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Project Report

Material Standardization of Moringa Leaf as Soup

Submitted By

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Letter of Transmittal

Date: 15December 2018

Professor Dr. Md. Bellal Hossain

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Subject: Submission of Project report

Dear Sir,

“I would like to take this opportunity to thank you 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. Daffodil International University has many more respective persons, for providing me all most supervision during my thesis in the organization.

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,

Mirza Fatema Yasmin Eva

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Declaration

I am pleased to certify that the project report on **Material Standardization of Moringa Leaf as Soup** conducted by **Mirza Fatema Yasmin Eva**, bearing respectively **ID No: 143-34-334** 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 Mirza Fatema Yasmin Eva. I strongly recommended the report presented by Mirza Fatema Yasmin Eva, for further academic recommendations and defense/viva-voice. Mirza Fatema Yasmin Eva 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.

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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 Dean, Faculty of Allied Health Science, **Professor Dr. Ahmed Ismail Mostafa** for his kind cooperation and to accept this Degree. I am deeply indebted to my supervisor **Prof. Dr. Md Bellal Hossain**, Head of Department of Nutrition & Food Engineering, Daffodil International University for his whole-hearted supervision during my organizational attachment period.

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Finally I wish to express immense gratitude & humbly convey my heart-felt respect to Managing Director.

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Abstract

Moringa olifera drumstick tree are a tree that receives lots of nutritious and medical benefits. That is rich in macro and micro nutrients like proteins, carbohydrate, calcium, phosphorus, potassium, iron, vitamins, beta carotene and other organic compounds, which that important for the normal functioning of the body and the prevention of certain diseases. Moringa soup is prepared with oil, garlic, ginger, onion, tomatoes, and 4 cups drumstick leaves mixture. Corn flour was added as a thickening agent. Moringa leaves were dried by Multi-Commodity Solar Tunnel dryer (MCSTD) then powdered and blended together with other ingredients. The proximate analysis such as moisture, ash and protein of dried powder were measured by standard methods. The moisture content, ash and protein were 4.2%, 90.6% and 20.78% respectively. The develop moringa soup powder is nutritional superior at locally available soup powder and sufficient to meet day by day national requirements and supplement.

Introduction

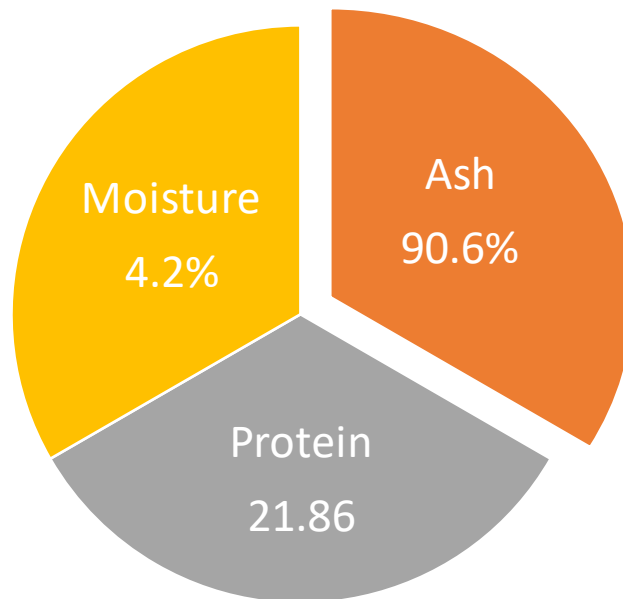
People has become much concerned about their health. Utilization of natural products of plant origin getting lesser side effects has gained popularity over the years. There is more immense scope for foods that can impart health benefits beyond traditional nutrients. Moringa olifera are one such tree have enormous nutritional and medicinal benefits.

That is moringa tree believed to have originated from sub-Himalayan tracts of India, Pakistan, Bangladesh and Afghanistan. The fresh Moringa oleifera leaves contain seven times more vitamin C than orange, four times more calcium than in milk, three times more iron than in spinach, three times much potassium than in banana, four times more vitamin A than in carrot and proteins to as more as in egg.

The soups are generally consumed for health as nutritive benefits particularly in patients whose intake of solids is poor due to several obstructive or pathological reasons. Traditionally soup are classified into 2 main group clear soup and thick soup. The preparation of at soup powder corn flour, coriander powder, and pepper powder, salt are added.

The leaves to the most nutritious part of the plant, will be a significant source of vitamin B6, vitamin c, pro vitamin A as beta –carotene magnesium and protein, among other nutrients reported by the USDA, shown in the table, right column. When compared with common foods that is particularly high in certain nutrients, fresh moringa leaves contain several times the quantity of these same nutrients.

Nutrition value:



Drumstick leaves: “Moringa oleifera is the most widely cultivated species of the genus Moringa, which is the only genus in the family Moringaceae. It is an exceptionally nutritious vegetable tree with a variety of potential uses. The moringa has the potential to improve nutrition, boost food security, and foster rural development and support sustainable landcare. It is considered one of the world’s most useful trees as almost every part can be used for food or has some other beneficial property. The leaves are the most nutritious part of the plant, being a significant source of vitamin B6, vitamin C, pro-vitamin A as beta-carotene, magnesium, and protein among other nutrients reported by the USDA, shown in the table right. When compared with usual foods that are particularly high in certain nutrients, fresh moringa leaves contained several times the quantity of these more nutrients.”

Objectives:

The main objectives of the study were to develop moringa leaf enriched soup which can be lots of nutritious and medical benefits.

Literature Review

“Moringa leaves, or the horseradish tree, is a pan-tropical species that this is known by such regional names as benzolive, drumstick tree, kelor, marango, mlonge, mulangay, saijhan, and sajna. Over the past two decades, many reports have appeared in mainstream scientific journals describing nutritional and medicinal properties. That utility as a non-food product has also been extensively described, but will not be discussed herein, (e.g. lumber, charcoal, fencing, water clarification, lubricating oil). As with many reports of the nutritional or medicinal value of a natural product, there are an alarming number of purveyors of “healthful” food who are now promoting *Oleifera* as a panacea. While more of this recent enthusiasm indeed appears to be justified, it is critical to separate rigorous scientific evidence phytochemical nutritional and antibacterial properties on dried leaf powder of *moringa oleifera* from EDO central province Nigeria (Dos et al 2009) Phytochemical, nutritional and antibacterial premises of the dried leaf powder an *Moringa oleifera* using as food supplement, or source of vegetable in soup preparation were investigated in that study. The compared to the South-South average of. The zones of inhibition are very low or non-existence when tested against *Staphylococcus aureus* (0.7cm), *Pseudomonas sp.* (0), *Klebsiella* (0), and *Escherichia coli*. The dry leaf powder is good source of phytochemicals/secondary and nutrients but not antimicrobials. That the use of *Moringa* leaves nutrient should therefore be encouraged in this locality.”

[Moringa oleifera a natural gift a review:](#)

“The Moringa oleifera, Lam generally mentioned in literature as Moringa, is a natural as well as cultivate variety of the genus Moringa belong to family Moringaceae .That is one of the richest plant sources of Vitamins A ,B (1,2,3,6,7), C,D,E and K. The vital minerals present in Moringa include Calcium, Copper, Iron, Potassium, Magnesium, Manganese and Zinc. Has more than 40 natural anti-oxidants. Moringa having used since 150B.C. by ancient kings and queens in their diet for mental alertness and healthy skin. The leaves, pods, seeds, gums, bark and flowers of Moringa.”

[Health Benefits of Moringa:](#)

“They are used in more than 80 countries including Pakistan to relieve mineral and vitamin deficiencies, support a healthy cardiovascular system, encourage normal blood glucose levels, neutralize free radicals thereby reducing malignancy provide excellent support of the body's antic inflammatory mechanisms, enrich anemic blood and support immune system. This also improves eyesight, mental alertness and bone strength. That is potential benefit in malnutrition, general weakness, lactating mothers, menopause, and depression.”

[Effect of dehydration on the native value drumstick leaves:](#)

“There are food based strategy’ is used as a tool for combating micronutrient deficiencies. That is also referred as dietary modification, which encompasses a wide variety of intervention that aim at increasing to production, availability and consumption in food products, which are rich in micronutrients. One such food products are green leafy vegetables. There are more varieties of green leaves vegetables which are though rich in micronutrients, yet are usually discarded or are not used for human consumption. One such leaf, a rich source of micronutrients but still under exploited is drumstick leaf (Moringa oleifira).The present study is donedone with the objective to assess the effect of different procedure of drying (sun,shade and oven drying) on the nutritive value of the select leaf with its fresh counterparts. The results showed significant increase ($p < 0.01$) in all t he nutrients in the dried samples of the leaves making there are a reconcentrated source of nutrients. Shade dried samples had highest nutrient retention followed was sun drying and oven dried samples but the difference was not statistically significant.”

Materials and Methods:

Materials

The present investigation was carried out in the Department of nutrition and Food Engineering.

- Oil
- Ginger
- Onion
- Tomatoes
- Water
- Garlic

Processing of soup:

Firstly I will wash all ingredients with fresh water. And I am heat oil in a pan. I have add on some cumin seeds in goes garlic and a lots Sauté for a min add on onion. I had add on drumstick, mix oil and cooking 10 min. Salt and pepper to taste.



Blanching process:

I take first to raw moringa leaf 365 gm. And then add to distill water 2 Litre. Then add to kMH 4 gm. after 2 minute boiling. Then add to kMH 4 gm. After 2 minute boiling. And then I do tray cooling it.

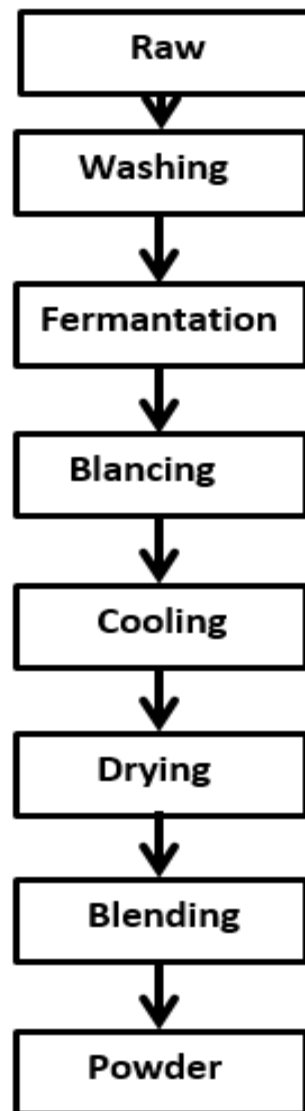
Selected materials:

Moringa leaves selected as base materials for soup mixes. The moringa leaf were collected from the local market.

Fermentation process:

The material used in fermentation is simplicial moringa leaves with fermenter agent is Rhizopus oligosporus 106 CFU/ml. Ratio at fermentation materials was 10: 5: 1: 1 (M. oleifera: aquades: R. oligosporus: molasses). Fermentation is carried out in 9 days with observation time on days 0, 3, 6 and 9.

Formulation flow chart of moringa leaf:



Percentage of ingredients:

ginger-5%

onion-15%

Salt-0.35%

Garlic-7%

Soups mixes are also observed is analyzing the sensory attributes and hedonic rating using the panel of ten judges. According to these aspects best soup mixes from each one treatment were identified.

Sensory evaluation of moringa soup:

The sensory evaluation of moringa soup was made by hedonic rating for sensory quality attributes and overall acceptability using according to the method as described by on a 6 point hedonic scale.

Score card for hedonic scoring:

SI No	Hedonic scale	Score points
1	Like extremely	8
2	Like slightly	8
3	Neither slightly	7
4	Dislike slightly	5
5	Dislike moderately	4
6	Dislike very much	3
7	Dislike extremely	2

Nutritional evaluation of moringa leaf:

The proximate analysis of various process of ash moisture protein. Ash 4.2% and protein 20.78% and moisture 90.6%.

Analysis and Result Analysis:

Procedure: **C**

Analysis of Moisture

5gm of the sample was accurately weighted into a pre weighted moisture plate where put in sample. Dried for 105° c for 2 hours in hot air oven till the weight of moisture plate was constant. Then it was cooled in a desiccators and again weighted.

$$\text{Moisture} = \frac{\text{Difference in weight of moisture plate} \times 100}{\text{Weight of sample}}$$

Result: Moisture content is 4.2% which is below 5

Ash Analysis:

Procedure:

5gm of the sample was accurately weighted into a pre weighted silica crucible Then it was heated first over a low flame till all the materials was completely charred , followed by the ash in a muffle furnace for about 6 hours at about 600°C cooled and weighted . The ash is almost white or grayish white in color.

Ash= weight of sample

Weight of sample

=5.00-0.47

5.00

=90.6%

Result: Ash content of is 90.6%

Protein analysis

Material required

1. H₂SO₄
2. Digestion mixture
3. 40% NaOH
4. 0.1N HCl
5. Methyl red indicator
6. 0.1 NaOH
7. Distillation water

Procedure:

Digestion

1. Take sample .4 gm and H₂SO₄ 10 ml and digestion mixture 2 gm
2. Put it on the digestion flask.
3. Use two digestion flask for average value can be taken.
4. At first heat slowly heat about 3-4 hour
5. The end point will be no white smoke of H₂SO₄ and the solution will be crystal clear
6. Cool it for some time

1st sample=9.3 ml 2nd sample=9.4ml

1st sample : $(10.3-9.3) \times 0.1 \times 1.4 \times 6.25 \times 10$

0.4

=21.86%

2nd sample : $(10.3-9.4) \times 0.1 \times 1.4 \times 6.25 \times 10$

0.4

=19.69%

Total=21.86%+19.86%

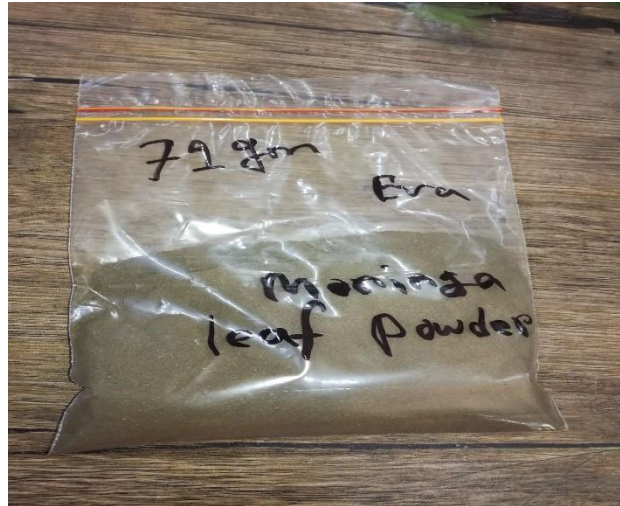
=20.78%.

Discussion



The overall acceptability re the moringa soup are sensory evaluation are 6 point hedonic scale. Moringa leaf raw are drumstick leaves powder at blanching process. First raw moringa leaf are the 365 gm and to 2 liter distil water and added to 4 gm kmh or 2 minute boiling.

The leaves are rich in protein, vitamin A, vitamin B, Vitamin C, and minerals. Moringa leaves are in protein 20.78.



Moringa contains antioxidants called flavonoids, polyphenols, and ascorbic acid in the leaves, flowers, and seeds. A study found that as moisture protein, 4.2%, 90.6%, 20.78% moringa are used for tired blood, arthritis, and other joint pain, constipation, diabetes, diarrhea, stomach pain, heart problems, high blood pressure, and parasite infection.





Moringa Leaf Soup

Amount per 100gm

Ash: 90.6%

Protein: 20.78%

Moisture: 4.2%



Benefits of moringa leaf soup:

Drumstick leaves a wonderful green leaf variety with many of health benefits. They are rich in iron and it should be included in diet at least once or twice per week. Pregnant ladies can consume it more often because of its rich iron content. I always prefer to have moringa leaf soup during day time that is before lunch to avoid digestion issues.

Conclusion

Moringa olifera are excellent a source of micro and macro nutrient. The moringa leaf made from of moringa soup. It's made by onion ginger garlic water Sal pepper etc. it is considered rich in iron and it should it be included in diet at least one or twice per week. Soup is made by onion ginger garlic and cumin seeds. Its taste is good. Moringa leaf variety of health benefits. Moringa leaf soup during day time that are before lunch to avoid digestion issues.

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