

Test performance of the improved two-tube test for detection of Penicillin G residues in Kenyan milk.

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In Kenya there are currently no tests done to determine drug violations within the milk supply. This study had the aim of evaluating the test performance of the improved two -tube test as a possible screening method of spiked Penicillin G residues in milk. Three different methods for the analysis of benzylpenicillin (Penicillin G) were compared. The first was the improved two-tube which was compared and contrasted with the widely used commercial Delvotest SP and a chemical method using High-Performance Liquid Chromatography (HPLC). The improved two tube test was found to be the more sensitive and economical method. The improved two tube test gave 96% sensitivity with 95 % confidence at 4 µg/Kg and had a detection residue limit for penicillin G at 2 µg/Kg. The commercial Delvo test SP gave a sensitivity of 92 % with 95 % confidence at 4 µg/Kg and had a detection residue limit for penicillin G at 4µg/Kg .The HPLC method recovery of penicillin G was unsuccessful at 4 µg/Kg and only possible at 12µg/Kg which is higher than the established codex alimentarius Maximum Residue limits (MRLs) of 4 µg/Kg. The cost per ten samples using the improved two tube test was less than 1 USD compared with 5 USD for the Delvo test and 35 USD for the HPLC. The improved two tube test is concluded to be an affordable method which could be used for qualitative identification of penicillin G residues in low income countries dairies. A semiskilled analyst can reliably classify milk samples as positive or negative for benzyl penicillin that exceeds established MRLs.