

研究论文

## 气相色谱-质谱法测定鸡肉中残留的环丙胺嗪及其代谢物三聚氰胺

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收稿日期 2008-12-16 修回日期 2009-2-28 网络版发布日期 2009-7-28 接受日期 2009-3-16

**摘要** 建立了鸡肉中残留的环丙胺嗪及其代谢物三聚氰胺的气相色谱-质谱(GC-MS)检测方法。样品经酸化的乙腈-水溶液提取、二氯甲烷去脂、混合型的阳离子交换(MCX)固相萃取柱净化、N,O-双三甲基硅基-三氟乙酰胺(BSTFA)衍生化后进行GC-MS测定。环丙胺嗪采用外标法定量,三聚氰胺以三聚氰胺-15N3为内标定量。结果表明,环丙胺嗪与三聚氰胺的线性范围均为100~1 000 μg/L,定量限为20 μg/kg。在20, 40, 80 μg/kg 3个添加浓度下目标化合物的平均回收率为75%~110%,批内、批间相对标准偏差分别小于10%和15%。该方法样品前处理简单,测定灵敏度高,定性准确,选择性好,可实现鸡肉中环丙胺嗪与三聚氰胺残留的同时测定。

**关键词** [气相色谱-质谱\(GC-MS\)](#) [环丙胺嗪](#) [三聚氰胺](#) [代谢物](#) [残留](#) [鸡肉](#)

## Determination of residues of cyromazine and its metabolite melamine in chickens by gas chromatography-mass spectrometry

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### Abstract

A gas chromatography-mass spectrometric (GC-MS) method has been established for the determination of cyromazine and its metabolite melamine in chickens. The homogenized tissue samples added with melamine-15N3 were extracted with acidic acetonitrile-water solution, and defatted with dichloromethane. The samples were derivatized with N,O-bis(trimethylsilyl)trifluoroacetamide (BSTFA), after solid-phase extraction (SPE) which was performed on Oasis MCX cartridges, and then detected by GC-MS. Cyromazine was quantified by an external standard method, and melamine by an internal standard method using melamine-15N3. The results indicated that the linearities of cyromazine and melamine were within the range of 100~1 000 μg/L, and their limits of quantification (LOQ) were 20 μg/kg. The mean recoveries of chicken samples fortified at three concentrations of 20, 40 and 80 μg/kg were within the range of 75%~110%. The relative standard deviations (RSDs) of intra- and inter- batch were less than 10% and 15%, respectively. The application of this method was further demonstrated by analyzing 10 real samples which were brought from local markets. The results show that this method is simple, rapid, sensitive and specific. It is appropriate for the identification and quantification of cyromazine and its metabolite melamine in chickens.

**Key words** [gas chromatography-mass spectrometry \(GC-MS\)](#) [cyromazine](#) [melamine](#) [metabolite residue](#) [chicken](#)

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