



TITLE: Analyzing Physicochemical Properties and Microbiological Quality of Raw and Traditional Fermented Camel Milk (*Chuuchee*)

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ABSTRACT

This experiment was carried out to investigate physicochemical properties and microbiological quality of raw camel milk as well as traditional and laboratory made Chuuchee. Traditional Chuuchee samples and raw camel milk used to prepare Chuuchee in the laboratory were collected from pastoralists in Yabello and Gomole districts of Borana zone. The overall mean (\pm SD) values of raw camel milk for pH, titratable acidity, protein, fat, lactose, solids-not-fat, ash, total solids and density, respectively were 6.62 ± 0.07 , 0.14 ± 0.03 (%), 3.15 ± 0.18 (%), 3.25 ± 0.27 (%), 4.62 ± 0.54 (%), 8.50 ± 0.55 (%), 0.72 ± 0.02 (%), 11.74 ± 0.56 (%) and 1.026 ± 0.01 (g/cm³). On the other hand, the overall mean (\pm SD) values for pH, titratable acidity, protein, fat, lactose, solids-not-fat, total solids, ash were 3.81 ± 0.08 , 1.79 ± 0.04 (%), 6.23 ± 0.30 (%), 7.09 ± 0.16 (%), 1.49 ± 0.03 (%), 9.61 ± 0.22 (%), 15.84 ± 0.51 (%), 1.03 ± 0.05 (%) and 4.08 ± 0.10 , 1.64 ± 0.07 (%), 5.59 ± 0.24 (%), 6.55 ± 0.23 (%), 1.39 ± 0.06 (%), 8.93 ± 0.31 (%), 14.52 ± 0.37 (%), 0.98 ± 0.04 (%), respectively for traditional and laboratory made Chuuchee, respectively. Significant differences ($P < 0.05$) were observed between the two Chuuchee types for all the physicochemical parameters measured. The average (\pm SD) totals viable count bacterial flora, coli-forms and yeast and molds for raw camel milk were 7.32 ± 0.12 , 7.12 ± 0.16 and 6.33 ± 0.22 log₁₀ cfu/ml, respectively. However, the overall mean (\pm SD) values for total bacteria count, coli-form, lactic acid bacteria and yeast and mold were 4.85 ± 0.05 , 0.00 ± 0.00 , 5.12 ± 0.02 , 5.09 ± 0.11 and 4.59 ± 0.03 , 4.42 ± 0.08 , 4.92 ± 0.06 , 4.76 ± 0.18 , respectively for traditional and laboratory made Chuuchee, respectively. The results indicated high microbial loads can limit keeping quality of raw camel milk. In addition, the quality of traditional Chuuchee was poor as compared to that made in the laboratory. There is a major need to improve hygienic condition and provide adequate sanitary measures from the stage of milk production to processing.

International Conference on
Nutraceuticals and Food science

November 17-18, 2022 | Paris, France

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Birhanu Bekele is associate researcher in dairy and PhD candidate at Haramaya University in Dairy Science and Technology. Birhanu received his BSc degree in Animal Science from Haramaya University in 2010 and MSc degree in Dairy Technology from Haramaya University in collaboration with Copenhagen University in 2017. In November 2017, Birhanu handed in his thesis entitled “*Effect of starter cultures on properties of soft cheese made from camel (Camelus dromedarius) milk*”. Subsequently his research was published in Journal of Dairy Science, one of the most prestigious dairy journals. He has over 10 years’ experience in dairy science and technology research in Oromia Agricultural Research Institute at Yabello Pastoral and Dryland Agriculture Research Center and served as a team leader. Birhanu was conducting different dairy related researches in groups and individual. He has published over 10 articles.

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