

银离子固相萃取-气相色谱法检测乳脂肪中的反式脂肪酸

李蕊¹, 徐小民², 李亚利¹, 宋国良², 韩见龙², 任一平^{2*}

1. 温州医学院检验医学院与生命科学院, 浙江 温州 325035; 2. 浙江省疾病预防控制中心理化检验所, 浙江 杭州 310051

Determination of trans fatty acid C18:1, C18:2 and C18:3 isomers in milk fat by silver ion solid phase extraction-gas chromatography

LI Rui¹, XU Xiaomin², LI Yali¹, SONG Guoliang², HAN Jianlong², REN Yiping^{2*}

1. School of Medical Laboratory Science and School of Life Science, Wenzhou Medical College, Wenzhou 325035, China; 2. Physical and Chemical Testing Department, Zhejiang Provincial Center for Disease Control and Prevention, Hangzhou 310051, China

摘要	参考文献	相关文章
----	------	------

Download: PDF (175KB) [HTML](#) 1KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 建立了分离反式油酸(C18:1)、亚油酸(C18:2)、亚麻酸(C18:3)的银离子固相萃取-气相色谱(Ag+-SPE/GC)方法,并应用于乳脂肪中反式脂肪酸的检测。采用自制的银离子固相萃取柱对样品进行预分离,总脂肪酸甲酯化后上样,依次经9 mL甲苯-正己烷(体积比5:95)、8 mL甲苯-正己烷(体积比17:83)、6 mL甲苯-乙酸乙酯(体积比17:83)、10 mL甲苯-乙酸乙酯(体积比30:70)洗脱并分别收集洗脱液,采用气相色谱分别进行检测。结果显示,除了反式亚麻酸的回收率为69.9%~101.0%、相对标准偏差(RSD)为11.0%~18.1%外,其余的反式脂肪酸的回收率均为88.4%~107.2%、RSD为1.2%~11.9%。该方法通过特异性固相萃取的方法对样品进行前处理,较好地避免了样品中顺式及饱和脂肪酸对反式脂肪酸检测的干扰。

关键词: 银离子固相萃取 气相色谱法 反式脂肪酸 乳脂肪

Abstract: A method for the determination of trans fatty acids C18:1, C18:2 and C18:3 in milk fat was developed by silver ion solid phase extraction-gas chromatography (Ag+-SPE/GC). The fatty acid methyl esters derived from total milk fat were loaded onto an Ag+-SPE cartridge, and then eluted with 9 mL of toluene-hexane (5:95, v/v), 8 mL of toluene-hexane (17:83, v/v), 6 mL of toluene-ethyl acetate (17:83, v/v) and 10 mL of toluene-ethyl acetate (30:70, v/v) in sequence. The fraction from each step was analyzed by GC. The average recoveries of trans fatty acids ranged from 88.4% to 107.2% with the relative standard deviations (RSDs) from 1.2% to 11.9% except trans linolenic acid with the recoveries from 69.9% to 101.0% and the RSDs from 11.0% to 18.1%. Comparing with the traditional methods, the developed approach can avoid the interference of cis and saturated fatty acids. The method was successfully applied to analyze dairy products. Satisfactory results were shown.

Keywords: silver-ion solid phase extraction (Ag+-SPE) gas chromatography (GC) trans fatty acids milk fat

Received 2010-09-09; published 2010-12-27

Fund:

无

Corresponding Authors: 任一平,教授,主要研究方向为卫生检验及食品营养因子分析. Tel: (0571)87115261, E-mail:

renyiping@263.net. Email: renyiping@263.net

引用本文:

李蕊¹, 徐小民², 李亚利¹, 宋国良², 韩见龙², 任一平^{2*}. 银离子固相萃取-气相色谱法检测乳脂肪中的反式脂肪酸[J] 色谱, 2010, V28(12): 1168-1172

LI Rui¹, XU Xiaomin², LI Yali¹, SONG Guoliang², HAN Jianlong², REN Yiping^{2*}. Determination of trans fatty acid C18:1, C18:2 and C18:3 isomers in milk fat by silver ion solid phase extraction-gas chromatography[J] Chinese Journal of Chromatography, 2010, V28(12): 1168-1172

链接本文:

<http://www.chrom-china.com/CN/10.3724/SP.J.1123.2010.01168> 或 <http://www.chrom-china.com/CN/Y2010/V28/I12/1168>

Service

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [Email Alert](#)
- ▶ [RSS](#)

作者相关文章

- ▶ [李蕊](#)
- ▶ [徐小民](#)
- ▶ [李亚利](#)
- ▶ [宋国良](#)
- ▶ [韩见龙](#)
- ▶ [任一平](#)