

## 高效液相色谱-串联质谱法测定牛奶和奶粉中的三聚氰酸

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## Determination of cyanuric acid in milk and milk powder by high performance liquid chromatography-tandem mass spectrometry

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**摘要** 建立了牛奶和奶粉中三聚氰酸(CYA)的高效液相色谱-串联质谱(HPLC-MS/MS)测定方法。样品用乙腈提取并沉淀蛋白,经强阴离子交换柱富集和净化,AX色谱柱分离,HPLC-MS/MS法测定,内标法定量。50~2000 µg/L范围内CYA的线性关系良好( $r \geq 0.999$ );在奶粉和牛奶基质中,添加200、500和1000 µg/kg 3个添加水平的回收率均在97%~121%之间,相对标准偏差(RSD)均小于4.8%;定量限(LOQ)为200 µg/kg。方法的前处理快速简便,净化效果好,准确度和精密度高,可用于牛奶和奶粉中CYA的测定。

**关键词:** 高效液相色谱-串联质谱 三聚氰酸 牛奶 奶粉

**Abstract:** A method for the determination of cyanuric acid (CYA) in milk and milk powder was developed using high performance liquid chromatography-electrospray ionization tandem mass spectrometry (HPLC-ESI MS/MS). The target analyte was extracted from samples by acetonitrile, and the proteins were precipitated at the same time. The supernatant was cleaned up and enriched with a strong anion exchange column, analysed by HPLC-MS/MS with an AX column, and quantified by internal standard method. Good linearity was obtained in the range of 50~2000 µg/L. The recoveries were all ranged from 97% to 121% at three levels, 200, 500 and 1000 µg/kg, and the relative standard deviations (RSDs) were all below 4.8%. Limit of quantification (LOQ) was 200 µg/kg. The method has high accuracy and precision, the operation is fast, easy and suitable for the determination of CYA in milk and milk powder.

**Keywords:** high performance liquid chromatography-tandem mass spectrometry (HPLC-MS/MS) cyanuric acid milk milk powder

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