

## 柱前衍生化-超高效液相色谱法快速测定酱油中的18种氨基酸

陈丽梅<sup>1,2</sup>, 尚艳芬<sup>2</sup>, 赵孟彬<sup>2</sup>, 刘虎威<sup>1\*</sup>

1. 北京大学化学与分子工程学院, 北京 100871; 2. 北京锦绣大地农业股份有限公司, 北京 100049

## Rapid determination of 18 amino acids in soy sauce by ultra-performance liquid chromatography with pre-column derivatization

CHEN Limei<sup>1,2</sup>, SHANG Yanfen<sup>2</sup>, ZHAO Mengbin<sup>2</sup>, LIU Huwei<sup>1\*</sup>

1. College of Chemistry and Molecular Engineering, Peking University, Beijing 100871, China; 2. Beijing Glorious Land Agricultural Company Limited, Beijing 100049, China

摘要	参考文献	相关文章
----	------	------

Download: PDF (170KB) [HTML](#) 1KB Export: BibTeX or EndNote (RIS) Supporting Info

**摘要** 建立了一种6-氨基喹啉基-N-羟基琥珀酰亚氨基甲酸酯(AQC)柱前衍生,超高效液相色谱(UPLC)对酱油中18种氨基酸进行快速分离检测的方法。采用BEH C18色谱柱分离,在260 nm波长下检测,以乙酸铵-乙酸-乙腈-水和乙腈-乙酸为流动相,将流动相梯度和流速梯度相结合,在12 min内实现了18种氨基酸衍生物的分离。方法的线性回归系数(r<sup>2</sup>)均大于0.999,检出限为0.032~0.12 mg/L,日间相对标准偏差(RSD)为0.72%~4.05%,在酱油中18种氨基酸的加标回收率为90.2%~103.7%。该方法前处理过程简单,分离时间短,是检测酱油中氨基酸的有效手段,可用于酱油的质量评定。

**关键词:** 柱前衍生 超高效液相色谱 6-氨基喹啉基-N-羟基琥珀酰亚氨基甲酸酯 氨基酸 酱油

**Abstract:** A rapid ultra-performance liquid chromatographic (UPLC) method was developed for the separation and determination of 18 amino acids in soy sauce by using 6-aminoquinolyl-N-hydroxyl-succinimidyl-carbamate (AQC) as pre-column derivatization reagent. The 18 amino acids were separated within 12 min using a BEH C18 column, ultraviolet (UV) detection at 260 nm, ammonium acetate-acetic acid-acetonitrile-water and acetonitrile-acetic acid as the mobile phases with combined gradient elution and gradient flow-rate. A linear relationship between the UV absorbance and the concentration of each amino acid was obtained with the correlation coefficient (r<sup>2</sup>) above 0.999. The detection limits were ranged from 0.032 mg/L to 0.12 mg/L for different amino acids, and the overall relative standard deviations from 0.72% to 4.05%. The recoveries of 18 analytes in a spiked soy sauce were from 90.2% to 103.7%. With simple pretreatment of the samples and shorter analysis time, the proposed method can be applied to determine amino acids in soy sauce.

**Keywords:** pre-column derivatization ultra-performance liquid chromatography (UPLC) 6-aminoquinolyl-N-hydroxy-succinimidyl-carbamate (AQC) amino acids soy sauce

Received 2010-09-17; published 2010-12-27

Fund:

北京中关村科技园区海淀园博士后工作专项资助项目.

Corresponding Authors: 刘虎威,博士,教授. E-mail: hwliu@pku.edu.cn. Email: hwliu@pku.edu.cn

引用本文:

陈丽梅<sup>1,2</sup>, 尚艳芬<sup>2</sup>, 赵孟彬<sup>2</sup>, 刘虎威<sup>1\*</sup>. 柱前衍生化-超高效液相色谱法快速测定酱油中的18种氨基酸[J] 色谱, 2010, V28(12): 1154-1157

CHEN Limei<sup>1,2</sup>, SHANG Yanfen<sup>2</sup>, ZHAO Mengbin<sup>2</sup>, LIU Huwei<sup>1\*</sup>. Rapid determination of 18 amino acids in soy sauce by ultra-performance liquid chromatography with pre-column derivatization[J] Chinese Journal of Chromatography, 2010, V28(12): 1154-1157

链接本文:

<http://www.chrom-china.com/CN/10.3724/SP.J.1123.2010.01154> 或 <http://www.chrom-china.com/CN/Y2010/V28/I12/1154>

**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**

- ▶ 陈丽梅
- ▶ 刘虎威