

DEVELOPMENT AND QUALITY ANALYSIS OF VEGAN CURD FROM GROUNDNUT AND RICEMILK BY USING GREEN CHILLI PEDICLES

By

T. Thasbiha Beaham



FTC238

Project Report
Main Library, Eastern University, Sri Lanka

Department of Biosystems Technology

Faculty of Technology

Eastern University, Sri Lanka

Chenkalady

2025

ABSTRACT

The development of plant-based dairy products has been fueled by the rising desire for healthier and more sustainable dietary options. The production and quality evaluation of vegan curd using rice and groundnut milk fermented with Lactic Acid Bacteria isolated from green chilli pedicels are the main objectives of this work. In order to determine the vegan curd's nutritional value, safety, and customer acceptability, the study compares various formulations (T₀-T₃) and analyzes its physicochemical, microbiological, and sensory characteristics. The vegan curd's pH levels ranged from 3.9 ± 0.04 to 4.05 ± 0.01 , indicating ideal fermentation conditions, while its protein concentration reached up to $1.25\pm 0.01\%$ and fat content reached $6.03\pm 0.05\%$, according to chemical tests. The product's stability and safety were guaranteed by microbiological analysis, which verified the low Yeast and Mold levels and lack of coliforms. Overall acceptability scores were similar to those of commercial plant-based yogurts, and sensory analysis emphasized the curd's delectable texture, flavor, and aroma. Utilizing LAB from green chilli pedicels improved the fermentation process and added to the curd's distinct flavor and health advantages. The results showed that vegan curd is a good substitute for conventional dairy curd and gives consumers a nutrient-dense, sustainable choice. The study emphasized how creative, environmentally beneficial food products may be made from agricultural waste, such as chilli pedicels. To further improve the product's quality and market potential, future studies should concentrate on increasing production volume, refining fermentation conditions, and investigating the functional characteristics of LAB. This study provided a reproducible model for creating plant-based dairy substitutes and added to the expanding corpus of information on sustainable food production.

Key words: Functional Properties, Green Chilli Pedicels, Lactic Acid Bacteria, Sustainability and Vegan Curd.

TABLE OF CONTENTS

ACKNOWLEDGMENT	i
ABSTRACT	ii
TABLE OF CONTENTS	iii
LIST OF FIGURES.....	v
LIST OF TABLES	vi
ABBREVIATIONS.....	vii
CHAPTER 1	1
INTRODUCTION	1
1.1 Background and Rationale	1
1.1.1 Need for Vegan Alternatives to Dairy Curd	1
1.1.2 Environmental and Health Benefits of Groundnut and Rice Milk.....	2
1.1.3 Justification for Green Chilli Pedicels as a Starter Culture	3
1.2 Main objectives.....	5
1.3 Research Questions/Hypothesis.....	5
1.4 Significance of the Study	5
CHAPTER 2.....	7
LITERATURE REVIEW	7
2.1 LAB from Plant Sources as Starters	7
2.2 Existing vegan curd alternatives	9
2.3 Challenges in plant-based curd	11
2.4 Nutritional and Functional Properties of Groundnut and Rice Milk.....	11
CHAPTER 3	14
METHODOLOGY	14
3.1 Work plan	14
3.2 Study area	14
3.2.1 Location and Significance	14
3.2.2 Milco (Pvt) Ltd: Research Facility	14
3.3 Preparation of Raw Materials	15
3.3.1 Preparation of Groundnut Milk and rice milk	15

3.3.2	Formulation of Vegan Curd.....	15
3.3.3	Preparation of milk curd	16
3.4	Quality Analysis of Vegan Curd.....	17
3.4.1	pH test.....	17
3.4.2	Acidity test.....	17
3.4.3	Hydrogen peroxide test.....	18
3.4.5	Viscosity test for	18
3.4.6	Determination of Total solid and moisture	19
3.5	Microbiological Analysis.....	19
3.5.1	Total Colony Count (TCC).....	19
3.5.2	Yeast and Mold Count (YMC)	20
3.5.3	Coliform test.....	22
3.6	Sensory evaluation.....	23
3.7	Nutritional Analysis.....	24
3.7.1	Protein content (Kjeldahl Method)	24
3.7.2	Fat content analysis (Gerber Method BS 696: Part ii: 1969).....	25
3.7.3	Ash content (AOAC 2000)	27
3.8	Statistical analysis.....	27
CHAPTER 4.....		28
RESULTS AND DISCUSSION		28
4.1	Chemical analysis of prepared Vegan curd.....	28
4.2	Microbial evaluation of prepared curd	30
4.3	Sensory evaluation score of Vegan curd	31
4.4	pH and acidity of curd samples selected in sensory evaluation.....	33
CHAPTER 5.....		35
5.1	CONCLUSION	35
5.2	LIMITATIONS AND SUGGESTIONS	35
REFERENCES.....		36
APENDIX		41