QUALITY EVALUATION OF DIFFERENT BRANDS OF CONDENSED MILK AVAILABLE IN BANGLADESH

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Session: 2020-2021

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Dairy Science

Department of Dairy and Poultry Science

Faculty of Veterinary Medicine

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Chattogram-4225, Bangladesh

September 2023

Dedicated

To My

Beloved Family

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This is to certify that we have examined the above Master's thesis and have found that the thesis is complete and satisfactory in all respects and that all revisions required by the thesis examination committee have been made

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PLAGIARISM VERIFICATION

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Professor Goutam Kumar Debnath

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The Author
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Table of Contents

List of Tables

List of Figures

List of Abbreviations and symbols

Abbreviations	Elaborations
<	Less than
>	Greater than
%	Percentage
ADSA	American Dairy Science Association
AOAC	Association of Official Analytical Collaboration
BCSIR	Bangladesh Council of Scientific and Industrial Research
BSTI	Bangladesh Standards and Testing Institution
°C	Degree Celsius
Cfu	Colony forming unit
CM	Condensed milk
CVASU	Chattogram Veterinary and Animal Sciences University
DMB	Dry matter basis
DDPS	Department of Dairy and Poultry Science
e.g	Example
EM	Evaporated milk
et.al	And his associates
etc	Et cetera
FAO	Food and Agriculture Organization
FDA	Food and Drug Administration
gm	gram
IDF	International Dairy Federation
max	Maximum
min	Minimum
ml	Milliliter
NaOH	Sodium hydroxide
PFA	Prevention of Food Adulteration
PRTC	Poultry Research and Training Centre
rpm	Rotation per minute

Abbreviation	Elaborations
SCM	Sweetened Condensed Milk
SPC	Standard Plate Count
TMS	Total Milk Solids

Abstract

Condensed milk is one of the most popular milk products that gaining popularity in Bangladesh day by day. Sweetened condensed milk is a dairy product made by evaporating a part of the milk and sucrose mixture. An attempt was made in this study to evaluate the qualities of condensed milk of 4 different brands (Danish, Goalini Plus, No1, and Starship) available in local markets of Bangladesh. Three samples were taken as replicates for each brand. The chemical parameters studied in this experiment were acidity, sucrose, fat, and protein. The microbiological parameters were total viable count, coliform count, yeast, and mold count. In the case of protein and sucrose percentage, there was a significant difference (($p<0.05$) within the brands. The highest sucrose was found in Goalini plus condensed milk (41.90±0.31) and the lowest in Danish condensed milk (40.70±0.46). A high level of protein was found in Danish condensed milk (7.47±0.23) and lowest in No1 condensed milk (6.60±0.26). In case of fat and acidity percentage, all four brands possessed a good quality grade and no significant ($p>0.05$) difference was observed. Fat percentages found highest in Goalini Plus condensed milk (8.53±0.23) and lowest in Starship condensed milk (7.73±0.23). The titratable acidity of the samples was measured on days 1 and 7. There was an increase in acidity with the progress of the storage time, but the values were in the acceptable range even on day 7. There were highly significant differences among the total viable count of bacteria of all brands of condensed milk ($p<0.01$) and the values were within BSTI standards. No coliforms were detected which indicated that good sanitary measures were adopted during the manufacture and storage. No Yeast and mold were found after 5 days of incubation. The result of acidity percentage and fat content were almost similar to different brands of condensed milk. It can be concluded that Danish and Starship condensed milk were better than the two others based on protein and acidity percentage.

Keywords: Chemical, microbiological, acidity, sucrose, coliform.