



A PROJECT REPORT

On

Study on the Development of Commercial Shahi Borhani

Submitted To:

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Submitted by

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Date of Submission: 23/12/2018

LETTER OF TRANSMITTAL

Date: 22.12.2018

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

Subject: Submission of Project report.

Dear Sir,

It is a great pleasure and honor for me to have the opportunity to submit Project report as a Part of academic under graduation degree fulfillment, the Nutrition and Food Engineering (NFE) program, DIU.

I have prepared this report based on the acquired taste knowledge during my Project works period in our food laboratory. It is great achievement to work under your active supervision. This Report is prepared on the “**Study on the Development of Commercial Shahi Borhani**”

I therefore, would like to place this report to your judgment and suggestion. Your kind advice will encourage me to perform better planning in future.

Sincerely Yours,

Md.Islam Uddin
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LETTER OF AUTHORIZATION

Date: 22/12/2018

To

Professor Dr. Md. Bellal Hossain

Head

Department of Nutrition and Food Engineering

Faculty of Allied Health Sciences

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 a project report copy, may not published in any other text.

I also express my honestly confirmation in support to the fact that the said report has neither been used before to fulfill my other course related , do not it will be submitted to any other person or a authority in future.

Sincerely Yours,

Md. Islam Uddin

ID: 161-34-505

Department of Nutrition and Food Engineering

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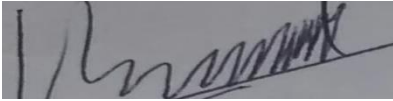
Daffodil International University

CIRTIIFICATION OF APPROVAL

I am pleased to certify that the project report on the “Study **on the Development of Commercial Shahi Borhani**” conducted by Md. Islam Uddin, bearing ID No: 161-34-505 of the department of Nutrition and Food Engineering which has been approved for presentation and defense/viva-voice.

I am pleased to hereby certify that the data and findings in the report is the authentic work of Md. Islam Uddin. I strongly recommend the report presented by Md. Islam Uddin for academic under graduation degree fulfillment. Md. Islam Uddin bears a strong moral character and a very pleasant personality. It has indeed a great pleasure works with him to keep commercial values to meet up consumer’s food choice.

I wish him all success in life.

A handwritten signature in black ink, appearing to read "Bellal Hossain", written over a grey rectangular background.

Professor Dr. Md. Bellal Hossain

Head of department

Department of Nutrition and Food Engineering

Faculty of Allied Health Sciences

Daffodil International University

ACKNOWLEDGEMENT

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

I am grateful to my parents without whom I cannot be here. Without the support of my parents, I could not be able to achieve my objectives and goals.

My deep gratitude and sincere thanks to the honorable Head, Department of Nutrition and Food Engineering, **Professor Dr. Md. Bellal Hossain** for this kind cooperation and to accept this Degree. I am encouraged taking this privilege to deliver my gratefulness to each and every person who is involved with me in every phase of my life.

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ABSTRACT

Borhani is basically a popular Bangladeshi drink that is made by using fresh yogurt with other added condiments, mainly served during wedding celebrations or other societal functions. This spicy drink is one of the important items in the menu of any Bangladeshi festival and occasions. It is popular known as the drink of prosperity in the country. This drink is widely seen as a representation of the culture and cuisine of Bangladesh.

The main ingredient in making Borhani is steered yogurt. Summer seasonal warming gives some relief but the quality of the bean is infinite. Vitamin 'B', calcium and potash has more than milk in the yogurt. There is no carbohydrate and fat as much. It helps prevent diseases like diarrhea, vomiting indigestion and fatigues etc. If you start eating regular yogurt then its results are available as well being supports. The most popular method of curding is to intake Borhani.

CHAPTER-ONE

1.1: Introduction^{[1]:}

Bangladeshi subcontinent borhani is a blend of yogurt, water, and spices. Traditional Borhani is a peptic savory drink, sometimes flavored with ground and roasted cumin. However, contains salt and other spices, instead of sugar.

Borhani is served at the wedding and various festivals party. Borhani are enjoyed chilled as a hot-weather refreshment, mostly taken with lunch. With a little Borhani is a popular traditional yogurt based drink that originated in the turmeric powder mixed in, it is also used as a folk remedy for gastroenteritis. Salted borhani is often served with almost all kinds of meals, and is mostly made at home by simply whisking salt in yogurt and water. It is also sold at most dairy shops selling yogurt and milk, and both the salty and sweet variety is available.

1.2: About Borhani:

Borhani is basically a popular Bangladeshi drink that is made by using fresh yogurt and mainly served during wedding celebrations. This spicy drink is one of the important items in the menu of any Bangladeshi festival and occasions. It is popular known as the drink of prosperity in the country. This drink is widely seen as a representation of the culture and cuisine of Bangladesh.

1.3: Definition of Borhani:

Borhani is a very beneficial beverage. After eating a heavy meal it is very beneficial for digestion

It is a yoghurt and ice based refreshing drink .it refresh both body and soul when are tried in travel.

A flavored iced yogurt drink that may be either sweet or salted

Borhani is a traditional Bangladeshi yogurt drink that is borhani popular all across the subcontinent.

1.4: History Borhani:

Every country has its own tradition of foods. Bangladesh has also the same. In the sense of food habits, Bangladesh is influenced by the regional variations of her history. Being an outpost of Mughal Empire once, Bangladesh retains its heritage. Bangladesh is famous for rice production which has been the chief occupation of its people. Rice therefore the main food of Bangladesh. The Bangladeshis eat rice, not just a small quantity but a lot. They eat rice every day and at every meal with great tasty and spicy curry of vegetables, fishes and meat. Borhani of Bangladesh Traditional Foods of Bangladesh¹⁻³.

A savory beverage might sound bizarre, but it's very common in India and other parts of South Asia, where the salt is ideal for rehydrating you in the sweltering heat. At their simplest, salted lassies contain yogurt, water, a pinch of salt, and toasted cumin⁴⁻⁵. This version, called Borhani in Bangladesh, contains an herbaceous purée of cilantro and mint, along with fruity Green Chili and a slap of funk from chaat masala.

1.5: General Objectives of Borhani:

Studies on the different parameters of tasty Borhani prepared with sour yogurt

1.6. Specific objectives of Borhani:

- Analyzed proximate composition of Borhani.
- Studied the quality parameters of Borhani.
- Studied the sensory parameters of Borhani
- Identification of microbiological load in Borhani.

CHAPTER-TWO

Materials & Methods (Borhani)

The study was conducted in the Laboratories of the Department of Nutrition and Food Engineering and Rural Industries, Daffodil International University, Dhaka.

2.1: Collection of raw materials:

- Sour yoghurt (From Nearby Market)
- Cashew Nut (kajubadam)
- White paper
- Cumin powder
- Green chili
- Mustard powder
- Coriander leaf
- Mint Leaf (podina-pata)
- Coriander Leaf
- Distil Water (From DIU Lab)

2.2: Collection of chemicals:

- Sodium chloride
- Bit salt
- Beta-carotene(Vitamin A & Color)
- Rose water Flavor
- Orange Flavor
- Potassium sorbet (Preservatives)
- Blended Sugar (Sweetener if Needed)

2.3: Collection of tools and apparatus:

- Bowl (From DIU Lab)
- Filter cloth (From DIU Lab)
- Blender machine (From DIU Lab)
- Measuring cylinder (From DIU Lab)
- Beaker (From DIU Lab)
- Conical flaks (From DIU Lab)
- Burette (From DIU Lab)
- Pipette (From DIU Lab)

2.4: Collection packaging materials:

1. Glass container with lid (Nearby Market)

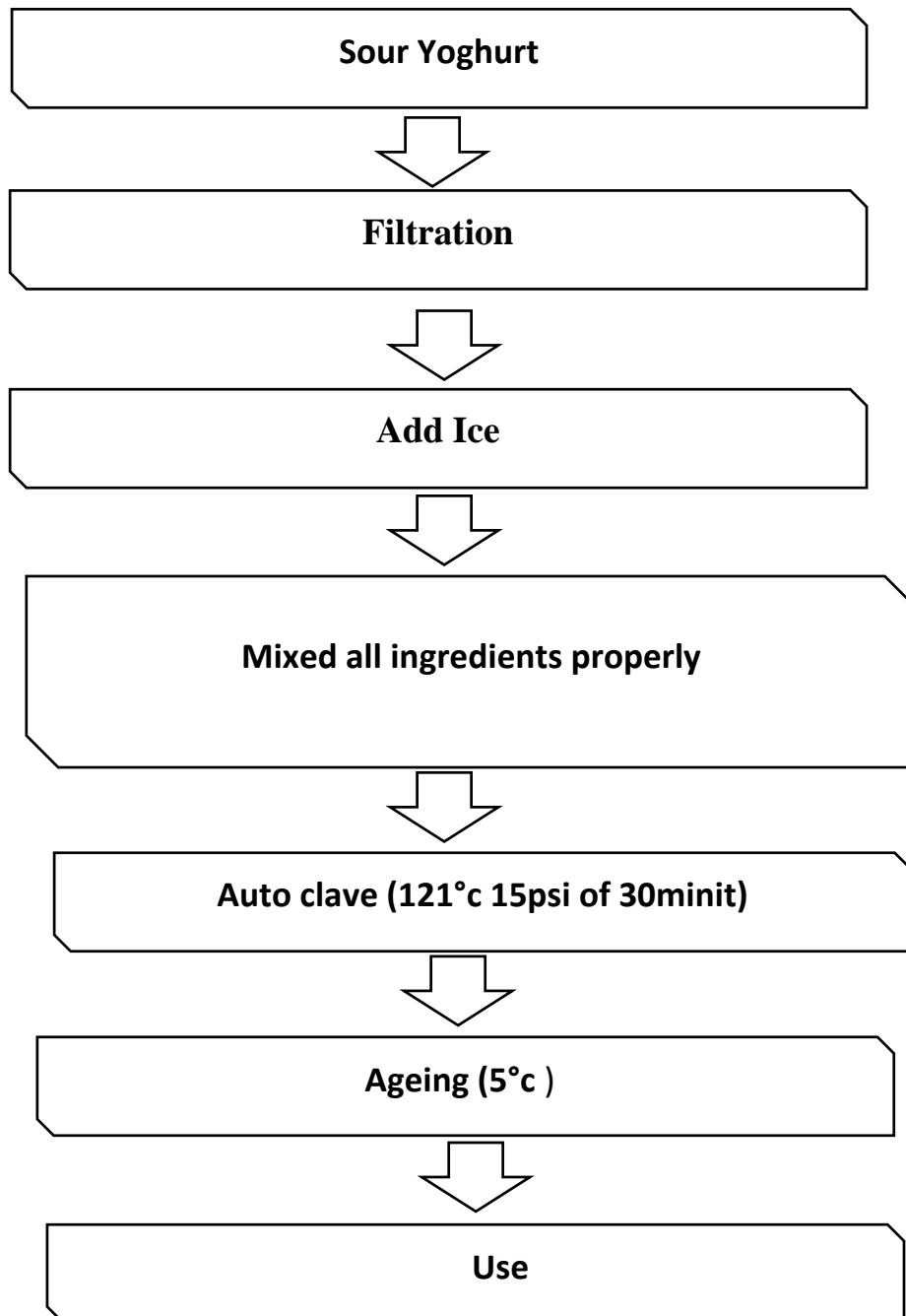
2.5: Prepared recipe:

<u>Ingredients</u>	<u>Used %</u>
Sour Yoghurt	75.46%
Cashew Nut(kaju badam)	0.25%
Beta-carotene	0.003%
Rose water flavor	0.05%
Orange flavor	0.01%
Sugar	5.03%
Sodium benzoate or potassium sorbet (Preservatives)	0.12%
White salt (NaCl)	0.5%
Bit salt	0.25%
Green chili	1.26%
Coriander powder	0.5%
Mustard Seed	0.05%
Cumin powder	0.63%
Whitepaper	0.25%
Coriander leaf	0.25%
Mint leaf	0.25%
Cool water or ice	15.14%
<u>Total</u>	<u>100%</u>

2.6. Borhani Preparation:

- ❖ First of all, mix all the spices with two cups of water.
- ❖ Then after scraping the curd with thin cloth, mix all the ingredients together and mix them very well and refrigerate to cool.
- ❖ To serve food out of the fridge at the time of meal.
- ❖ Borhani is not good enough at the outside temperature.

2.7: Flow chart for Borhani preparation:



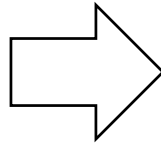
2.8: Collection packaging materials:

1. Plastic Bottle(Nearby AMARA FOOD)

2.9: Working Details⁶⁻¹⁰:

- The first to collect the good quality raw materials and spices from the market.
- I come to our daffodil laboratory and collected the necessary equipment such as blender machine, balance machine, biker etc.
- At First clean the all Equipment and then maintain Personal Hygiene & cleaning (wear apron, masks, caps and hand gloves)
- Blanding all the ingredient such as Sugar, Almond (kajubadam), Mint leaf, Coriander Leaf, Green Chili, bit salt, White salt, white pepper.
- sour yoghurt filtration on the Markin cloth
- Blender is generally used to mix the yogurt with all the other ingredients
- Some green chilies and mint leaves along with roasted cumin and coriander powders are also added in the drink while blending to spice up the flavor.
- Add Rose water flavor into them and mixture again
- mixing end of the auto clave start 121°C 15psi 15 minute
- Then keep it refrigerator ageing 5°C
- Serve chilled

2.9: Picture about Working Details:



|

CHAPTER-Three

Chemical Analysis of Borhani

3.1: Chemical Analysis:

Moisture, ash, protein, total soluble solids (TSS), Fat%, carbohydrate and pH of Borhani samples were determined by following methods described by; TSS by Refract meter as degree brix ($^{\circ}$ B) and pH by pH meter. Fat content was determined by Garber method; solid not fat and carbohydrate were determined by standard mathematical procedure.

3.2: pH test of Borhani:

Chemicals & Equipment Required:

1. pH meter
2. beaker

Procedure:

1. Take Sample in a beaker
2. Deep the pH meter electrode into it
3. Note down the reading **Result:** The collected pH meter reading is the pH of the sample

3.3: Acidity Test of Borhani:

Chemicals / Equipment Required:

1. Beaker
2. Dropper
3. Phenolphthalein indicator
4. Sodium Hydroxide Solution

Procedure:

1. Take 10 gm. pudding in a beaker.
2. Add 2/3 drops of phenolphthalein indicator.
3. Titrate against 0.1 N Sodium Hydroxide Solution until the color changes to pink/rose.

Calculation:

Acidity- (Burette Reading \times Normality of Alkali \times Equivalent weight of

$$\text{Acid} \times 100) \div (\text{Weight of Sample} \times 1000)$$

Result: Burette reading is the acidity of Borhani.

3.4: Fat% Test of Borhani:

Chemicals & Equipment Required:

1. Sulfuric Acid 93%
2. Amyl Alcohol 75%
3. Butyrometer
4. Centrifuge machine

Procedure:

1. Take 10 ml sulfuric acid in a butyrometer.
2. Add 10.75 ml pudding sample in the butyrometer by using of 10.75 ml pipette.
3. Now add 1 ml amyl alcohol and shake well.
4. Then place the butyrometer in a centrifuge for 5 minutes.

Result: Fat level reading shows in the butyrometers upper scale.

3.5: °Brix Test of Borhani:

Chemicals & Equipment Required:

1. Refract meter
2. Dropper
3. Sample
4. Distilled water
5. Tissue paper

Procedure:

1. At first connect digital refract meter cable with the power board.
2. Press on button(machine back side)
3. Open the black cover plate. Push 2/3 drops distilled water then off the black cover.
4. Press SW1 Button for zero set end. When temperature 20°C digital refract meter Show zero set end.
5. After confirm zero set end then open the black cover clean prism by tissue paper.
6. Push 2/3 drops test sample then cover off and press start button.
7. When temperature reach 20°C digital refract meter display show the result (°Brix %)
8. Same way take repeated result 2/3 times and accept Proximate Result (°Brix %)
9. After every test must be clean prism and confirm zero set end.
10. Finally press off button for machine off (machine back side)

Result: The collected digital refract meter reading is the Sucrose % of the sample

CHAPTER-Four

Microbiological Analysis of Borhani

4.1: Microbiological Analysis (Total Viable Count of probiotics):

In order to claim a product to be probiotic the viability of probiotic bacteria is of primary importance. The acidophilus product was evaluated at day-1 and day-6 of storage for its total viable number of *Lactobacillus acidophilus* using MRS agar (Oxoid, UK). One ml of sample was taken and diluted with 9 ml of normal saline solution (v/v) and then serial dilutions were prepared using 1:10 dilution technique. 1ml aliquot from different dilutions (10^{-3} and 10^{-4}) was used to check the total viable count per ml on MRS agar media.

4.2: Total Yeast, mold count:

Method: Pour plate (For Borhani).

Purpose: The pour plate technique can be used to determine the number of microbes/ml or microbes/gram in a specimen.

Requirements:

- Sterile Petridis (90mm)
- Micropipette
- Alcohol (70%)
- Laminar Air Flow
- Autoclave
- Incubator
- Colony Counter
- Water bath
- Potato Dextrose agar

Procedure:

- Prepare the media and sterilized by autoclave at 121°C for 15 minutes, 15 psi.
- Take specific amount of sample in Petridis.
- After autoclaving media allow to cool in 40°C.
- About 15-20ml of media is pour in Petridis and properly homogenized by clockwise & anticlockwise and allow to solidify.
- After solidification incubate the plate at 20-25°C in inverted position for 120hours.
- After incubation count the yeast & mold.
- All the steps should be done under laminar air flow to maintain aseptic condition.

Results: Count the result and record as cfu/ml or gm.

4.3: Total Coliform count of Borhani:

Method: Membrane Filtration (For Borhani)

Purpose: Use the membrane filter technique to determine the coli form bacteria from the specimen.

Requirements:

- Sterile membrane filter apparatus
- Sterile 0.45- μm filters
- Forceps
- Alcohol (70%)
- Violet Red Brilliant Green Agar
- Incubator
- Laminar Air Flow

Procedure

- Sterilize the membrane filter unit including funnel
- Keep it into laminar air flow & clean the holder with 70% alcohol.
- Placed membrane filter paper on holder & fixed with funnel.
- Pour the sample into funnel & switch vacuum pump on.
- Sample passed through membrane due to negative pressure of vacuum pump & samples are collected in another vessel.
- Carefully remove the filter from the filter holder using sterile forceps.
- Carefully place the filter on the Endo agar. Do not bend the filter; place one edge down first, then carefully set the remainder down. Do not leave air spaces between the filter and agar.
- Invert the plate and incubate it for 72 hours at 35-37°C.
- Observe and count all colonies that are red and have a metallic sheen.

Results: Examine membrane filters for presence of colored colonies. All red colonies having the characteristic metallic sheen are coli forms.

CHAPTER-Five

Sensory Analysis of Borhani

5.1: Sensory Evaluation

Sensory evaluation of Borhani were carried out by 30 panelists on a nine-point hedonic scale for different sensory parameters such as color, flavor, taste, body consistency and overall acceptability. Prepared Shahi Borhani were subjected to sensory evaluation by a trained panel of 10 judges. The panelists had previous experience in dairy products evaluation. The panel comprised of post graduate students who are employee of Akij food and Beverage Ltd. And they involved sensory panel board for sensory evaluation. The evaluation of the product was carried out on appearance, taste, color, flavor and overall acceptability on a 9-point hedonic scale (9 = like very much; 1 = dislike very much) (Peryamet *al.*, 1952). Sensory evaluation performed along with the consent form to participate in sensory evaluation was prepared and distributed to the panelists.

5.2: Statistical Analysis

All the data obtained from three replications were analyzed as a completely randomized design procedure using the general linear model procedure of the SPSS statistical package program (SPSS, Inc., Chicago, IL). Duncan's multiple range test was used to measure the significant difference between means ($P < 0.05$). Sensory evaluation was carried on hedonic scale (Peryamet *al.*, 1952). The data collected on pH, acidity and sensory evaluation for different treatment groups of flavored (Orange, Rose water) probiotic acidophilus Yoghurt was subjected to analysis of variance (ANOVA) and comparison was made for difference of acidity among various treatments with respect to storage through Duncan's Multiple Range (DMR) test with a probability $P \leq 0.05$ (Steel *et al.*, 1997)

CHAPTER-Six

Nutrition Value & Health Benefits of Borhani

Borhani is a favorite dessert and treat for a lot of people. Flavors include with Rose Water Flavor and Orange Flavor. It also has nutritional value, such as calcium and vitamin. In the United States, the Borhani you know and love is more like custard. Some have better nutrition than others. Yogurt is nutritionally rich in protein, calcium, riboflavin, vitamin B6, and vitamin B12. It has nutritional benefits beyond those of milk, namely due to its probiotics. Lactose-intolerant individuals may tolerate yogurt better than other dairy products due to the conversion of lactose to the sugars glucose and galactose, and the fermentation of lactose to lactic acid carried out by the bacteria present in the yogurt. Yogurt contains varying amounts of fat.

Nutrition Facts (Borhani)

Amount per 1000gm

Vitamin E	4.7%
Vitamin A	27.5 %
Calcium	122.2%
Copper	6.3%
Folate	17.9%
Riboflavin	84.3%
Thiamin	19.7%
Selenium	31.6%
Phosphorus	95.8%
Zinc	39.8%
Pantothenic Acid	38.9%
Niacin	4.3%
Manganese	8.6%
Magnesium	31.4%
Iron	5.7%
Vitamin B-12	61.7%
Vitamin B-6	18.5%
Vitamin C	10.6%
Vitamin D	0.0%

Calcium:

Yoghurt Drink is Borhani, high in calcium, an important nutrient for strong bones and teeth. Calcium is also the most plentiful mineral in your body. It's found in blood cells, bones and teeth. Calcium also influences muscle contractions, hormone secretions and the transmission of nerve impulses. Borhani isn't just tasty, it's a healthy way to get your body's calcium.

Vitamins and Minerals:

Vitamins and minerals are essential components of Borhani. Vitamin D and magnesium are terrific nutrients your body needs. They work with calcium to strengthen your bone structure and harden your tooth enamel. All of the nutrients below are found in prepared Borhani:

- Vitamin A
- Vitamin B6
- Vitamin B12
- Vitamin D
- Vitamin E
- Riboflavin
- Magnesium

Protein:

One of the most important nutrients you need is protein. It has special enzymes that carry out certain functions in your body. A good number of these functions include metabolism and digestion. Other functions of protein include muscle contraction and the reproduction of red blood cells. It also helps make your hair, nails and skin healthy.

Carbohydrates

The carbohydrates in regular instant, ready-to-eat and dry mix Borhani are high. Sugar free has lower carbohydrates than any of those varieties. However, be aware of certain flavors. Pistachio, butterscotch and banana are high in carbohydrates. Carbohydrates turn into sugars that your body doesn't need. Read nutrition labels carefully before buying a brand.

Fat:

There's saturated fat in both the Borhani mix and milk. Saturated fat is the unhealthy fat found in animal and dairy products. You need to watch the content of this type of fatty acid because it increases your cholesterol levels and chances of heart disease.

Sodium:

Borhani may taste sweet, but it has a great deal of sodium added to the mixture. Sodium causes high blood pressure and edema. Edema is swelling in the arms, legs and feet. Avoid this problem by looking for low sodium Borhani at the grocery store.

Calories:

If you're watching calories, you want to steer away from regular Borhani. Borhani has high calories that lead to weight gain. However, you can eat a fat free variety instead of a dry mix type.

Although pudding has both good and bad nutrition, it can be a healthy dish if you make it with fat free milk. Skim milk is also a better choice than whole milk. Also choose a low calorie Borhani brand when shopping. This quick dessert is great if consumed in moderation.

Benefits of Borhani:

- a. It contains plenty of calcium and vitamin D, which is helpful in the formation of bones and teeth. Women need more Sour Yoghurt because they suffer from calcium deficiency.
- b. Borhani from sour yogurt so its bacteria are very beneficial, it eliminates harmful bacteria in the body and increases digestion by increasing beneficial bacteria.
- c. Sour yogurt increases the immune system of the body. It also keeps cold, flux, and fever away
- d. Sour yogurt does not allow toxin to accumulate in the body. As a result the interior is clean. Which helps in improving the body and helps to prevent aging.

CHAPTER-Seven

Result & Discussion

7.1: Quality test result of Borhani:

Sl No	Test	Results
01	Brix %	15.52
02	Acidity	0.62
03	pH	4.19
04	Fat Content	3.8%
05	Protein Content	3.9%
06	Yeast & Mold	Nil
07	Coliform	Absent

Table 7.1 shows the different types of quality parameters for Borhani. Borhani was little sweeter. Borhani was higher Fat & protein.

7.2.: Microbiological Analysis of Borhani:

SL No.	Test	Result		
		After 7 days	After 14 days	After 21 days
		Borhani	Borhani	Borhani
01	Total Yeast & Mold Count	Nil	Nil	4cfu/ml
02	Total Coliform Count	Absence	Absence	Absence

Table 8.2.1 shown that there not any microbial change after 7 days and after 14 days. But after 21 days total yeast & mold count of Shahi Borhani found 4cfu/g

7.3: Sensory Analysis

7.4 : Shahi Borhani Overall acceptance:

Sample s	Overall acceptance							
	Dislike very much	Dislike moderately	Dislike slightly	Neither like nor dislike	Like slightly	Like moderately	Like very much	Like extremely
S1	0	0	0	3	10	4	8	5
S2	0	0	0	1	5	7	13	11

7.5: Compare Chart Shahi Borhani with Overall acceptance:

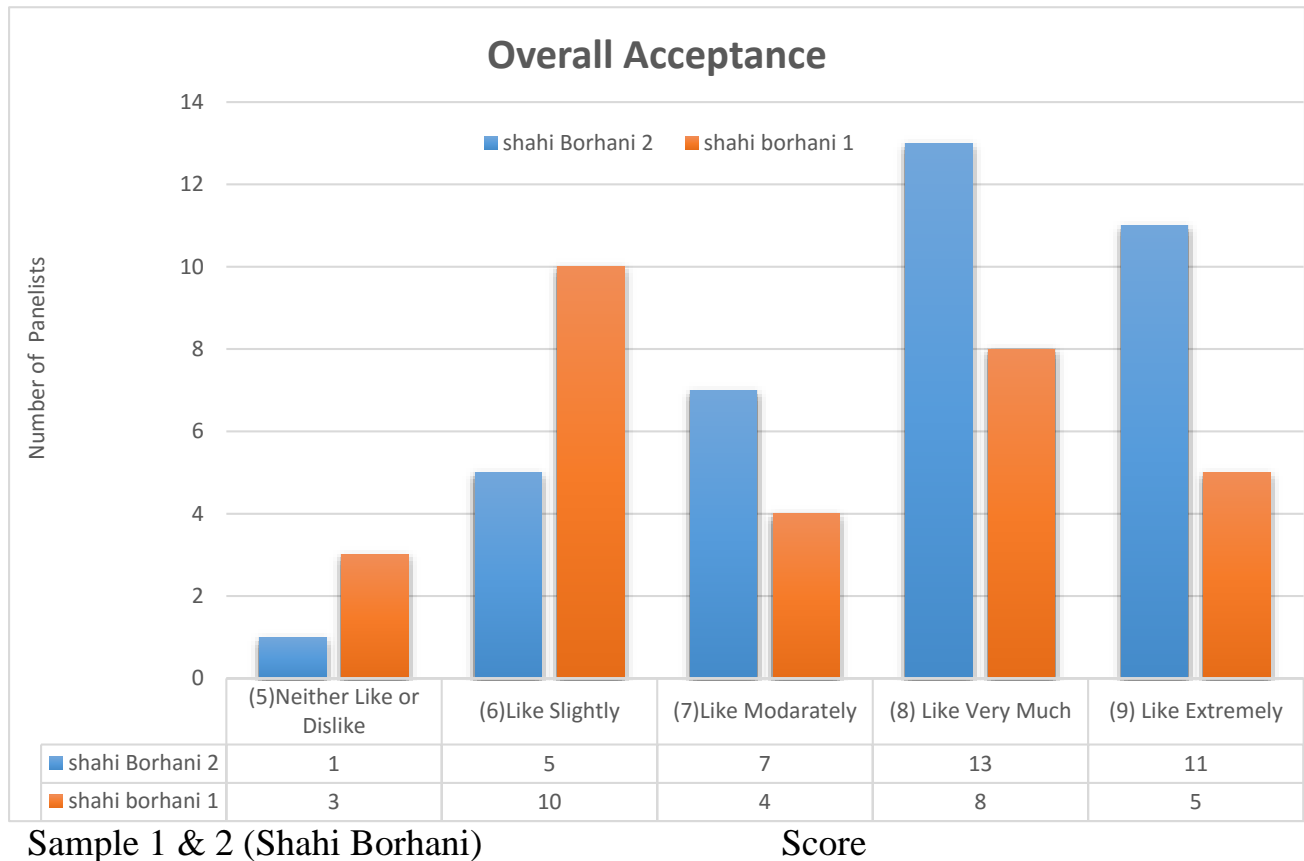


Chart 7.5 shown that only 3 panelist (5) neither like or Dislike, 10 panelist Score (6) Like slightly Number of 4 panelist score (7) like moderately about Shahi Borhani where Number of 8 panelist score (8) like very much and 5 panelist score (9) like extremely about Shahi Borhani But sample-2, 1 panelist score (5) neither like or dislike about Shahi Borhani. 5 panelist Score (6) Like slightly Number of 7 panelist score (7) like moderately about Shahi Borhani where Number of 13 panelist score (8) like very much and 11 panelist score (9) like extremely about Shahi Borhani. **Sample-1 is better than sample-2.**

**7.6: Sensory attribute scores of Borhani:
 Borhani (Mean ± S.E.):**

samples	Appearance	Flavor	Texture	Overall acceptance
S1	6.70±1.664	6.70±1.622	6.33±1.583	6.53±1.548
S2	7.17±1.724	7.17±1.599	7.03±1.829	7.23±1.794

Sample-1: Shahi Borhani, Sample 2: Shahi Borhani.

Table 7.6 shows the summary of sensory scores (mean ± standard deviation) of Borhani.

**CHAPTER-Eight
 Conclusions**

In this study, Shahi Borhani was prepared and its microbiological, physicochemical and sensory quality were studied and we found that Borhani content highly fat, Protein and carbohydrates. There not any microbial change Borhani after 7 days and after 14 days. But after 21 days total yeast & mold count of total yeast & mold count of Borhani found 4cfu/g. Borhani not found any total coliform count after 21 days.

The study sensory results within 30 panelist indicate that number of Sample-1, 3 panelist (5) neither like or Dislike, 10 panelist Score (6) Like slightly Number of 4 panelist score (7) like moderately about Shahi Borhani where Number of 8 panelist score (8) like very much and 5 panelist score (9) like extremely about Shahi Borhani But sample-2, 1 panelist score (5) neither like or dislike about Shahi Borhani. 5 panelist Score (6) Like slightly Number of 7 panelist score (7) like moderately about Shahi Borhani where Number of 13 panelist score (8) like very much and 11 panelist score (9) like extremely about Shahi Borhani. **Sample-1 is better than sample-2.**

Reference

- 1) Zhang (2016). Improvement of the Texture of Yogurt by Use of Exopolysaccharide Producing Lactic Acid Bacteria. BioMed Research International, <http://dx.doi.org/10.1155/2016/7945675>
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