Quality of pasteurized market milk in Kenya

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Introduction

Pasteurized milk in Kenya is required to meet quality standards approved for the regional markets, but processors experience difficulties meeting the standards. This study assessed whether quality of whole pasteurized milk sold on the Kenyan market conforms to the East African Standard (EAS) quality requirements.

Materials and methods

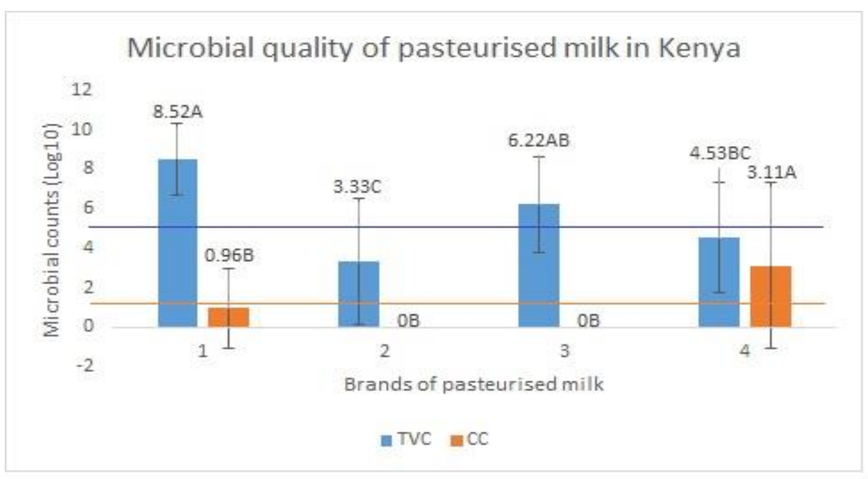
Study area: Nakuru town in Kenya, in February 2016

Milk sample collection: A sample of forty, 500ml of unexpired whole pasteurized milk packed in polythene pouches was bought from the market. Samples represented four brands of milk from four processors namely, (1) Large co-operative, (2) State owned processor, (3) Small co-operative, and (4) Large private processor.

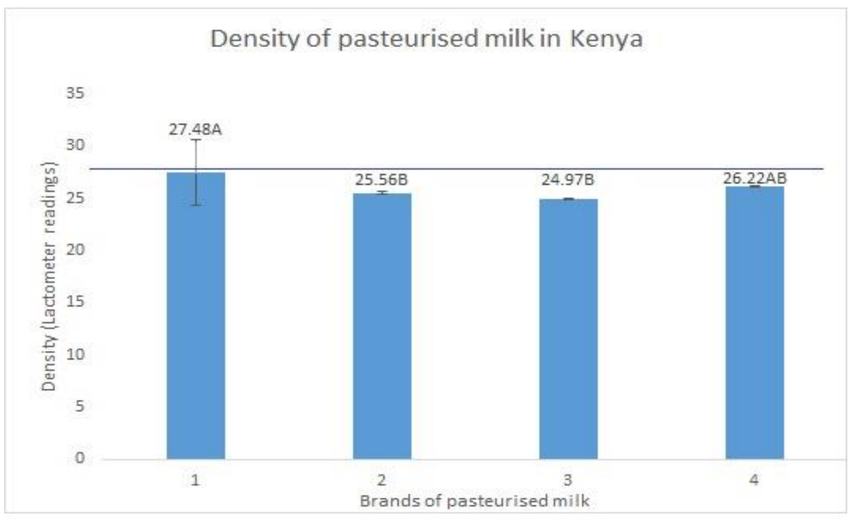
Milk sample analysis: Microbial quality, degree of pasteurization (phosphatase test) and proximate composition.

Results

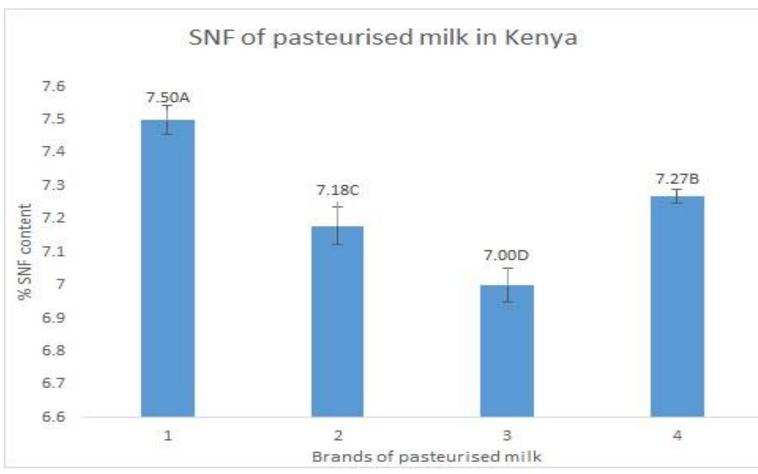
Microbial quality: The mean of Total Viable Count (TVC) was Log_{10} 5.64±3.19 cfu/ml and the mean Coliform Count (CC) was Log_{10}1.02±2.6 cfu/ml which were above the EAS requirement of Log_{10}4.48 cfu/ml and Log_{10}1.0 cfu/ml respectively. For mean TVC per brand, (1) and (3) met the standards, while (2) and (4) did not; for CC, only (4) failed the standard



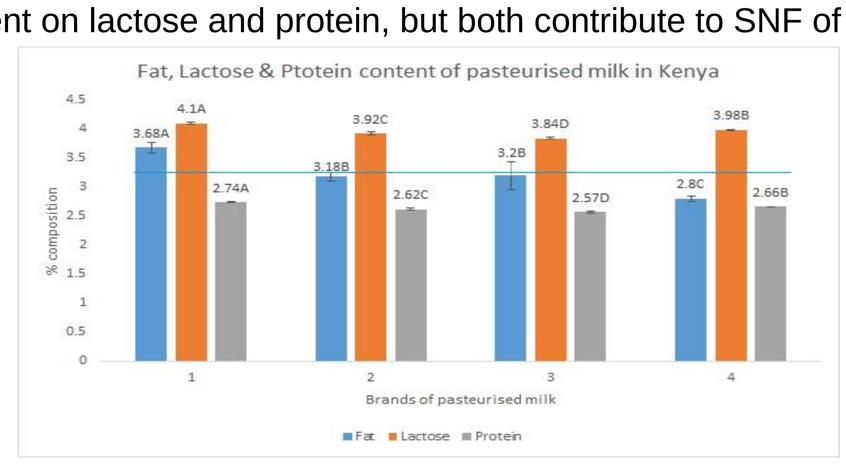
Density: All the milk samples failed the density requirement of 28 lactometer readings.



Solid-non-fat content (SNF): None of the milk samples met the requirement of 8.5% for SNF of milk



Fat, lactose and protein: Only one brand met the requirement for fat. The average butter fat for all the milk was 3.21% which didn't meet the requirement for whole pasteurized milk. The standard is silent on lactose and protein, but both contribute to SNF of milk.



Frequency of samples meeting standards: None of the milk samples met all the quality requirements

Property & EAS standards	TA (% Lactic acid), <0.17% LA	TVC, < log 10 4.48 cfu/ml	CC, < log 10 1 cfu/ml	Phosphatase test, ≤10 Lovibond reading	Fat, > 3.25%	Density, 28 to 36 lactometer readings	SNF, > 8.5%
Frequency meeting EAS standards	57.5	92.5	87.5	77.5	40	0	0

Conclusion

- Processors need to provide incentives to milk suppliers such as quality based payment to encourage delivery of good quality milk for processing.
- Processors need to increase severity of pasteurization regime based on microbial quality of milk.
- Proper cleaning and sterilization of plant equipment and surfaces, and observing aseptic packaging is necessary to avoid milk post-pasteurization contamination.

Bibliography

East African Standard-Pasteurized milk specification (EAS 69:2006) retrieved on 19th August 2016 from https://law.resource.org/pub/eac/ibr/eas.69.2006.html

Acknowledgement

Egerton University and, ReLOAD project funded by the German federal ministry of education and research.

Tropentag 2016: Theme; Solidarity in a competing world-Fair use of resources: Organised by the University of Natural Resources and Life Sciences (BOKU Vienna), Austria: September 18-21, 2016.