

高效离子排斥色谱法测定蔬菜中的马来酰肼

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Determination of maleic hydrazide in vegetables by high performance ion-exclusion chromatography

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摘要

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摘要 建立了马铃薯、洋葱、大蒜中马来酰肼(MH)的高效离子排斥色谱(HPIEC)检测方法。样品经提取、净化、过滤后进行色谱分析。3 mmol/L 甲酸水溶液-乙腈(70:30, v/v)为流动相,流速0.8 mL/min,采用Ionpac ICE-AS1(250 mm×9 mm)HPIEC色谱柱分离,205 nm,外标法定量。结果表明,MH的线性范围为0.006~1.0 mg/L,相关系数为0.9999,回收率为91%~103%,相对标准偏差(RSD)为3%,检出限为0.002 mg/L (S/N=3)。该方法灵敏度高,前处理简便,可用于马铃薯、洋葱、大蒜中MH的检测。

关键词: 高效离子排斥色谱法 马来酰肼 蔬菜

Abstract: A new method was developed for the determination of maleic hydrazide (MH) in potatoes, onions and garlics by high performance ion-exclusion chromatography (HPIEC). The sample was extracted with acidic methanol, purified and filtered, then analyzed by HPIEC. The analytical column was IonPac ICE-AS1 (250 mm×9 mm) and a mixture of 3 mmol/L formic acid water solution-acetonitrile (70:30, v/v) was used as the eluent at a flow rate of 0.8 mL/min. The detection was performed at 205 nm by an Ultimate 3000 VWD. The quantitative analysis of external standard calibration curve was used. The linear range of the method for MH was 0.006~1.0 mg/L ($r=0.9999$). The average recoveries were 91%~103% with relative standard deviations (RSDs) less than 3%. The detection limit was 0.002 mg/L for MH. The method was effective, precise, sensitive, reproducible and selective. It can be used to determine the residue of MH in potatoes, onions and garlics.

Keywords: high performance ion-exclusion chromatography (HPIEC) maleic hydrazide (MH) vegetables

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