

研究论文

鸡肉中11种喹诺酮类药物多残留的高效液相色谱检测

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摘要 建立了用荧光检测器同时测定11种喹诺酮类药物(包括诺氟沙星、培氟沙星、环丙沙星、恩诺沙星、氧氟沙星、达氟沙星、洛美沙星、二氟沙星、沙拉沙星、恶喹酸和氟甲喹)在鸡肉中的多残留的高效液相色谱检测方法。鸡肉样品用10%三氯乙酸-乙腈(体积比为7:3)提取两次并稀释,随后用反相固相萃取柱净化。采用Hypersil BDS-C18色谱柱分离,以乙腈和水为流动相梯度洗脱,荧光检测器用程序编程检测波长检测。11种喹诺酮类药物标准曲线的线性范围为5~1200 $\mu\text{g/L}$,相关系数大于0.998。在高、中、低三个添加水平下的回收率为56%~119%,批内相对标准偏差为0.4%~16.1%,批间相对标准偏差为1.4%~23.0%。检出限和定量限分别为1~23 $\mu\text{g/kg}$ 和4~40 $\mu\text{g/kg}$ 。该方法快速、灵敏,达到了兽药残留检测的要求。

关键词 [高效液相色谱法](#) [固相萃取](#) [喹诺酮类药物](#) [鸡肉](#)

Multi-residue determination of 11 quinolones in chicken muscle by high performance liquid chromatography with fluorescence detection

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Abstract

A high performance liquid chromatographic (HPLC) method with fluorescence detection was developed for the simultaneous determination of 11 quinolones (QNs) (norfloxacin, ofloxacin, ciprofloxacin, pefloxacin, lomefloxacin, danofloxacin, enrofloxacin, sarafloxacin, difloxacin, oxolinic acid and flumequine) residues in chicken muscle. The chicken muscle samples were extracted by 10% trichloroacetic acid/acetonitrile (7:3, v/v) twice, diluted and cleaned up by a reversed-phase solid-phase extraction (SPE) cartridge. The QNs were separated on a reversed-phase C18 column (Hypersil BDS-C18) with mobile phase gradient elution (acetonitrile and water as mobile phases) and detected by a fluorescence detector with a wavelength program. The linear ranges of quinolone calibrations were 5-1200 $\mu\text{g/L}$ in chicken muscle with the correlation coefficients more than 0.998. The recoveries for chicken muscle fortified with 11 QNs at three levels were 56%-119% with acceptable intra-batch relative standard deviations (RSD) (0.4%-16.1%) and inter-batch RSD (1.4%-23.0%). The limits of detection (LOD) and limits of quantification (LOQ) were 1-23 $\mu\text{g/kg}$ and 4-40 $\mu\text{g/kg}$ for the 11 QNs, respectively. The sensitivity meets the quantification requirements for the residue analysis.

Key words [high performance liquid chromatography \(HPLC\)](#) [solid-phase extraction\(SPE\)](#) [quinolones \(QNs\)](#) [chicken muscle](#)

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