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Occurrence of *listeria monocytogenes* in bulked raw milk and traditionally fermented dairy products in Uganda

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Abstract

Bulked raw milk, locally processed yoghurt (LPY) and Bongo, a traditionally fermented dairy product sold at most informal milk cooling points in Uganda, were assessed for occurrence of Listeria spp. and Listeria monocytogenes. Total plate counts (TPC), holding temperature, pH and titratable acidity were also determined in all the milk products at the point of collection using standard methods. A total of 40 samples of bulked raw milk and 30 for each of LPY and Bongo were examined. Listeria spp. was higher in bulked raw milk than in fermented milk. Listeria spp.
were detected in 60% of bulked raw milk, 30% of LPY and 15% of Bongo samples. Bulked raw milk had significantly higher ($p<0.05$) mean Listeria counts (3.10±0.06 log10 cfu mL-1) than LPY and Bongo, 0.82±0.18 and 0.32±0.18 log10 cfu mL-1, respectively. L. monocytogenes was isolated from 13 % of bulked raw milk, 3.0% of LPY but was not detectable in Bongo. Total plate count was significantly different ($p<0.05$) among the different milk types studied. Bongo had higher TPC (9.00±0.13
log10 cfu mL-1) than bulked raw milk (8.40±0.11 log10 cfu mL-1) and LPY (7.40±0.13 log10 cfu mL-1). The mean total plate counts (4.90 to 9.00±0.13 log10 cfu mL-1) of the fermented dairy products were within the acceptable limits for human consumption. The TPC for bulked raw milk (8.40±0.11 log10 cfu mL-1) was higher than the recommended values of national and international standards. Temperature, pH and
titratable acidity were significantly different ($p<0.05$) among the different milk types. Holding temperature ranged from 5.40 to 8.60oC, pH was 4.20±0.04 to 6.10±0.04 whereas titratable acidity ranged from 0.22±0.01 to 089±0.01%. Listeria counts were not statistically predictable ($p>0.05$) from variation in the combined effect of pH, percent titratable acidity and temperature. Results of this study demonstrate a high risk associated with consumption of bulked raw milk and fermented dairy products in
due to occurrence of Listeria spp.

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