

**DEVELOPMENT OF A SPICES-BASED SEASONING CUBE
INCORPORATED WITH MORINGA LEAVES POWDER (*Moringa
oleifera*) AND A MONOSODIUM GLUTAMATE ALTERNATIVE**



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Abstract

The present study was undertaken to examine the possibility of the formulation of a novel seasoning cube based on locally available spices and herbs (black pepper, ginger, turmeric, cinnamon, clove, cardamom, chili, coriander, cumin, fennel, and curry leaves), Moringa leaves powder, and natural alternatives (mushroom, tomato, carrot, and garlic powders) for monosodium glutamate and additional functional ingredients such as sodium chloride, corn flour, vegetable fat (Margarine), and xanthan gum were also used. Five formulations of seasoning cubes were prepared by changing the percentages of Moringa leaves powder (3%, 6%, 9%, 12%, and 15% w/w) and a mixture of spices and herbs (22%, 19%, 16%, 13%, and 10% w/w) and the control sample was formulated without incorporating Moringa leaves powder. All the formulations were subjected to proximate analysis (moisture, ash, fat, protein, fiber, and carbohydrate), physicochemical analysis (color, pH value, dispersibility, and weight), microbial analysis (yeast and mold count and aerobic plate count), and sensory evaluation. The shelf-life of the product was studied during 90 days of the storage period by evaluating the changes in weight, moisture content, pH value, and microbial qualities. Moreover, all the formulations exhibited acceptable limits on microbial quality parameters throughout the storage period. According to the sensory evaluation, the sample which was formulated by incorporating 9% Moringa leaves powder, 13% spices and herbs mixture, 25% monosodium glutamate alternative, 10% sodium chloride, 25% vegetable fat, 14% corn flour, and 1% xanthan gum was found to be the best treatment ($p < 0.05$) with the highest overall acceptability of 4.77 ± 0.43 . According to the proximate analysis, the aforementioned spices-based seasoning cube sample contained

13.13±0.62% moisture, 14.34±0.77% ash, 2.61±0.22% crude fat, 9.63±0.35% crude protein, 3.86±0.09% crude fiber, and 56.43±1.15% carbohydrate.

Keywords: Herbs and spices, Monosodium glutamate alternative, *Moringa oleiferera*, Flavor enhancers, Seasoning cubes

Table of Contents

Acknowledgements	ii
Table of Contents	iii
List of Tables.....	vi
List of Figures	vii
List of Abbreviations	viii
CHAPTER 01.....	1
INTRODUCTION.....	1
1.1 Problem Identification and Justification	3
1.2 Objectives	4
1.3 Hypothesis	4
CHAPTER 02.....	5
LITERATURE REVIEW	5
2.1 Seasoning cubes	5
2.1.1 Characteristics of seasoning cubes	5
2.1.2 Manufacturing process of seasoning cubes.....	6
2.2 Natural alternatives for monosodium glutamate.....	7
2.3 <i>Moringa oleifera</i>	7
2.3.1 Moringa – The miracle tree.....	8
2.3.2 The nutritional profile of Moringa leaves	9
2.3.3 Medicinal applications of Moringa.....	10
2.3.4 Incorporation of Moringa in different food products	11
2.4 Significances of herbs and spices in the preparation of seasoning cubes	12
2.4.1 Black pepper.....	12
2.4.2 Ginger	12
2.4.3 Turmeric.....	13
2.4.4 Cinnamon	14
2.4.5 Clove.....	15
2.4.6 Cardamom.....	15
2.4.7 Chili pepper	16
2.4.8 Coriander.....	17
2.4.9 Cumin.....	18
2.4.10 Fennel.....	18

2.4.11 Garlic.....	19
2.4.12 Curry leaves.....	20
CHAPTER 03.....	21
MATERIALS AND METHODOLOGY	21
3.1 Material	21
3.2 Preparation of Moringa leaves powder and curry leaves powder.....	21
3.3 Preparation of mushroom, carrot, tomato, and garlic powder	22
3.4 Preparation of spices-based seasoning cubes	22
3.5 Analysis of physicochemical quality parameters	23
3.5.1 Determination of moisture content (Toluene distillation)	23
3.5.2 Determination of total ash content	24
3.5.3 Determination of crude fat content	24
3.5.4 Determination of crude protein content (Kjeldahl method).....	25
3.5.5 Determination of crude fiber content.....	26
3.5.6 Determination of carbohydrate content	27
3.5.7 Color	27
3.5.8 pH value	28
3.5.9 Dispersibility (water solubility).....	28
3.5.10 Average weight.....	29
3.6 Microbial analysis	29
3.6.1 The yeast and mold count	29
3.6.2 The aerobic plate count.....	30
3.7 Sensory evaluation	31
3.8 Statistical analysis	32
CHAPTER 04.....	33
RESULTS AND DISCUSSION	33
4.1 Proximate composition.....	33
4.1.1 Moisture content of spices-based seasoning cubes	34
4.1.2 Ash content of spices-based seasoning cubes	35
4.1.3 Fat content of spices-based seasoning cubes	36
4.1.4 Protein content of spices-based seasoning cubes	36
4.1.5 Fiber content of spices-based seasoning cubes	37
4.1.6 Carbohydrate content of spices-based seasoning cubes	38

4.2 Color of spices-based seasoning cubes	39
4.4 Dispersibility of spices-based seasoning cubes	45
4.5 Weight of spices-based seasoning cubes.....	46
4.6 Microbial analysis of spices-based seasoning cubes.....	47
4.6.1 Yeast and mold count	47
4.6.2 Aerobic plate count.....	49
4.7 Sensory evaluation of spices-based seasoning cubes.....	50
CHAPTER 5.....	53
CONCLUSIONS AND RECOMMENDATIONS.....	53
References.....	55
Appendices.....	67

List of Tables

Table 2.1: Proximate composition of dried leaves of <i>Moringa oleifera</i>	10
Table 2.2: Moringa incorporation in different food products	11
Table 3.1: Different formulations of spices-based seasoning cubes	22
Table 4.1: Proximate composition of spices-based seasoning cubes	33
Table 4.2: Changes in color parameters of spices-based seasoning cubes over the storage period	41
Table 4.3: Dispersibility of spices-based seasoning cubes	46
Table 4.4: Yeast and mold count.....	48
Table 4.5: Aerobic plate count	49

List of Figures

Figure 4.1: Changes in moisture content of spices-based seasoning cubes over the storage period.....	35
Figure 4.2: Total color difference (ΔE) of spices-based seasoning cubes over the storage period.....	42
Figure 4.3: Visual color changes in different spices-based seasoning cube samples.....	43
Figure 4.4: Changes in pH value of spices-based seasoning cubes over the storage period.....	45
Figure 4.5: Changes in weight of spices-based seasoning cubes over the storage period.....	47
Figure 4.6: Effect of incorporation of Moringa leaves powder on the sensory attributes of seasoning cubes.....	51