

胶束电动毛细管色谱法检测红曲米中的莫纳可林K

张良, 许杨*, 李燕萍*

南昌大学食品科学与技术国家重点实验室中德联合研究院, 江西 南昌 330047

Determination of Monacolin K in red fermented rice by micellar chromatography

ZHANG Liang, XU Yang*, LI Yanping*

State Key Laboratory of Food Science and Technology, Sino-Germany Joint Research Institute of Nanchang Uni

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摘要 建立了测定红曲米中莫纳可林K含量的胶束电动毛细管色谱(MEKC)方法。考察了运行缓冲液的种类、pH及其浓度、有机添加剂:硫酸钠(SDS)的浓度和分离电压等实验条件对电泳分离效果及检测灵敏度的影响。在优化的实验条件下,以20 mmol/L硼砂(pH 10.6)乙醇和40 mmol/L SDS作为缓冲溶液,莫纳可林K能在23 min内实现很好的基线分离,线性范围为5.00~100.00 mg/L,线性相关系数为0.9976,检出限(以信噪比(S/N)为3计)为0.13 mg/L,加标回收率为98.5%~99.5%。精密度和稳定性试验中,峰面积和迁移时间偏差均小于3%,表明重复性良好。该方法简便、快速、灵敏,可用于红曲米中莫纳可林K含量的测定。

关键词: 胶束电动毛细管色谱 莫纳可林K 红曲米

Abstract: A method for Monacolin K determination in red fermented rice based on micellar electrokinetic capillary chromatography has been developed. The assay conditions including pH and the concentration of running buffer additive, the concentration of sodium dodecyl sulfate (SDS), and the separation voltage were optimized. Under the optimized conditions (20 mmol/L borate buffer (pH 10.6, containing 10%(v/v) methanol, 40 mmol/L SDS), the Monacolin K can be separated within 23 min, with the linear working range of 5.00~100.00 mg/L ($r^2=0.9976$) and a limit of detection (S/N=3) of 0.13 mg/L. It had good recoveries (98.5%~99.5%) and the relative standard deviations lower than 3%. The method is simple, rapid, sensitive, highly reproducible and can be successfully applied in the determination of Monacolin K in red fermented rice.

Keywords: micellar electrokinetic capillary chromatography (MEKC) Monacolin K red fermented rice

Received 2009-12-02; published 2010-04-28

Corresponding Authors: 许杨

引用本文:
张良,许杨*,李燕萍.胶束电动毛细管色谱法检测红曲米中的莫纳可林K[J] 色谱, 2010,28(4): 393-396