经提取、脱色、过滤后用IonPac AS11分离柱分离, 以EG40自动淋洗液发生器生成的5~34 mmol/L KOH为淋洗液洗脱, 抑制电导检测器检测。21种有机酸的浓度与其峰面积在一定的范围内呈良好的线性关系, 检出限均低于0.188 mg/L, 加标回收率为91.5%~101.8%。该法用于多种食物样品中有机酸的测定, 结果令人满意。

关键词 [淋洗液自动发生](#) [离子色谱法](#) [有机酸](#); [食品](#)

分类号

Simultaneous Determination of Twenty-one Organic Acids in Food by Ion Chromatography with Eluent Autogeneration

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Abstract

A novel ion chromatographic method was developed for the simultaneous determination of organic acids in food samples including quinic acid, acetic acid, pyruvic acid, ketosuccinic acid, mannitic acid, lactic acid, succinic acid, malic acid, tartaric acid, oxalic acid, fumaric acid, ascorbic acid, α -ketoglutaric acid, cinnamic acid, salicylic acid, citric acid, isocitric acid, ferulic acid, cis-aconitic acid, trans-aconitic acid, β -coumaric acid. 534 mmol/L KOH produced by an EG40 eluent autogenerator could achieve a flat baseline and lower background conductance when performing gradient elution. The flow rate was 0.62.5 mL/min and the injection volume was 25 μ L. The separation was performed on an IonPac AS11 column and detected by suppressed conductivity with self-regenerating suppressor mode. The samples were prepared through extraction, decoloration and filtration before analysis. Twenty-one organic acids showed good linear relationship between the mass concentration and the peak area in the measurement ranges. The correlation coefficients were above 0.999 and the detection limits were 0.0110.188 mg/L, and the average recoveries were 91.5%~101.8%. The method is simple and rapid with good accuracy and reproducibility, and has been applied to determine twenty-one organic acids in diversiform samples with satisfactory results.

Key words

[eluent autogeneration](#) [ion chromatography \(IC\)](#) [organic acids](#) [food](#)

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