

高效液相色谱法同时测定肉制品中的6种食品添加剂

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Simultaneous determination of six food additives in meat products by high performance liquid chromatography

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摘要 建立了同时测定肉制品中化学性质差异较大的6种常用食品添加剂的高效液相色谱(HPLC)分析方法。根据6种添加剂(苯甲酸(钠)、山梨酸(钾)、糖精钠、安赛蜜、诱惑红和胭脂红)的化学性质,对HPLC分析条件进行了详细的优化。结果表明:以ZORBAX Eclipse Plus C18柱(150 mm×4.6 mm, 5 μm)为分析柱,以甲醇和20 mmol/L醋酸铵溶液(pH为6.9)为流动相进行梯度洗脱,在235 nm波长下进行检测,可以在18 min内完成6种添加剂的同时测定。在高、低两个加标浓度下,样品的回收率为80.7%~94.4%,相对标准偏差(n=3)为2.0%~7.1%。结果表明,该方法快速、准确,能够同时分析测定肉制品中上述6种食品添加剂。

关键词: 高效液相色谱法 食品添加剂 防腐剂 甜味剂 着色剂 肉制品

Abstract: A novel method was proposed for the simultaneous separation and determination of six food additives, benzoic acid, sorbic acid, saccharin sodium, acesulfame potassium, ponceau 4R and allura red AC, by high performance liquid chromatography (HPLC). After optimized the separation conditions of HPLC, the separation can be completed within 18 min by using a ZORBAX Eclipse Plus C18 column (150 mm×4.6 mm, 5 μm) with 20 mmol/L ammonium acetate (pH 6.9) and methanol as the mobile phases. The gradient elution was performed by 8% methanol (0~2 min), 8%~50% methanol (2~3 min), 50% methanol (3~9 min), 50%~8% methanol (9~12 min) and 8% methanol (12~18 min). The detection wavelength was set at 235 nm. This method has been successfully applied to the analysis of meat products and the average recoveries ranged from 80.7% to 94.4% at high and low spiked levels. The relative standard deviations (RSDs, n=3) were between 2.0% and 7.1%. The method is simple, rapid, accurate and suitable for the simultaneous determination of the six food additives in meat products.

Keywords: high performance liquid chromatography (HPLC) food additives preservatives sweeteners colorants meat products

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