色谱 2009 27 (2): 138-143 ISSN: 1000-8713 CN: 42-1226/O

研究论文

高效液相色谱-串联质谱法同时测定鳗鱼和虾中残留的33种喹诺酮和磺胺类药物

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收稿日期 2008-7-17 修回日期 2008-9-24 网络版发布日期 2009-3-30 接受日期 2008-9-26

摘要 建立了鳗鱼和虾中33种喹诺酮类(QNs)和磺胺类(SAs)药物残留量的高效液相色谱-串联质谱(HPLC-MS/MS)测定方法。以氘代试剂为内标,样品经酸性乙腈萃取后,用正己烷脱脂,旋转蒸发浓缩,采用LC-MS/MS选择反应监测(SRM)正离子模式测定,同时对鳗鱼和虾中的33种QNs和SAs进行定性和定量。33种QNs和SAs的检出限(S/N=3)为1.0 μg/kg,定量限(S/N=10)为2.0 μg/kg;在10.0～200.0 μg/L时目标物的峰强度与质量浓度的线性关系良好(r>0.99);平均回收率为66%～123%。该法简便快捷,降低了分析成本,也在一定程度上实现了药物残留的快速检测。

关键词 高效液相色谱-串联质谱 氘代试剂 内标法 喹诺酮类药物 磺胺类药物 多残留 鳗鱼 虾

Simultaneous determination of 33 quinolone and sulfonamide residues in eels and shrimps by high performance liquid chromatography-tandem mass spectrometry

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Abstract

The method for the simultaneous determination of 33 quinolone （QN） and sulfonamide （SA） residues in eels and shrimps was developed by high performance liquid chromatography-tandem mass spectrometry (HPLC-MS/MS). The deuterium substituted reagents which were used as internal standards were added to the sample before the extraction. The sample was extracted with acidified acetonitrile, cleaned-up by hexane, and concentrated with a rotary evaporator. The mass spectrometer was operated in the positive ion mode using selected reaction monitoring for the qualitative and quantitative analysis of 33 SAs and QNs at the same time. The limits of detection for 33 SAs and QNs were 1.0 μg/kg (S/N=3), and the limits of quantification were 2.0 μg/kg (S/N=10). The correlation coefficients of linear calibration curves were over 0.99 in the concentration range of 10.0-200.0 μg/L. The average recoveries for 33 SAs and QNs were between 66% and 123%. The advantages of the method are simple operation and low cost. The method realized fast routine analysis.

Key words high performance liquid chromatography-tandem mass spectrometry (HPLC-MS/MS) deuterium substituted reagents internal standard method quinolones sulfonamides multi-residues eels shrimps

DOI:

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