



**Project work**

**ON**

**Preparation & Sensory Evaluation of Cookies by using different percentages of Almond Flour & Wheat Flour Blends**

**Supervised By :**

**Professor Dr. Md. Bellal Hossain**

**Associate Dean**

**Department of Nutrition and Food Engineering**

**DAFFODIL INTERNATIONAL UNIVERSITY**

**Submitted By**

**Israt jahan Bristy**

**ID:171-34-607**

**DAFFODIL INTERNATIONAL UNIVERSITY**

**DEPARTMENT OF NUTRITION AND FOOD ENGINEERING**

**Date : 18-07-2021**

**"@DaffodilInternationalUniversity@"**

## LETTER OF TRANSMITTAL

Date:18-07-2021

Dr. Sheikh Mahatabuddin

Associate Professor and Head

Department of Nutrition & Food Engineering

Daffodil International University

**Subject: Submission of Project report**

Dear Sir,

With due respect , I am glad to express that I am submitting my project report which is a part of Nutrition & Food Engineering program . I am very thankful to Daffodil International University & my teachers & others respective person who support & help me during my project work . Without their support it is not possible for me to prepare my report properly . I prepared the report from my practical knowledge & experiences which I gain during my project work . I request you to forgive my mistake in this report .

I therefore ,request if you kind enough to receive my report and provide me your valuable advice that will encourage me for better performance.

Thank you for your kind support and co-operation.

**Sincerely Yours**

Israt Jahan

Israt jahan Bristy

ID : 171-34-607

Department of Nutrition & Food Engineering


Daffodil International University

“@DaffodilInternationalUniversity@”

## CERTIFICATE APPROVAL

I am very pleased to certify that the project report on “ Preparation & Sensory Evaluation of cookies by using different percentages of Almond flour & Wheat flour blends” done by Israt jahan Bristy Bearing respectively ID No:171-34-607 of the department of Nutrition and Food Engineering in Daffodil International University , She completed her project report under my supervision .

I am very pleased to certify that the data and information for project report are good as well and Authentic done by Israt Jahan Bristy . I highly recommended the report which is presented by her. She is very pleasant good personality and strong character .It has a great pleasure and experience to working with her. I wish her very good luck for her future life and success.



18/07/2021

Dr. Sheikh Mahatabuddin

Associate Professor and Head

Department of Nutrition & Food Engineering

Faculty of Allied Health Science

Daffodil International University



Dr. Md. Bellal Hossain

Associate Dean and Professor

Dept. of Nutrition & Food Engineering

Faculty of Allied Health Science

Daffodil International University

## ACKNOWLEDGEMENT

Firstly , I would like to thank my creator Almighty Allah for given me the strength and opportunity to complete my paper in time successfully.

I am grateful to each and every people and all of my teachers who supported and trust me and help me each and every time of my life. I am specially grateful to my parents without them I cannot be here and I never be able to achieve my goals without them. My very deep gratitude goes to the honorable dean of the faculty of FAHS and my supervisor **Professor Dr.Md. Bellal Hossain** and **Professor Dr. Sheikh Mahatabuddin** Head of the Department, Daffodil International University for their great co-operation and inspiration. I am deeply thankful to my Co-supervisor **Effat Ara Jahan** , senior Lecturer, Department of Nutrition & Food Engineering for her great suggestion that help me to prepare my report. I also thankful to my advisor , **Ms. Fouzia Akter** who supported me as well as and also all NFE faculty member for their great help during my university life. Also thankful to my seniors, juniors and my classmates for their help, advice, and suggest, inspire and support. It would be very difficult to prepare my report without their guidance, help and support.

## ABSTRACT

The main purpose of this study was preparation of cookies by using different percentages of wheat flour and almond flour . And also the sensory evaluation of this sample . in this study four were used as a sample 1( S1) which content 90% wheat flour and 10% almond flour , sample 2( S2 ) contains 80% wheat flour and 20% almond flour , Sample 3 ( S3 ) contains 60% wheat flour and 40% almond flour , sample 4 ( S4 ) contain 50% wheat flour and 50% almond flour . Sample 4 ( S4 ) got the higher rank than the other three samples . Sample 4 , in appearance 30% “like extremely” and 40% “like very much” where S1 got 6.7% “Neither like nor dislike” . In Flavor 37% “like extremely” and 50% “ like very much” and s1 & S2 4% and 7% “ Dislike slightly” . In Taste 50% “ like very much and in Texture 34% “like extremely and 50% “ like very much” and 7% “dislike slightly” for S1 and also in Overall Acceptance 67% for S4 . the study showed that, sample 4 is more acceptance than the three other samples.

**Key words : Almond flour , wheat flour**

## TABLE OF CONTENT

CHAPTER	CONTENTS	PAGE NO.
	COVER PAGE	i
	LETTER OF TRANSMITTAL	ii
	CERTIFICATE APPROVAL	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	TABLE OF CONTENT	vi-viii
<b>CHAPTER 1</b>	<b>INTRODUCTION</b>	1-4
1.1	Introduction	1-3
1.2	Almond in Bangladesh	3
1.3	Objectives	3-4
<b>CHAPTER 2</b>	<b>Food construction &amp; Health benefits</b>	5-6
2.1	Nutritional value	5
2.3	Health Benefits	6
<b>CHAPTER 3</b>	<b>MATERIALS AND METHODS</b>	7-12
3.1	Collection and Preparation	7
3.2	Methodology	7
3.3	Table 1 : Ingredients for different amount of almond flour for cookies	8
3.4	Apparatus & Equipments	8

	<b>PREPARATION</b>	
3.5	Flow chart of almond flour	9
3.6	Preparation of Cookies	10
3.7	Flow chart of cookies	11-12
<b>CHAPTER 4</b>	<b>CHEMICAL ANALYSIS</b>	13-20
4.1	Determination of Protein	13-16
4.2	Determination of Fat	16-18
4.3	Determination of Ash	19-20
<b>CHAPTER 5</b>	<b>RESULT &amp; DISCUSSION</b>	21-30
5.1	Table 2	21-22
5.2	Table 3	23
5.3	Bar chart	24-28
Figure 1	Appearance	24
Figure 2	Flavor	25
Figure 3	Taste	26
Figure 4	Texture	27
Figure 5	Overall acceptance	28
5.4	Table 4	29
5.5	Table 5	29

5.6	Discussion	30
<b>CHAPTER 6</b>	<b>CONCLUSION &amp; REFERENCE</b>	31-33
6.1	Conclusion	31
6.2	Reference	32-33

“@DaffodilInternationalUniversity@”



# CHAPTER 1

## INTRODUCTION



### 1.1 Introduction :

Almond is a very popular and famous tree nut , and everyone like to eat it . It contain a very important and necessary nutrients for our body . It is also included in nuts according to its usage . It is very delicious with high nutritional value because of its oil contents . Almond is a high value crop and one of the most non perishable nut fruits . This almond is a one kind of fruits which is a drupe , consisting of an external hull and strong cover with the seeds inside . Almond is originated in the western parts of Asia and china . It also cultivated there Western Asia is most likely place where the scientists have been able to first grown Almond nuts contain two shelled , one is sold shelled and another is unshelled . Inside the shelled is commonly called as a nut . May be 3.4 – 6 cm ( 1-2 ) in almond fruits long . Almond is not a nuts but a drupe in Botanical term . According to the FAO the world produced 2 million tones of almond .In the Middle East country almond is a native to the Mediterranean climate region . The nuts are excellent sources of vitamins E which is a powerful lipid soluble antioxidant and also have an effects of oxygen and free radicals . The nuts are packed with many important and necessary B-complex groups of vitamins such as : Niacin , Riboflavin , Thiamin and Vitamin B-6 . Almonds especially Persian varieties carry higher proportions of proteins, fat , minerals .

They are very good sources of vitamins E , which is a huge powerful lipid soluble antioxidant hold about 25 grams per 100 g . Almond are free from gluten protein and for the same state almond are very popular ingredients to preparation of gluten free food formulas . This vitamins work as co-factors for enzymes , during cellular substrate metabolisms inside the human body . Almonds are also an incredible sources of Minerals, which content Manganese , Calcium , Potassium , Magnesium , iron , Zinc and Selenium . [1]

Almonds are rich in fatty acids and helps in improving the tensile strength and texture in the hair . Medical research has proven that the application of almond extracts before undergoing any chemical hair treatment is beneficial . Almonds are also rich in Magnesium , which are an essential minerals responsible for hair health . Almonds oils supplements are essential for hair loss . [2]

Bitter almond and sweet almond are two types of almond . Bitter almond are naturally toxic having high amount of cyanide . Sweet almond have virtually no cyanide and perfectly safe to eat . As there are both sweet and bitter cultivars of almond historians believe that because the mutation for sweet almonds is relatively common among the bitter almonds . Speedily farmer confirm that these trees are provided safe to eat from delectable treats . And people have to enjoyed roasted sweet almonds even through they are delicious and perfectly safe to eat raw .[3]

The ground flour can be used as a breading or coating for seafood like shrimp and fish ,chicken or vegetables . Just dip in egg helps the flour stick and then pan fry in oil . The ground nuts can be used as a fragrant and crunchy topping or used as bread crumbs for casseroles and cheese or vegetables . Since almond flour are gluten free its harder to get baked goods to rise while using it as a 100% replacement for wheat flour . Cookies , cobblers , bread pancakes , waffles , tortillas, brownies , muffins and crusts are made with this flour .

Wheat is the second most produced crop on Earth , which is lagging behind only corn . Wheat is a staple crop grown as a primary food products of distinct varieties , cultivated in the U.S and accounts for more than 40% of their agricultural exports products . Wheat is a major crop grown as a basic food products and also used in the another uses . It is grown all over the world in a wide variety of climate . Also it provides us a longer and great amounts of dietary protein and full food chain . There are six distinct varieties of wheat are produces in the united state. Wheat has lost its natural seeds breaking mechanisms and can no longer propagate itself naturally . [1]

“@DaffodilInternationalUniversity@”

Almond nuts have a great value from the consumer as well as from the grower side . the major reason being its limited production sites . Though with the identification of new varieties crop can be grown on vast areas of tracts. Its production is likely to increase . Above all being perishable nuts has great export potential. it can be exported as a dried nuts from of presentable , attractive packs of roasted . [4]

## **1.2 Almond in Bangladesh :**

Nowadays , almond are very available all the market in Bangladesh .Before some years ago Bangladesh had limited supply of tree nuts in retail market . But nowadays , almond are very available all the market in Bangladesh . People were not conscious about the tree nuts and its nutrients value of health benefits . But at the present days , to increases people social-economic status , improve gain knowledge and awareness people know about the tree nuts and its benefits the demand of the tree nuts is increasing day by day . Now Bangladesh also can supply the tree nuts with customers demand . Now a days Bangladesh imports huge amounts of almonds and almonds flour . In Bangladesh , now people have huge demands of almond flour . Almond flour are mainly found in the super shop , but almond are available in all the market .[5]

## **1.3 Objectives**

- ✓ To study in this paper is the preparation of almond cookie by using different amount of almond flour and wheat flour blends

## **Specific Objectives**

- ✓ To check the appearance, flavor, taste and texture of different percentages of almond flour & wheat flour using for prepared cookies
- ✓ To check chemical analysis of the samples .

“@DaffodilInternationalUniversity@”

## CHAPTER 2

### Food constituents and Health Benefits

#### 2.1 Nutritional value per 100 g of Almond :

Amounts	% Daily value
<b>Calories</b> 597 kcal	30%
<b>Fat</b> 53.0 g	88%
Saturated fat 4.0g	20%
Trans fat 0g	
<b>Cholesterol</b> 0mg	0%
<b>Sodium</b> 1mg	0%
<b>Carbohydrates</b> 19.0 g	6%
Sugar 5.0 g	
Dietary fiber 12.0g	48%
<b>Fiber</b> 3.5 mg	
<b>Protein</b>	<b>37%</b>
Calcium	266mg
Iron	4.5 mg
Vitamin E	26 mg [6] [ 7]

“@DaffodilInternationalUniversity@”

## 2.2 Health Benefits of Almond [8],[ 9]

**Cancer Risk** : By consumed of almond or almond flour every day has the lower risk of breast cancer .

**DIABETES** : Almond contains lower glycemic index which reason it is not effect on blood glucose. It's very beneficial for diabetics patients .

**Monounsaturated Fat** : Almonds contains lower monounsaturated fat , That means is very beneficial for our health .

**Blood sugar** : it's maintain the blood sugar level . It refine the blood level . Some people are suffering type 2 diabetes .in 2011, 20 people consume 60gram of almonds for 12 weeks that they saw the improvement level .

**Wight Loss or Obesity** : Consuming almond everyday helps to loss weight . Almond contains fiber which make feel fuller, this reason people intake limited food .

**Gluten intolerance** : almond flour is gluten free . So people who cannot consume gluten food they have a best option of consuming Almond flour . [6]

"@DaffodilInternationalUniversity@"

## **CHAPTER 3**

### **MATERIALS AND METHODS**

#### **3.1 COLLECTION AND PREPARATION OF SAMPLE**

Almond and other all the ingredients were collected from SHAPNO Super, Dhanmondi .

First, roasted the almond seeds at 60 degree centigrade for 2-3 minutes for remove the moisture level and to make almond flour and cool it in the room temperature . Then blended the almond seeds in the Electric blander . And bland the almond properly .And got the almond flour from the almond seeds .

To prepared almond cookies and also almond flour I worked in the food Laboratory of the Department of Nutrition and food Engineering , Of Daffodil International University .

#### **3.2 Methodology**

The study on the preparation of almond cookies was made using the following the Ingredients and Equipments .

"@DaffodilInternationalUniversity@"

### 3.3 Table 1: Ingredients for different amounts of almonds cookies :

Ingredients	Amounts			
	Sample 1	Sample 2	Sample 3	Sample 4
Wheat Flour	200 g	180 g	170 g	150 g
Almond	100 g	120 g	130 g	150 g
Sugar	65 g	65 g	65 g	65 g
Salt	2 pinch	2 pinch	2 pinch	2 pinch
Baking Powder	1 g	1 g	1 g	1 g
Butter	120 g	120 g	120 g	120 g
Egg	1	1	1	1
Vanilla Essence	2-3 drops	2-3 drops	2-3 drops	2-3 drops

### 3.4 APPARATUS & EQUIPMENTS

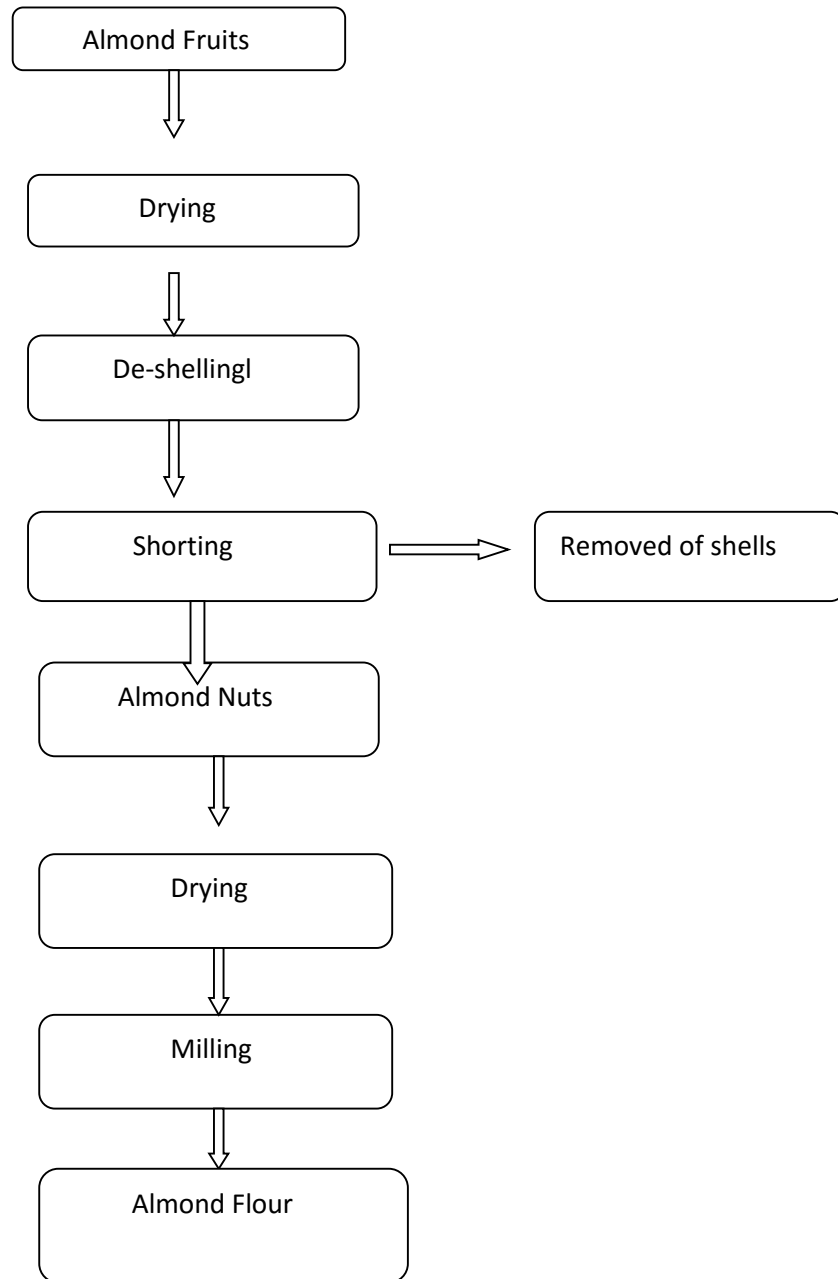
- Oven
- Electric balance
- Mixing machine
- Blander
- Bowl
- Spoon
- Tray
- Sieve

All Instruments were available in the university food laborites .

“@DaffodilInternationalUniversity@”



### 3.5 Table 2: Flow chart of almond flour [10]



“@DaffodilInternationalUniversity@”

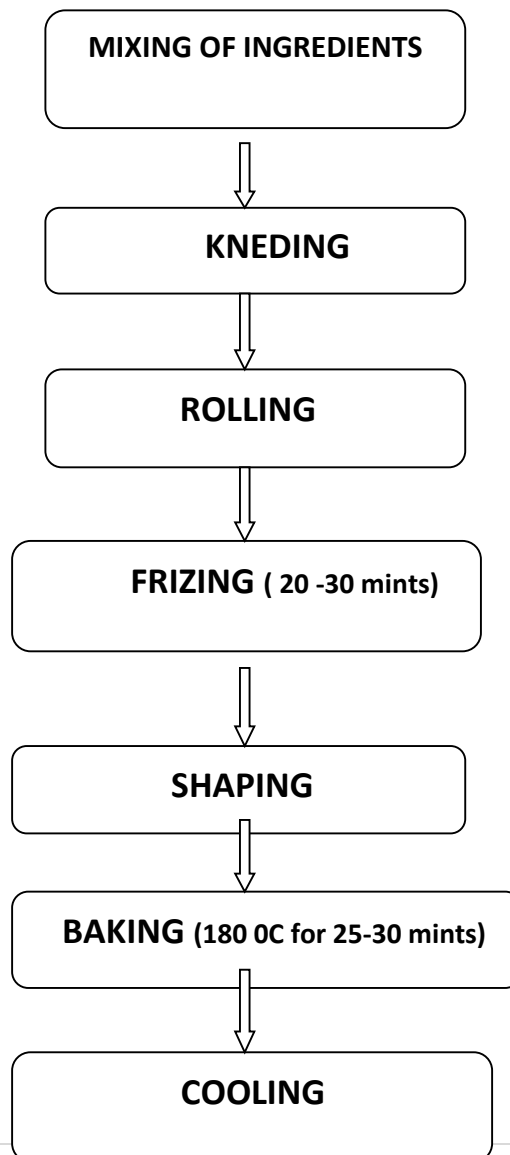
### 3.6 Preparation of cookies

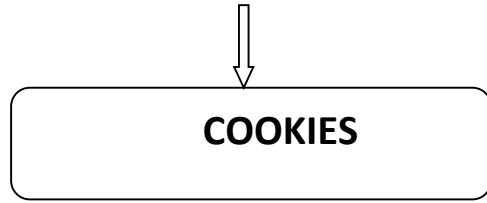
- To prepare almond cookies at first took butter in a bowl and mixed it lightly for few times .
- Then I added sugar ,two pinch of salt and also mixed it evenly .
- When the sugar and salt were mixed properly in the butter then I added egg and vanilla extract and mixed it properly .
- After that, added Cake flour , Almond flour and Baking powder and mixed the dough lightly with all ingredients .
- Then I refrigerated the dough in a plastic rap for 20-30 min .
- After that , I shaped the cookies in a round shape with the hand .
- Already the oven was pre heated at 180 degree centigrade , I baked the cookies for 25-30 minutes .
- Finally after 25-30 mints later I got my almond cookies .
- And cool then in the room temperature .





### 3.7 Flow chart for cookies preparation





"@DaffodilInternationalUniversity@"

# CHAPTER 4

## CHEMICAL ANALYSIS

### 4.1 Determination of Protein [10]

#### Apparatus:

- Burette stand
- Conical flask
- Measuring test tube
- Boiling flask
- Analytical balance

#### Chemical :

- $\text{H}_2\text{SO}_4$
- Digestion mixture (2g  $\text{CuSO}_4$  + 98g  $\text{K}_2\text{SO}_4$ )
- $\text{NaOH}$  40 %
- 0.1 N  $\text{HCL}$
- Methyl red in Dicator
- 6. Distilled water .
- 0.1 N  $\text{NaOH}$

Took 0.4 g sample, 10 ml  $\text{H}_2\text{SO}_4$  and 2.0g digestion mixture



Put it on the digestion flask



Used two digestion flask for taken the average value



First heated slowly then increase the heat for 72 hours continuously



The last point the solution will be crystal clear because the smoke of  $H_2SO_4$  and solution will not found



Then cool the solution at room temperature .

## Distillation :

The solution poured in a conical flask and added 100ml distilled water



Then took 10 ml sample from conical flask into the distillation flask



Then added 150 ml of distilled water and 10 ml of 40% NaOH into the distillation flask



In the conical flask added 50ml of distilled water and 10ml of 0.1 N HCL and 2 drops methyl red .



In this 3 distillation flask where one is blank . that means no sample



Then, the same thing used 3 trapping solution in the 3 trapping conical flask .



Set up the condenser and started the distillation unite 65 0c for 30 mints .

## Titration :

Filled up the burette with 0.1 N NaOH



Then with the 3 trapping solution did it three times .



At the end point color changed from pink to light yellow .

### Calculation :

B= Titration value of blank sample

S= Titration value of sample

$$\frac{B - S \times 1.4 \times 10 \times 5.95 \times 0.1}{0.4 g}$$

=

## 4.2 Determination of Fat [11]

### Apparatus :

- Weight Machine
- Soxhlet apparatus
- Thimble
- Drying oven
- Desiccators with silica gel
- Petroleum ether 9 boiling ( 60-80 Oc )
- Glass Rod

"@DaffodilInternationalUniversity@"



## Reagent :

- N-hexane (220 ml )

## Procedure :

First cleaned out all the glass apparatus by Petroleum ether and dried 120 °C and kept in the desiccators

Then took 2 gm sample and placed in the thimble Soxhlet extractor .

Took 150 ml of bottom flask and filled with 90 ml of Petroleum ether .

Then kept it for boiling for 6 hours

After boiling cooled down the sample and removed all the lipid .

“@DaffodilInternationalUniversity@”

Then collected all the sample and placed them into the oven

After that , kept the sample in the desiccators

Took the weight of the sample

### Calculation :

Thimble weight – W1

Thimble with sample weight – W2

After extraction thimble with sample weight – W3

Sample weight – S

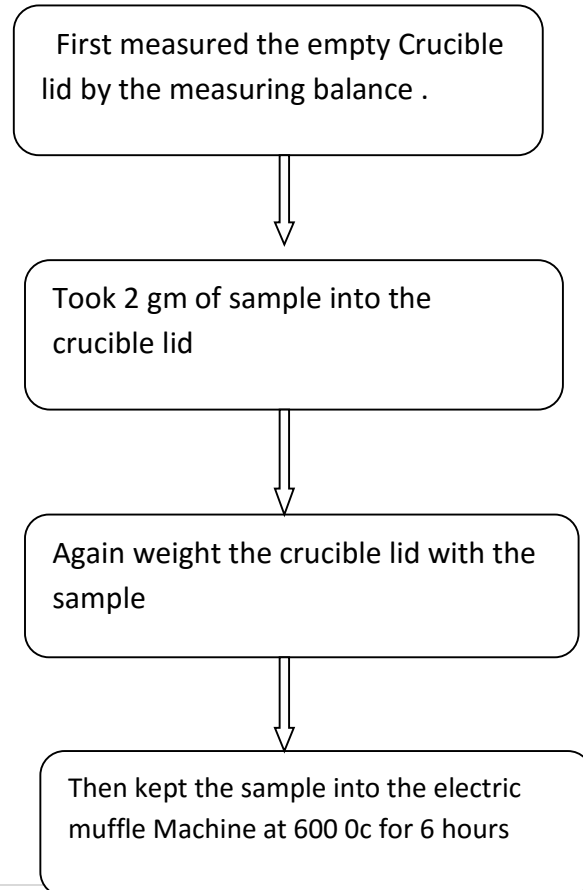
$$\% \text{ of Fat} = \frac{w_2 - w_3}{s} \times 100$$

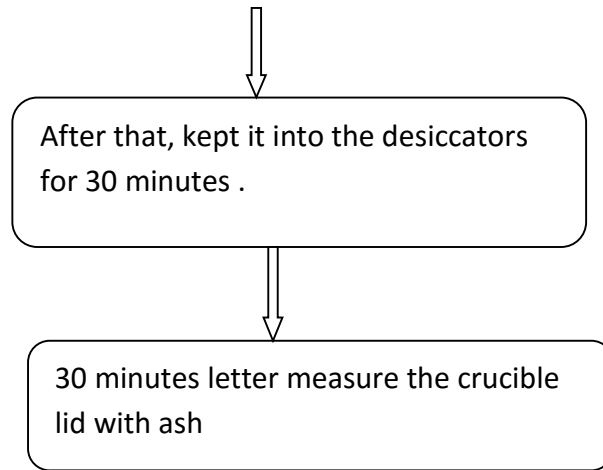
### 4.3 Determination of Ash [12]

#### Apparatus :

- Weight Machine
- Desiccators
- Crucible lid
- Spatula
- Electric Muffle furnace Machine

#### Procedure :





### Calculation :

Empty crucible lid weight = a

Crucible lid with sample =b

Weight of the sample = ( b-a )

Crucible lid with Ash = c

Weight of Ash = ( c-a )

% of Ash = ( c-a ) / ( b-a ) \*100

=

“@DaffodilInternationalUniversity@”

## CHAPTER 5

### RESULT & DISCUSSION

#### Sensory Evaluation

**Total Panelist – 30**

- **Sample 1 – 90% wheat flour, 10% Almond flour**
- **Sample 2 – 80% wheat flour, 20% Almond flour**

**5.1 TABLE 2 :**

Name :						Product : Almond Cookies				
Panelist No : 30						Date :				
<p>Instructions: Taste the given samples, then place a <math>\surd</math> mark on the point in the scale which best describes your feeling.</p>										
SCORE	SAMPLE CODE									
	Sample 1					Sample 2				
	Appearance	Flavor	Taste	Texture	Overall Acceptance	Appearance	Flavor	Taste	Texture	Overall Acceptance
(9) Like extremely	8	10	8	9	13	8	10	6	7	7
(8) Like very much	6	7	7	10	8	9	7	8	9	13
(7) Like moderately	5	6	9	3	6	10	5	13	11	6
(6) Like slightly	9	4	5	4	3	3	4	1	2	4
(5) Neither like nor dislike	2	2	1	2			2	2	1	

(4) Dislike slightly		1		2			2			
(3) Dislike moderately										
(2) Dislike very much										
(1) Dislike extremely										

**Total Panelist – 30**

- **Sample 3 – 60% wheat flour, 40% Almond flour**
- **Sample 4 – 50% wheat flour, 50% Almond flour**

“@DaffodilInternationalUniversity@”

**5.2 TABLE 3 :**

SCORE	SAMPLE CODE									
	Sample 3					Sample 4				
	Appearance	Flavor	Taste	Texture	Overall Acceptance	Appearance	Flavor	Taste	Texture	Overall Acceptance
(9) Like extremely	9	10	12	9	17	9	11	8	10	8
(8) Like very much	10	8	8	10	9	12	15	15	9	20
(7) Like moderately	7	10	10	7	4	8	4	7	8	2
(6) Like slightly	4	2		4		1			3	
(5) Neither like nor dislike										
(4) Dislike slightly										
(3) Dislike moderately										
(2) Dislike very much										
(1) Dislike extremely										

### 5.3 Bar chart of sensory Evaluation

#### Appearance

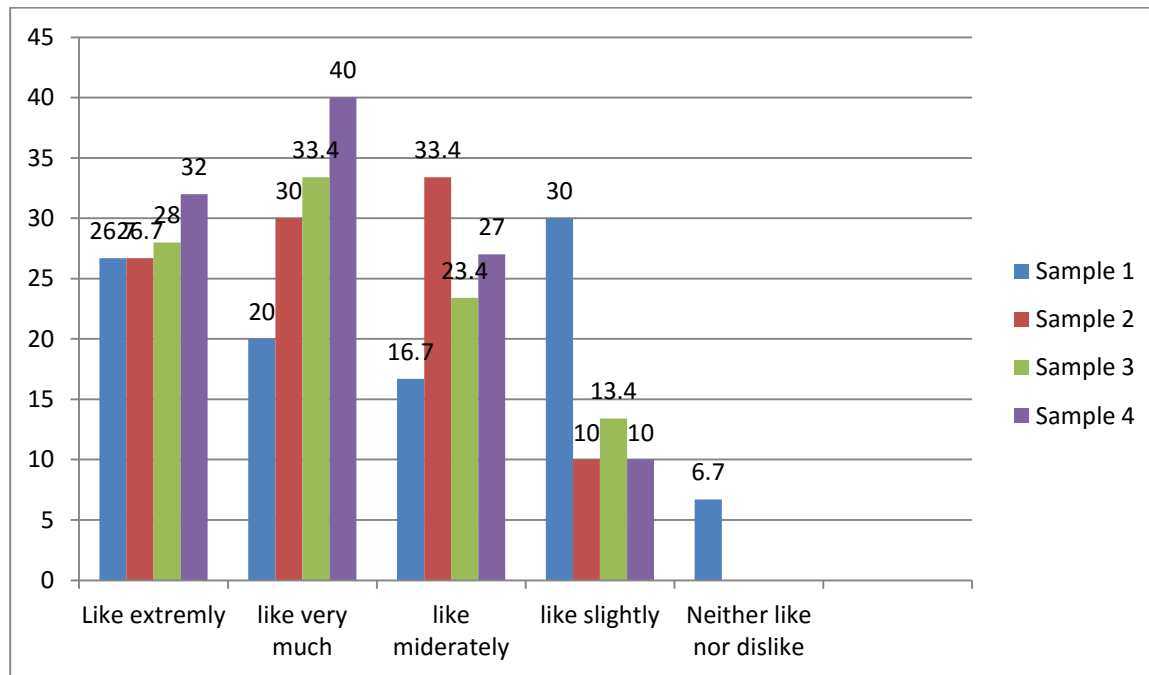


Figure1 : Bar chart of sensory evaluation – Appearance

In this chart , showed that higher of panelist give the score 40%” like very much” to the sample 4 then sample 3 33.4% . Also” like extremely “ took the highest score of sample 3 and sample 4 , both are 30 % . Only sample 1( 6.7%) panelist give” Neither like nor dislike” .



# Flavor

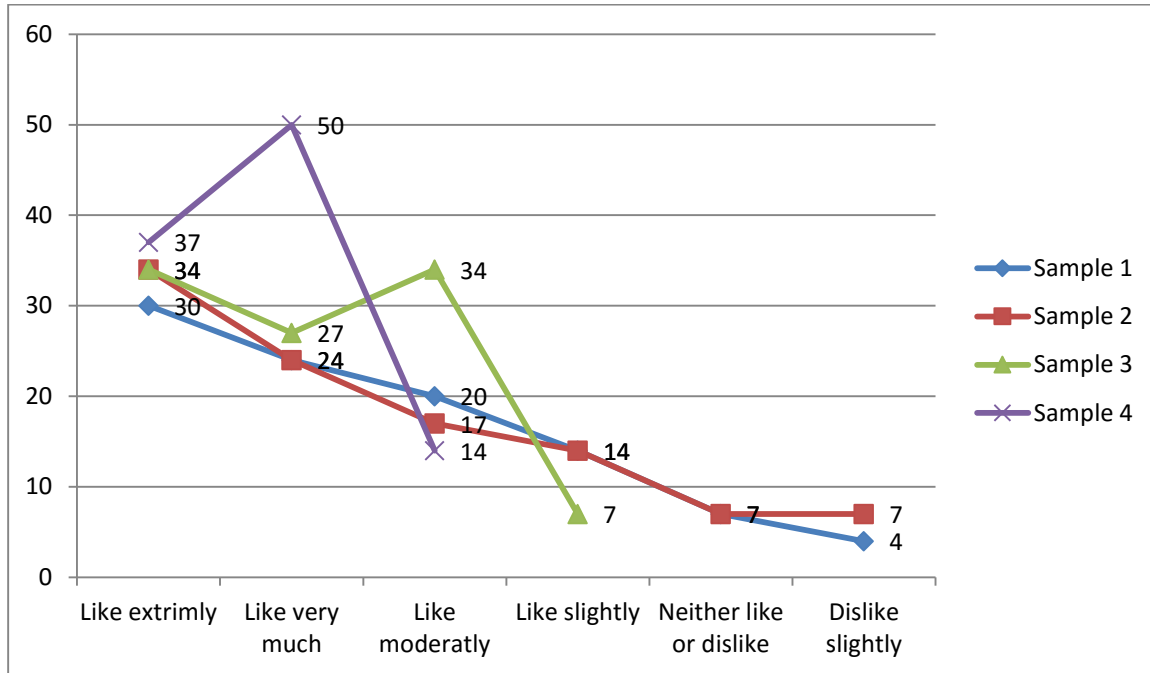


Figure 2 : Bar chart of sensory evaluation – Flavor

In this chart , showed that higher of panelist give the score 50 % “ like very much “ for sample 4 . And sample 2,sample 3 and sample 4 also they give like extremely ( 34% ) and (37 % ) . Sample 1 and sample 2 (4%) and (7%) panelist are give” dislike slightly”

# Taste

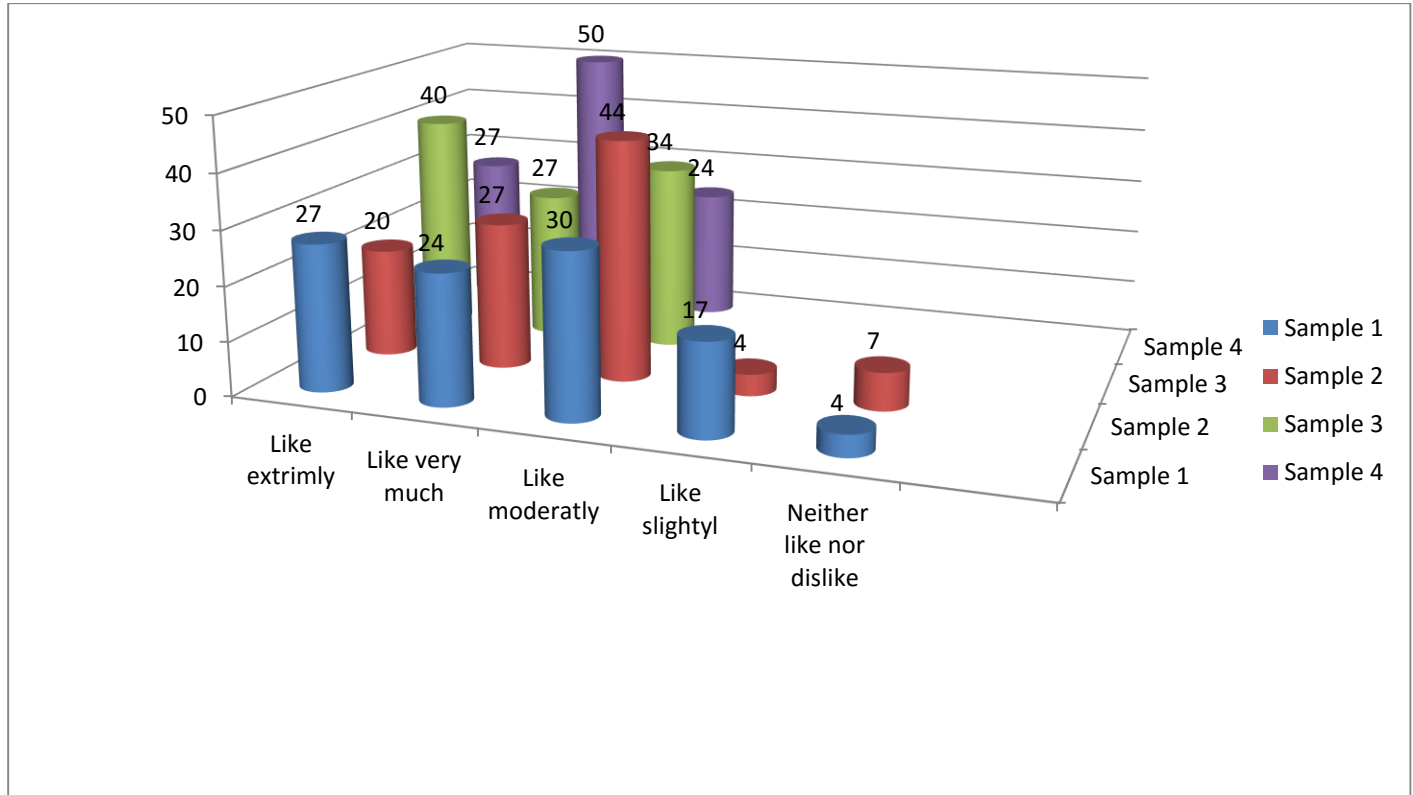


Figure 3 : Bar chart of sensory evaluation – Taste

In this chart , showed that higher of panelist give the score 50% “like very much ” for sample 4 . Then 44% for sample 2 . They give “ like very much ” 40% for sample 2 . And” like extremely” 27% for sample 1 . (4%) and 7% panelist give” neither like nor dislike” for sample 2 and sample 3 .

## Texture

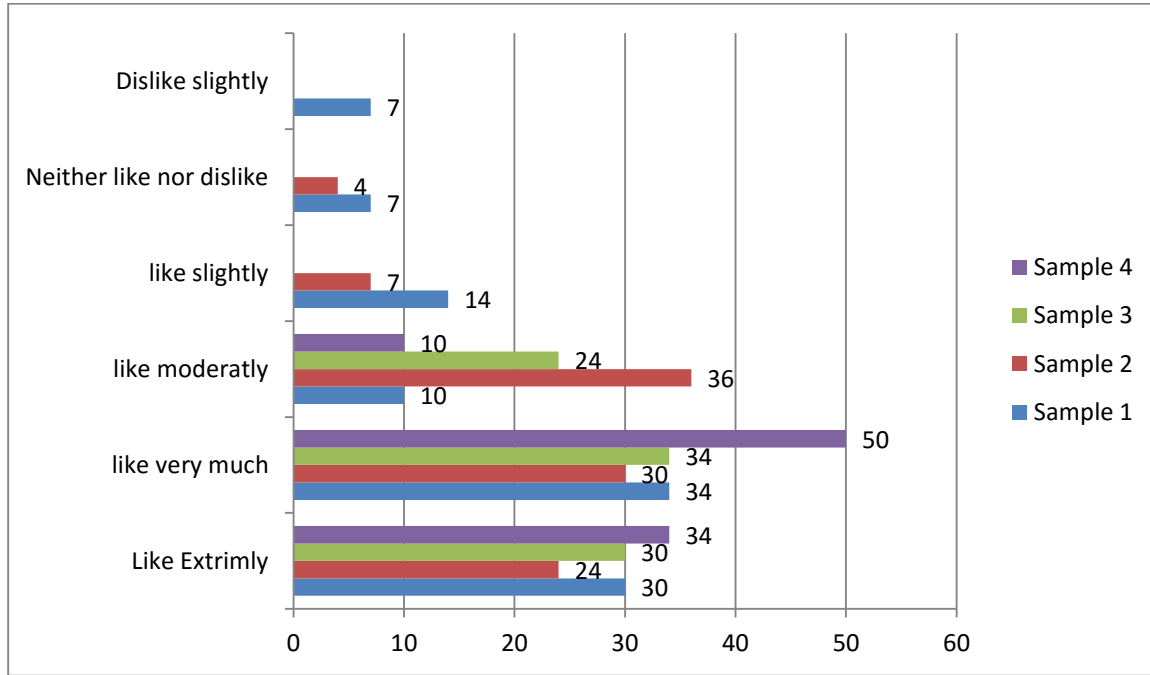


Figure 4 : Bar chart of sensory evaluation – Texture

In this chart , showed that higher of panelist give the score 50% “like very much” for sample 4 . Then 34% for sample 3 and sample 1 . ( 34%) give “like extremely for sample 4 and 30% for sample 1 and sample 3 . sample 1 got 7% “Dislike slightly” .

## Overall Acceptance

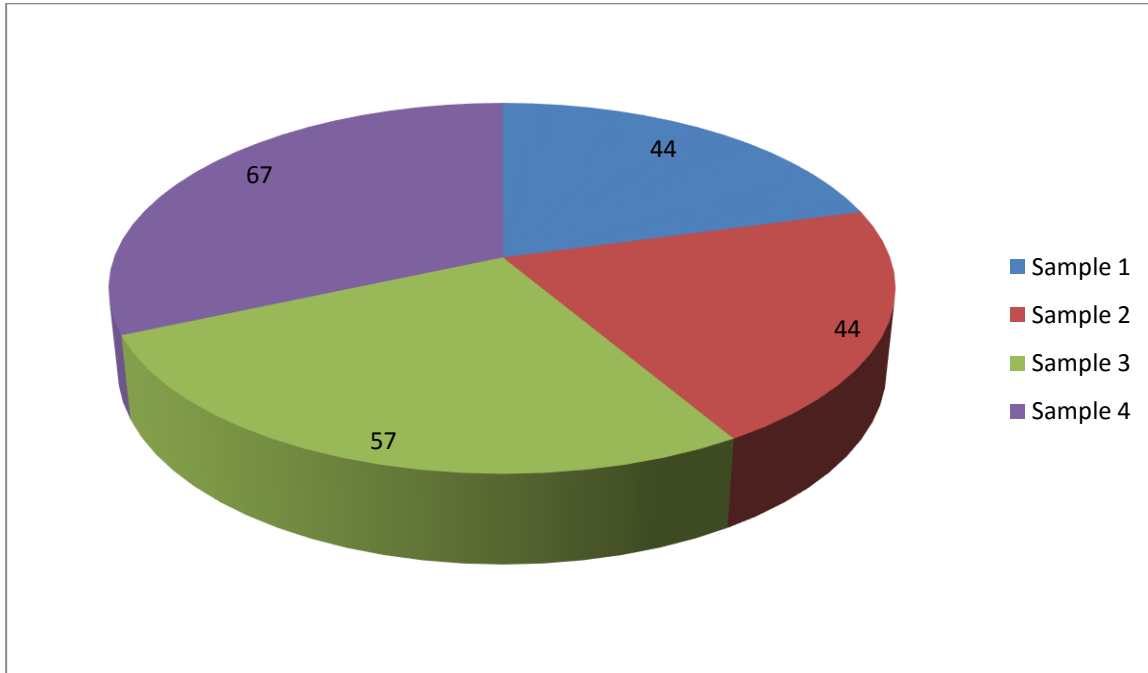


Figure 5: Bar chart – overall acceptance

In this chart , showed that higher of panelist give the score 67% for Sample 4 for overall acceptance which contents 50% almond and 50% wheat flour . Then 57% for sample 3 and 44% foe sample 1 and sample 2 .

#### 5.4 Table 4: Flour blends

<b>Samples</b>	<b>Almond Flour %</b>	<b>Wheat Flour %</b>
<b>Sample 1</b>	<b>10</b>	<b>90</b>
<b>Sample 2</b>	<b>20</b>	<b>80</b>
<b>Sample 3</b>	<b>40</b>	<b>60</b>
<b>Sample 4</b>	<b>50</b>	<b>50</b>

#### 5.5 Table 5: Proximate analysis of Almond cookies

<b>Samples</b>	<b>Moisture %</b>	<b>Protein %</b>	<b>Fat %</b>	<b>Ash %</b>	<b>CHO %</b>
<b>Sample 1</b>	<b>9.38</b>	<b>11.67</b>	<b>1.43</b>	<b>1.67</b>	<b>73.97</b>
<b>Sample 2</b>	<b>9.21</b>	<b>12.14</b>	<b>1.58</b>	<b>1.77</b>	<b>72.12</b>
<b>Sample 3</b>	<b>8.97</b>	<b>12.71</b>	<b>1.85</b>	<b>1.89</b>	<b>70.34</b>
<b>Sample 4</b>	<b>9.08</b>	<b>12.93</b>	<b>2.23</b>	<b>1.97</b>	<b>66.39</b>

"@DaffodilInternationalUniversity@"

## 5.6 DISCUSSION

The chemical composition of almond flour , the moisture content of defatted almond flour ranged between 9.08 % and 9.38 % ; sample 4 had the latest value (9.08 % )while sample 1 had the highest value (9.38% ) . The moisture content of defatted samples significantly reduces as the level of almond flour replacement increases . This could be as a result of the processing method adopted in getting the defatted samples . The protein value ranged from( 11.67 % ) to ( 12.98% ) , sample 4 had the highest protein content ( 12.98% ) . The protein content increases with in the level of defatted almond flour addition . it was observed that the protein value for 50% defatted almond flour was higher that 50% wheat flour . Protein is an important component that determines the rheological properties of composite flours . Many processing methods have been shown to improve the nutritive value of plant foods for human nutrition .

The fat content ranged between 1.43 and 1.73 the highest value observed in 50% almond flour ( 1.73% ) . Sample 1 ( 1.43% ) and sample 2 ( 1.58% ) were significantly lower compared to samples 3 ( 1.85%), sample 4 ( 2.23% ) . Fat plays a significant role in the shelf life of food products and as such relatively high fat content could be undesirable baked food products . For this reason fat promotes rancidity in foods , leading to development of unpleasant compound .

The carbohydrate content ranged between 73.48 and 76.13 to control the sample had the highest value ( 76.13% ) while almond flour 50% had the most value .

The high percentage of carbohydrate content in all the flour that shown the good sources of energy . Also it might found application as soup thickener and in food formulation for diabetics and hypertensive patients requiring low sugar diet .

## CHAPTER 6

### CONCLUSION & REFERENCE

#### 6.1 Conclusion

The study had shown that 30 panelist tasted the cookies of four sample which bear different percentiles of almond . Most of them were selected the sample 4 which content 50% of almond flour which is higher than the other sample of cookies . They gave the high score for sample 4 for overall acceptance . The composite flour could be formulated from wheat and almond flour at different levels . It has been shown that substitution less than 10% of almond flour did not significantly baking the properties of cookies . Addition of almond flour the cookies acceptance of people increasing level by level . Everyone liked the almond cookies which contents most amount of almond people like its appearance , flavor, color, taste , texture everything . Its also contents the high amount of protein , and carbohydrate and fat . Cookies with almond flour were found to be nutritionally superior having higher protein . The almond cookies had better overall acceptability . The addition of almond flour the nutritional value of cookies could help ot alleviate the problem of protein , energy malnutrition prevalent our countries .

“@DaffodilInternationalUniversity@”

## 6.2 Reference

1. <https://sg.docworkspace.com/d/sICXr0ZEIzqfXhQY>
2. <https://www.vogue.in/content/benefits-of-almonds-badam-on-hair-skin-and-health>.
3. <https://www.britannica.com/plant/almond>
4. <https://en.wikipedia.org/wiki/Almond>
5. [https://agfstorage.blob.core.windows.net/misc/FP\\_com/2019/05/13/Nuts%20Bangladesh%20Going%20Nutty%20for%20Almonds%20and%20Walnuts%20\\_Dhaka\\_Bangladesh\\_5-7-2019.pdf](https://agfstorage.blob.core.windows.net/misc/FP_com/2019/05/13/Nuts%20Bangladesh%20Going%20Nutty%20for%20Almonds%20and%20Walnuts%20_Dhaka_Bangladesh_5-7-2019.pdf).
6. <https://www.healthline.com/nutrition/9-proven-benefits-of-almonds#:~:text=Almonds%20are%20the%20edible%20seeds,sold%20either%20raw%20or%20roasted>.
7. <https://www.livescience.com/51627-almonds-nutrition.html>.
8. <https://www.verywellfit.com/almond-nutrition-facts-calories-and-health-benefits-4108974>.
9. <https://www.lifehack.org/369782/amazing-benefits-almond-5-refreshing-recipes>
10. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5789268/>
11. [https://link.springer.com/chapter/10.1007/978-1-4419-1463-7\\_4](https://link.springer.com/chapter/10.1007/978-1-4419-1463-7_4).



12. [https://link.springer.com/chapter/10.1007/978-3-319-44127-6\\_11#:~:text=Ash%20refers%20to%20the%20inorganic,attribute%20for%20some%20food%20ingredients.](https://link.springer.com/chapter/10.1007/978-3-319-44127-6_11#:~:text=Ash%20refers%20to%20the%20inorganic,attribute%20for%20some%20food%20ingredients.)
  
13. <https://www.sangskitchen.com/mixed-nuts-cookies/>

“@DaffodilInternationalUniversity@”