

Formulation of Healthy *Cucurbita maxima* seed incorporated Milkshake

H. Jerlin¹, B. Keerthika² and Dr. J. Gracia³

¹Associate Professor, Department of Nutrition and Dietetics, Muslim Arts College, Thiruvithancode, Kanyakumari, Tamilnadu, India

²Student, Department of Nutrition and Dietetics, Muslim Arts College, Thiruvithancode, Kanyakumari, Tamilnadu, India

³Assistant Professor, Department of Food Science and Nutrition, The American College, Madurai, Tamilnadu, India

ABSTRACT

Cucurbita maxima is a popular vegetable and the seeds of *Cucurbita maxima* are generally considered a waste product but it is rich in bioactive compounds with nutraceutical properties. Diet rich in *Cucurbita maxima* seeds has been associated with a reduced risk of stomach breast, lung, prostate and colon Cancers. Seeds of *Cucurbita maxima* are consumed either roasted or raw and used in cooking and baking and incorporated into foods to increase the nutritional value in diets. Sensory evaluation is a combination of different senses of a perception coming into play in choosing and eating. The Objective of the study was to analyze the nutrient content of the *Cucurbita maxima* seed powder, to obtain a sensory evaluation of formulated products and to find out the acceptability of the product. The sample used in this study was *Cucurbita maxima* seed were cleaned with water to make the sample free from foreign materials, sundried and grind finely. The nutrients such as Protein, Carbohydrates, Crude fiber, Iron and Fat of the *Cucurbita maxima* seed powder were analyzed. Dried *Cucurbita maxima* powder was selected for the preparation of the milkshake. The milkshake was prepared using standard procedure. Sensory assessments were evaluated based on the quality description i.e, appearance, flavor, taste, color, texture and overall acceptability. The acceptability of the product was evaluated by a panel of 20 trained judges The data was subjected to statistical analysis such as Mean, Standard Division and Standard Error Mean. The result reveals that nutrients such as protein 6.256%, carbohydrate 23.645%, crude fiber 2.2%, Iron 0.298% and fat 49.8%. The sample *Cucurbita maxima* seed powder was taken to prepare the formulated product. Both the formulated products are evaluated by 20-panel members for the parameters such as appearance, taste, flavor, color, texture and overall

Article Info

Volume 9, Issue 1

Page Number : 250-255

Publication Issue

January-February-2022

Article History

Accepted : 08 Feb 2022

Published : 17 Feb 2022

accuracy. The appearance of formulated Cucurbita maxima seed milkshake has scored 97% in standard and 86% in the sample whereas the flavor of formulated Cucurbita maxima seed milkshake has scored 86% in standard and 96% in the sample. Taste of formulated Cucurbita maxima seed milkshake has scored 97% in standard and 98% in sample and Colour of formulated Cucurbita maxima seed milkshake has scored 92% in standard and 95% in the sample. The texture of formulated Cucurbita maxima seed milkshake has scored 92% in standard and 96% in sample respectively. Thus the present study concludes that incorporation of Cucurbita maxim seed powder in the milkshake will help to enhance the health benefit.

Keywords: Cucurbita maxima, Incorporation, Banana Milk Shake, Cucurbita maxima Milk Shake

I. INTRODUCTION

Cucurbita maxima is a popular vegetable in our country. The seeds of Cucurbita maxima are rich in oil and nutrients (Ahasan Habib et al., 2015). Cucurbita maxima seeds are generally considered a waste product but it is rich in bioactive compounds with nutraceutical properties (Montesano et al., 2018). Cucurbita maxima seed and seed oil are a rich natural sources of Phytosterols (Phillips, et al., 2005). Cucurbita maxima are one of the vegetables that meet the requirements of health Nutrition pumpkins are of local importance in traditional agricultural systems. They are cultivated throughout the world for food, seed oil and medicinal value (Kadam and Pati, 2014).

All groups of cucurbita seed were rich in oil, fiber and protein. Fatty acid is incorporated in foods to increase the nutritional value especially in diets that are deficient in nutrients (Karanjaet al., 2013).

The seeds of curcurbita maxima are rich in lipid 36.70%, protein 34.56% and crude fiber 2.9%. Therefore, it may be used as a potentially attractive source of lipid, protein and crude fiber. In addition, the seed is a good source of minerals like nitrogen, phosphorus, Sodium, calcium, copper, zinc,

magnesium, potassium, and iron that are important for our health. The seed may also be used as fertilizer since it contains 5.53% nitrogen. Cucurbita maxima seed yields 12%of oil (Habibet al., 2015).

Cucurbita maxima contain rich unsaturated Fatty acids, phytoestrogen and vitamins E in their seed that have potential pharmaceutical, nutraceutical and cosmetic properties. Cucurbita maxima seeds contain several types of unsaturated Fatty acids (Beni Lestari and Edy Meiyanto, 2018). Cucurbita maxima seeds are a good source of vitamins mostly vitamin B along with C, D, E, K besides, zinc, magnesium, manganese, phosphorous and phytosterol (Mythili and Kavitha, 2017).

Diet rich in Cucurbita maxima seeds has been associated with a reduced risk of stomach breast, lung, prostate and colon Cancers (Marianna et al., 2009). Seeds of Cucurbita maxima are consumed either roasted or raw and used in cooking and baking as an ingredient of cereals, bread, cakes and salads (Phillips et al., 2005). The Cucurbita maxima seed could be incorporated into foods to increase the nutritional value especially in diets that are deficient in the said nutrients (Karanjaet al., 2013).

Sensory evaluation is a combination of different senses of a perception coming into play in choosing

and eating food (Srilakshmi, 2007). A substance that produces flavor must be volatile and the molecules of the substance must come in contact with receptor in the epithelium of the olfactory organ (Srilakshmi 2009). Appearance encompasses the positive and negative aspects of the products (Pottor, 1996). Taste sensation which the taste buds near the tip of the tongue are more sensitive to sweet and salt and those on the sides to sour and there near the back to bitter (Srilakshmi 2007). The first impression of food is usually visual and a major part of our willingness to accept a food depends on its appearance. Appearance includes optical properties, Physical form and made of presentation (Shakuntala Mancy, 1999).

The Objective of the study was to analyze the nutrient content of the Cucurbita maxima seed powder, to obtain a sensory evaluation of formulated products and to find out the acceptability of the products.

II. METHODS AND MATERIAL

A. Collection and Processing of Cucurbita maxima seed powder

The sample used in this study was Cucurbita maxima seed. Cucurbita maxima seed and the other ingredients were purchased from the nearby Supermarket, Palliyadi, Kanyakumari District, Tamilnadu. The Cucurbita maxima seeds sample were cleaned with water to make the sample free from foreign materials. After washing the Cucurbita maxima seed are allowed to sundry for a particular period till it becomes dry. Then grind finely and the powdered Cucurbita maxima seed and other ingredients were measured using a weighing machine

B. Nutrient analysis of Cucurbita maxima seed powder

The nutrients such as Protein, Carbohydrates, Crude fiber, Iron and Fat of the Cucurbita maxima seed powder were analyzed.

C. Formulation of the product

Dried Cucurbita maxima powder was selected for the preparation of the milkshake. The milkshake was prepared using standard procedure. In the present study, banana milkshake and Cucurbita maxima powder incorporated milkshake were formulated.

Table – 1
Ingredients for the preparation of Milkshake

Ingredients	Banana Milk Shake	Cucurbita maxima seed powder Milk Shake
	Amount (g/l)	Amount (g/l)
Cow milk	¼ lit	¼ lit
Small size banana	20 gm	-
Cucurbita maxima powder	-	20 gm
Palm sugar	30 gm	30 gm

For the preparation of Banana milk shake, Take 20gm of banana, ¼ cup milk and 30gm palm sugar to the blend. Blend ingredients until mixture are smooth. Pour into frosted mugs. Keep it in Refrigerator for a particular period. For the preparation of Cucurbita maxima powder milk shake, instead of banana, 20 gm of Cucurbita maxima powder were incorporated.

D. Sensory evaluation for the formulated product
Sensory assessments were evaluated based on the quality description i.e, appearance, flavor, taste, color, texture and overall acceptability. This evaluation is a valuable tool in solving problems involving food acceptability products were evaluated by a panel of 20 trained judges from the Department of Nutrition and Dietetics, Muslim Arts College, Thiruvithancode. Kanyakumari District, TamilNadu.

E. Statistical Analysis

The primary data thus collected was consolidated and subjected to statistical analysis such as Mean, Standard Division and Standard Error Mean.

III. RESULTS AND DISCUSSION

A. Nutrient Analysis for Cucurbita maxima seed powder

The nutrient analysis result of the protein content of the Cucurbita maxima seed powder was 6.256g. The total carbohydrate content of the Cucurbita maxima seed powder was 23.645g. The crude fiber content of the Cucurbita maxima seed powder was 2.2%. The Iron content of Cucurbita maxima seed powder was 0.298mg. The fat content of Cucurbita maxima seed powder was 49.8%.

Table - 2

Nutrient analysis for the *Cucurbita maxima* seed powder

Nutrient	<i>Cucurbita maxima</i> seed powder
Protein	6.25 gm
Carbohydrate	23.64 gm
Crude fiber	2.2 %
Iron	0.298 mg
Fat	49.8 %

Ahsan Habib et al., 2015 states that the nutritional analysis, it was found that the seeds of Cucurbita maxima are rich in lipid 36.70%, protein 34.56% and crude fibre 2.91%. Therefore, it may be used as a potentially attractive source of lipid, protein and crude fiber.

The result of Qamar Abbas Syed et al., (2019) found that Cucurbita maxima seeds contained 41.59% oil,

25.4% protein, 5.2 % Moisture, 25.19% carbohydrates, 5.34% fiber, and 2.49% total ash.

The nutrient composition analysis of Cucurbita maxima seeds showed that these are very nutritious and provide many essential nutrients for health. However, the Cucurbita maxima seeds have been used for medicinal purposes and these possess also nutritional and therapeutic importance. The Cucurbita maxima seeds play a significant role in providing of micronutrients and also used in treatment and management of diabetes, inflammation, hyperlipidaemia, hypertension, cancer management and protect heart etc (Qamar Abbas Syed et al., 2019).

B. Sensory evaluation of formulated products

To enhance the nutrient content, in the present study, the banana milkshake and Cucurbita maxima seed powder were prepared using standard procedures. The sample Cucurbita maxima seed powder was taken to prepare the formulated products, Cucurbita maxima seed milkshake. Both the formulated products are evaluated by 20-panel members for the parameters such as appearance, taste, flavor, color, texture and overall accuracy.

The appearance of formulated Cucurbita maxima seed milkshake has scored 97% in standard and 86% in sample whereas the flavor of formulated Cucurbita maxima seed milkshake has scored 86% in standard and 96% in sample.

Table – 3

Sensory evaluation of formulated products

Scoring		Appearance	Flavour	Taste	Colour	Texture
Banana Milk Shake	Sensory	94%	86%	97%	92%	92%
	Mean ± SD	4.7 ± 0.31	4.3± 0.48	4.85± 0.26	4.6 ± 0.18	4.6± 0.16
	SEM	0.070	0.108	0.059	0.041	0.035
<i>Cucurbita maxima</i> seed Milk Shake	Sensory	97%	96%	98%	95%	96%
	Mean ± SD	4.85±0.12	4.8±0.16	4.3±0.40	4.75±0.24	4.8±0.33
	SEM	0.028	0.036	0.09	0.055	0.074

SD – Standard Deviation
SEM – Standard Error Mean

Taste of formulated Cucurbita maxima seed milkshake has scored 97% in standard and 98% in sample and Colour of formulated Cucurbita maxima seed milkshake has scored 92% in standard and 95% in sample. The texture of formulated Cucurbita maxima seed milkshake has scored 92% in standard and 96% in sample respectively. The study on Mule et al., (2014) concluded that blending of Fig (5%) with buffalo milk resulted in superior quality milk shake and was cost efficient.

Shinde et al., 2018 found that the Date milk shake prepared from 90 parts of buffalo milk and 10 parts of Date pulp was most acceptable and ranked is like very much. The addition of higher proportion of pulp in the blend scored towards lower side by a panel of judges.

IV. CONCLUSION

Thus the present study concludes that incorporation of Cucurbita maxim seed powder in the milkshake will help to enhance the health benefit. The study shows that the appearance, followed by colour, flavou and colour of the Cucurbita maxima seed powder incorporated product shows the best compared to the banana milkshake. So this study will be a key for future research.

V. REFERENCES

[1]. Ahsan Habib, Shahangir Biswas, Abdul Hai Siddique, Manirujjaman M, Belal Uddin, Sohel Hasan, Khan MMH, Meftah Uddin, Minarul Islam, Mahadi Hasan, Muedur Rahman, Asaduzzaman M, Sohanur Rahman M, Khatun M, Islam MA and Matiar Rahman, 2015. Nutritional and Lipid Composition Analysis of Pumpkin Seed (*Cucurbita maxima* Linn.), J Nutr Food Sci, 5:4.

[2]. Beni Lestari and Edy Meiyanto, 2018. A Review: The Emerging Nutraceutical Potential of Pumpkin Seeds , Indones. J. Cancer Chemoprevent., 9(2), 92-101.

[3]. Domenico Montesano, Francesca Blasi, Maria Stella Simonetti, Antonello Santini and Lina Cossignani, 2018. Chemical and Nutritional Characterization of Seed Oil from *Cucurbita maxima* L. (var. Berrettina) Pumpkin, Journal of Foods, Mar; 7(3): 30.

[4]. Habib A, Biswas, S. Siddique, Alt, Manirojjman M, Uddin B, (2015) Nutritional and Lipid composition Analysis of pumpkin seed J Nutr Food Sci 5:374. doi .104172/2155-9600 1000374.

[5]. Kadam, P.V and Patil M.J (2014) pharamocognostic study of cucurbitamoschata (cucurbitaceae). Pharmacognosy journal5, supplement 4-6 dioi: 10.1016/j phcgi 2013.09002.

[6]. Karanja J.K, Mugendi B.J, Khamis F.M and Muchugi A.N, 2013. Nutritional composition of the pumpkin (*Cucurbita* spp.) seed cultivated from selected regions in Kenya, Journal of Horticulture Letters ISSN: 0976-9943 & E-ISSN: 0976-9951, Volume 3, Issue 1, 2013, pp.-17-22.

[7]. Marianna N. Xanthopoulou, TzortzisNomikos Elizabeth Fragopouloy, SmaragdiAntonopoulou (2009) Antioxident and lipoxygener inhibitory activities of pumpkin seed extracts.

[8]. Mule P.R, R.P. Barbind, R.L. Korake, D.P. Gavit, 2014. Proximate composition, sensory evaluation, and production cost of fig milk shake prepared from buffalo milk. Animal Science Reporter, Volume 8, Issue 2, p43-47.

[9]. Mythili and Kavitha, 2017. Overview on Cucurbita Maxima Seed, IOSR Journal of Dental and Medical Sciences 16(03):29-33.

[10]. Norman N Potter and Joseph H Hotchkiss, 1996. Food Science,

[11]. Philips KM, Ruggio DM, Ashraf. Khorassani M (2005) phytosterol composition of nuts and

seeds commonly consumed in the unites states
J. Agric Food chem 53:9436 – 9445.

- [12]. Qamar Abbas Syed, Mafia Akram and Rizwan Shukat, 2019. Nutritional and Therapeutic Importance of the Pumpkin Seeds, Journal of scientific and technical research, 15798-15803.
- [13]. Shakundala Many, 2006. Food Facats and Principles, Rehaily A, El-Tahir KEM, Mossa JS, Rafatullahs, 2001, pharmacological studies of various extract from hexance extract of Ticleanobilis in rodents Nat prod. sci 7:76-82
- [14]. Shinde D.V, A.S. Gawali, R.B. Narwade, V.S. Kedare and A.B. Manohar, 2018. Sensory Evaluation of Milkshake Blended with Date (Khajur) Pulp, Trends in Biosciences 11(14).
- [15]. Srilakshmi, Food Science, 2009. 4th Edition New Age International publishers, New Delhi
- [16]. Srilakshmi, Nutritional Science, 2007. New Age International publishers, New Delhi

Cite this article as :

Sh