



A PROJECT WORK REPORT

On

Creamy Composition of Moringa Powder Enriched Sour Yogurt for Nutritional Enhancement

Submitted To:

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Date of Submission: 22 Dec 2018

LETTER OF TRANSMITTAL

Date: 22 Dec, 2018

To

Professor Dr.Md. Bellal Hossain

Head

Department of Nutrition & Food Engineering

Daffodil International University.

Subject: Submission of Project Report

Dear Sir,

I would like to take this opportunity to thank my supervisor for the guidance and support you have provided me during the course of this report. Without your help, this report would have been impossible to complete. I am great full to the department of Nutrition and Food Engineering, Daffodil International University. To prepare the report I collected what I believe to be most relevant information to make my report as analytical and reliable as possible. I have concentrated my best effort to achieve the objectives of the report and hope that my endeavor will serve the purpose. The practical knowledge and experience gathered during report preparation will immeasurably help in my future professional life. I request you to excuse me for any mistake that may occur in the report despite of my best effort.

I would really appreciate it you enlighten me with your thoughts and views regarding the report. Also, if you wish to enquire about an aspect of my report, I would gladly answer your queries.

Thank you again for your support and patience.

Sincerely Yours,

Md. Shawakh Ahmed

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Department of Nutrition and Food Engineering

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LATTER OF AUTHORIZATION

Date: 22 Dec, 2018

To

Professor Dr. Md. Bellal Hossain
Head
Department of Nutrition and Food Engineering
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Daffodil International University

Subject: Declaration regarding the validity of the Project Report.

Dear Sir,

This is my truthful declaration that the “**Project Report**”. I have prepared is not a copy any Thesis Report previously made any other students.

I also express my honestly confirmation in support to the fact that the said thesis report has neither been used before to fulfill my other course related non it will be submitted to any other person an authority in future.

Yours Sincerely,

Md.Shawakh Ahmed

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Department of Nutrition and Food Engineering
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CERTIFICATE OF APPROVAL

I am pleased to certify that the project report entitled, conducted by Md.Shawakh Ahmed, bearing ID No: 143-34-331 of the department of Nutrition and Food Engineering has been approved for presentation and defense/viva-voice.

I am pleased to hereby certify that the data and finding presented in the report are the authentic work of Md. Shawakh Ahmed. I strongly recommend the report presented by of Md.Shawakh Ahmed for further academic recommendations and defense/viva-voice of Md.Shawakh Ahmed

Bears a strong moral character and a very pleasant personality. It has indeed a great pleasure working with him. I wish him all success in life.



Professor Dr. Md. Bellal Hossain
Head
Department of Nutrition and Food Engineering
Faculty of Allied Health Sciences
Daffodil International University

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In preparation of this report, I would like to acknowledge the encouragement and assistance give to me by a number of people. At first, I would like to express my gratitude to almighty God for enabling me the strength and opportunity to complete the report in the scheduled time successfully. I am taking this privilege to deliver my gratefulness to each and every people who are involved with me in every phase of my life.

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Finally I wish to express my deep gratitude to the office stuff of the Department of Nutrition & Food Engineering under Faculty of Allied Health Sciences, Daffodil International University

EXECUTIVE SUMMARY

Moringa yogurt is a new concept in dairy products line in Bangladesh. Various ingredient could be added to yogurt in form of pulp to increase the nutritional quality and improve the textural properties of yogurts. In this research, moringa is added sour yogurt was found nutritionally and organoleptically superior than control. In addition, low amount of syneresis was observed in fruit yogurt samples than control sample. Moringa with sour yogurt was most preferred over other yogurts. Therefore, Moringa Sour yogurt could be processed in Bangladesh and recommended to the people of all ages. The foreign countries, Moringa Sour yogurt are very expensive. It's a carefully cheer and taste. So if we try then new preparation in culture in our country. It has a good market potential however, this particular pupation can also be market overseas especially the American, Australian, & European processed food machine.

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CHAPTER 01

INTRODUCTION

Sour yogurt is one the favorite food of every people. Usually mixing yogurt with various different yogurt in the in foreign market is common. For example, Moringa . Many nutrients include with yogurt. Not only this, yogurt meets the needs of various nutritional needs of the body. Many nutrition and vitamins electricity in the diet. Sour yogurt is one of the oldest fermented milk-product and has been an important food item of peoples in the Middle East since early times.

LITERATURE REVIEW

Sour Yogurt is nutritionally rich in protein. Calcium, riboflavin, Vitamin b6 and Vitamins b12. Yogurt thought to have additional health benefits beyond milk. One of the suggested benefits of yogurts is that it acts as a digestive aid. Yogurts encourage the growth of beneficial bacteria in the intestine of the body.

The organisms help to digest food more efficiently and protect against other harmful organisms. Sour Yogurt is good for people that are lactose intolerant .These people have difficulty is digesting milk product , the typically can tolerate yogurt because much of the lactose in the milk is converted to lactic aid by the bacteria culture .(koiars , et,al 1984)

Sour Yogurt is a dairy food product , produced by lactic acid bacteria in fermentation of milk. the conversion of lactose into lactic acid gives yogurt. its characteristic gel like texture .(Braing Dictionary ,2005, Wikipedia ,2005,Elson and Hass ,2005)

It also discribed as the bacterial curdling of milk. which is produced with the use of specific bacteria .(lactobacillus bulgaricus and streptococcus thermophilus). for the production of yogurt ,which has a custard like consistency .(Robins 1980)

Yogurt whose name comes form the turkish word " yogurt" is the most wisely available fermented milk in the western world today where its popularly derived more form its flavor (Adams and Moss,1999).

Objective of the Study

There are two objective of this study

- General Objective.
- Specific Objective.

- **General Objective**

- To assess the overall Nutrition gravity and change texture of Sour Yogurt after enriching with moringas supplement

- **Specific Objective**

- To improve the texture and motivational value of sour yogurt.
- . To find out nutritional status and how to improve of yogurt.
- To establish association between Moringa and change nutritional status of sour Yogurt.
- To know about the benefit of moringa sour yogurt.

Chapter 02

Analysis

Principle:

Sour yogurt is produced by lactic acid fermentation of lactose in milk by lacto, such as *Lactobacillus bulgaricus* and *Streptococcus thermophiles*. The synergistic actions of these two bacteria contribute to the specific texture, composition and sensory properties of yogurt. Fresh yogurt can be processed further into concentrated yogurt by partial removal of its whey using traditional cloth-bag (Berge) or centrifugal separator methods although other methods were also investigated.

Material Required:

Milk

Sour Culture

Lemon Flavour

Moringa Powder

Apparatus:

Large Stock Pot

Beaker

Gas Balance

Pan

Thermometer

Tray

Balance metre

Oven

Spoon

Large Bowl

Measuring Spoons and Cups

Procedure:

1. Milk 1/2 Litter Heat treated
2. With the help of Thermometer, the milk will be boated to 35-40 c
3. 1/2 litter of milk should be divided into two beakers.
4. Two beakers and two spoons should be added to the Sour culture and Lemon Flavour
5. Then keep at 50 c for 5/6 hours in the oven.
6. Remove the water by the gas stove heat.
7. Finally, add 5 gram moringa powder (Beaker 1)/2.5 gram moringa powder(Beaker 2) and the last step to be Freezing for 3/5 hours.

Precaution:

- Careful holding
- The work should be lam

Result

Sensory test

SCORE	Average Result				
	Sample 1/5 gram Moringa powder with sour yogurt				
	Appearance	Flavor	Taste	Texture	Overall Acceptance
(9) Like extremely	5	15	10	9	13
(8) Like very much	3	9	9	9	7
(7) Like moderately	11	1	8	6	5
(6) Like slightly	6	3	2	3	3
(5) Neither like nor dislike					2
(4) Dislike slightly	2	1		1	
(3) Dislike moderately			1	2	
(2) Dislike very much	2				
(1) Dislike extremely	1	1			

SCORE	Average Result				
	Sample-2/ 2.5 gram Moringa powder with sour yogurt				
	Appearance	Flavor	Taste	Texture	Overall Acceptance
(9) Like extremely	4	11	8	7	4
(8) Like very much	2	9	9	3	5
(7) Like moderately	9	2	7	10	11

6) Like slightly	7	3	5		8
(5) Neither like nor dislike	3			5	2
(4) Dislike slightly	2	1		3	
(3) Dislike moderately		3	1	2	
(2) Dislike very much	2				
(1) Dislike extremely	1	1			

	Overall acceptance sample1	Overall acceptance sample2
Mean	9.46	7.03

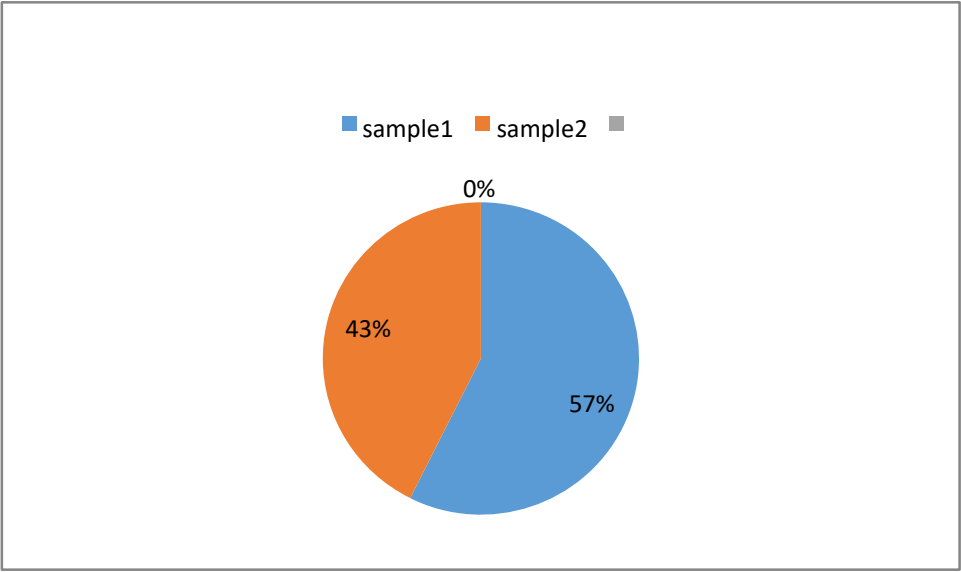


Figure.1: pie chart of overall acceptance for sample1 and sample 2

Figure.1 shows that sample1 sour yogurt is more acceptable than the sample2 sour yogurt.

Chapter 03

1 : Milk Quality Tests/Platform test

Platform test:

Platform test is also known as alcohol test. 68% ethanol is used for this test. This test is done for find out milk acidity. Normally it done by the ratio of 1:1 but in milkvita it done by the ratio of 2:1, ethanol : sample (milk).

Apparatus & equipment:

1. Test tube
2. Pipette
3. Ethanol
4. Sample (Milk)

Procedure:

1. 1st 2ml 68% ethanol is taken into a test tube by a pipette
2. Then 1ml milk is added into the test tube
3. Shake the sample for while
4. If milk coagulate and stable with the test tube's body then alcohol positive, so this milk is not perfect for further process as pasteurized milk.
5. If milk not coagulate then alcohol negative and this milk this good for further process.
6. Remember that have to be careful about the use of apparatus.

Fat test:

Fat test is another quality control test parameters of milk. It also important for pricing the milk. Because milk-vita fixed price of milk by fat percentage. Different animal have different fat percentage in their milk.

Apparatus & equipment:

1. Butyrometer, Nockstop & pine
2. Sulfuric acid
3. Amyl alcohol
4. Centrifuge machine
5. Sample (Milk) 6. Centrifuge machine

Procedure:

1. 1st 10ml sulfuric acid are taken into butyrometer
2. Then 10.47ml milk is added into it
3. Then 1ml amyl-alcohol also added into the mixer
4. Some water has been added to adjust the mixer
5. Thennock-stop and pin is used to lock the butyrometer
6. Then shake the mixer for some times
7. Then put the butyrometer in the centrifuge machine for 5mintues with 110RPM at 60°C.
8. Then measure the fat percentage by open eyes.
9. Normally 3.5 is expected but it can be 3.2 to 4.2
10. Need to be careful in time of using centrifuge machine.

Purpose of Fat test:

1. To know the fat percentage
2. To extract extra fat from milk
3. Extracted extra fat can be useful for making other dairy products

4. To minimize cost
5. To know how much skim milk should use
6. To fixed the price of milk.

Sugar test

Sugar Test:

Sugar test is one kind of adulteration test. Because some bad peoples are intentionally add some sugar in milk to increase the density of milk. So to find out this officials do this test.

Apparatus & Equipment:

1. Test tube
2. Test tube holder
3. Bunsen burner
4. Resorcinol solution
5. Sample milk

Procedure:

1. 1st 5ml resorcinol solution are taken into a test tube
2. Then add 1ml milk into the test tube
3. After added milk it become coagulate
4. Then use holder to hold the test tube to put it into the Bunsen burner's flam
5. Keep it until boiling
6. Then take away from flam and gives time to cool the mixer
7. Then within few minutes if mixer turns brick red color which means sugar test positive
8. If mixer shows slightly red color then it is sugar test negative
9. Sugar test positive milk are not acceptable

Purpose of sugar test:

1. To check adulteration
2. To ensure there is no added sugar in milk
3. To ensure safety

4. Precaution:

- Avoid direct heating of milk.

Microbiological test of milk

Microbiological /Bacteriological test:

- Bacteriological test is important to know the bacterial count in milk and milk products.
- Because bacteria such as E. coli can cause contamination in milk. And E. coli can cause many problems in consumers if their number is high in the milk. Normally total count of bacteria range is 30 to 35 thousand. E. coli cause dysentery. More than this is not acceptable. Also Coliform bacteria are concern to count. If found more coliform then have to do C.I.P again in production channels.
- **Characteristic of Coliform:**
 1. Gram negative bacteria
 2. Group of bacteria
 3. Rod Shape
 4. Gas producer (CO₂)
 5. Their production mainly occurs in soil
 6. 10/ml
- **Apparatus:**
 1. Bunsen burner
 2. Pipettes
 3. Dilution tubes
 4. Petri dishes
 5. Incubator

6. Autoclave
7. Refrigerator
8. Spirit lamp

Procedure:

1. 1st make a ringer solution by water and salt (Such as sodium chloride, potassium chloride, calcium chloride etc.)
 2. Then pour them in the dilution tube
 3. Then heat them until boil and remove from heat & let them cool • 4. Spirit lamp is used to sterilize the pipette every-time before when use taken sample into the petridish.
 5. For coliform take 0.5ml and for total count take 1ml milk into the ringer solution and shake it to dilution the solution
 6. Then take 1ml from the dilution solution into another ringer solution and dilute them
 7. Then take 1ml from it and transfer it into petri dish.
 8. Then transfer red agar into the sample containing petri dish for coliform but transfer white agar into the sample containing petri dish for total count
 9. Adding red agar 2 times is good for growth of bacteria • 10. Then keep them in the incubator at 40 to 42°C for 18 hours.
 11. After 18 hours count the bacteria by open eyes.
 12. For total count calculate the bacteria by divided the petri dish into 4 parts and count 1 parts bacteria and multiply with 4 and multiply the digit by 100.
 13. But for coliform count the colony and write them in the note.
 14. If any unexpected result found then warn the operators to make sure proper C.I.P next time.
- **Purpose of Microbiological test:**
 1. To ensure proper C.I.P
 2. To ensure there is no contamination
 3. To ensure safety of consumers health

Chapter 05

References

- (Koiars , et,al 1984)
- Beniwalet,al 2003)
- (Braing Dictionary ,2005, Wikipedia ,2005,Elson and Hass ,2005)
- (Robins 1980),.(Helferich and Westhoff ,1980)
- (Adams and Moss,1999).
-
- Sharon M Donovan Raanan Shamir
- The American Journal of Clinical Nutrition, Volume 99, Issue 5, 1 May 2014, Pages 1209S–1211S, <https://doi.org/10.3945/ajcn.113.073429>
- Published: 19 March 2014
-
- Chapter · November 2007 with 1,360 Reads
- DOI: 10.1002/9780470277812.ch12
- In book: Manufacturing Yogurt and Fermented Milks, pp.195 - 210 • Yogurt Production | MilkFacts.info

Chapter 06

Conclusion

Finally, in this study we came to know that if these types of products are produced, then the country's nutritious food shortage will be fulfilled. To meet the nutritional needs of humans. In many countries, all these nutritional foods are very expensive. So Bangladesh can be found at a very cheap price or cheap. All these nutritious foods will meet the nutritional deficiency of malnourished people. To be careful about health and control the diet. As long as the country progresses, the quality of the food is being improved in the same way. So we will look at the quality of the food and the quality of the food along with the development of the country.

While yogurt offers a great deal of benefits, it may not be suitable for everyone. Individuals with lactose intolerance must be cautious as it may bring a few complications. Also, be wary of sweetened conventional yogurts. In this study, mango and kiwi fruits have been used. Yogurt is made from mango and kiwi fruits which is very tasty. Therefore, while preparing curd, the cow's milk should be preserved in grass.

So we have to be careful and very careful to increase the quality of food. And keeping the attention of everyone, the quality of food should be increased.