



HEAT STABILITY OF ANTIBIOTICS RESIDUES IN MILK

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ABSTRACT

The main aim of study was to assess heat stability of antibiotics residues in the milk. Milk samples were divided into five equal parts and encoded with A, B, C, D and E. Samples encoded A were spiked with penicillin G, B with oxytetracycline, C with gentamycin and D with sulfonamide each of at 500, 750 and 1000 ppm concentration. Samples encoded E were kept as control and no antibiotic was spiked. All the spiked and control samples were sub-divided into four parts. Spiked and control samples under part one, two and three were observed for the effect of heat treatments (60 °C for 15 sec, 65 °C for 30 min and 110 °C for 10 min) on the stability of antibiotics, while samples under part four were kept as non-heated for comparison purpose. Results showed mean recovery of sulfonamide (81.73 ± 1.44) significantly higher than penicillin G (80.63 ± 0.92%), gentamycin (76.32 ± 1.29) and oxytetracycline (73.94 ± 1.56%) from spiked milk samples (65 °C) compared of non-heated antibiotics spiked milk samples. The mean recovery for sulfonamide residues (64.48 ± 1.41%) was remarkably (P < 0.05) higher compared to residues of penicillin G (62.93 ± 1.24%), oxytetracycline (58.90 ± 1.13%) and gentamycin (40.00 ± 1.26%) from the heated (110 °C) antibiotics spiked milk compared to non-heated spiked milk samples with similar drugs (13.80 ± 1.28, 26.27 ± 0.79, 18.43 ± 1.04, 15.60 ± 1.39 mm). On the basis of findings of this study it could be concluded that oxytetracycline, gentamycin and penicillin G residues in milk are significantly (P < 0.05) reduced with the pasteurization (at 65 °C) and sterilization (at 110°C). Further, sulfonamide is more thermo stable and oxytetracycline is the less at 110 °C. The prevention of antibiotics residues in milk and heat applications have strong correlation with each other.
