

An analytical method for the determination of beta-lactam drug residues in milk.

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ABSTRACT:

This poster describes an analytical method that was developed for the determination of five penicillins, namely amoxicillin, ampicillin, penicillin G, penicillin V, and cloxacillin in raw tanker milk at their US Tolerance or Safe levels. The penicillins are extracted from raw milk with phosphate buffer (pH=8.5) after protein precipitation with sulphuric acid. The milk extract is then cleaned up on a conditioned t-C₁₈ Sep-Pak cartridge. The penicillins are eluted from the cartridge with 2 ml acetonitrile (ACN). After evaporating the ACN to dryness, the residue is dissolved in a 40%ACN/60% 0.1M phosphate buffer (pH=6.5), and reacted with benzoic anhydride and 1,2,4-triazole/mercuric chloride. The derivatized penicillins are analyzed by reversed-phase LC with UV detection at 325 nm. The method was used to verify test responses obtained on incurred milk samples using the LacTek Milk Test, one of several rapid test kits certified for use in the US Milk Testing program.