REPLACEMENT OF MAGGI WITH SEASONING MADE FROM SPICES, SEA FOOD AND PLANT PROTEIN

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Abstract
A healthy seasoning was produced from spices (garlic, ginger, scent leaf, turmeric, calabash nutmeg), sea food (catfish, crayfish) and plant protein (locust beans), with the intent to replace Maggi cubes. The materials (ingredients) were purchased, processed (cleaned, dried, and blended) and added to prepared food (rice) to impart taste and nutrients for well-being. The seasoning was analyzed for proximate, vitamin and mineral composition. Result of Proximate analysis showed moisture content of 16.71%, ash (4.16g) fat (18.62g), fibre (6.11g), protein (17.87g), and carbohydrate (36.53g). The sample also contained minerals like Calcium (236.20mg), Potassium (806.55mg), Zinc (2.84mg), Magnesium (49.37mg), Iron (6.21mg), Selenium (1.13mg), Iodine (3.11mg) and Phosphorus (261.40mg). Vitamin composition include vitamin A (33.78µg), Thiamin (16.22mg), Riboflavin (1.53mg), Niacin (2.74mg), Pantothenic acid (0.63mg), Folic acid (284.18mg), and vitamin E (196mg). Such profile of nutrients will prevent disease conditions like hypertension, diabetes, hyper glycemia, etc. This enriched seasoning should be developed and produced in commercial quantities so that people can utilize it and be actively involved in their health status through adequate nutrition.
Keywords: Maggi, Healthy seasoning, Spices, Sea food, Plant protein

Introduction

A common seasoning found in every home in Nigeria is the Maggi cube, used on a daily basis to make a variety of dishes. The use of Maggi can be traced back to 1872, invented by a Swiss entrepreneur called Julius Maggi, who provided an alternative to poor families who could not afford fish and meat in their diet. Maggi improves the taste of any dish. It is made with; some important composition of the cube which includes salt, sugar, flavor enhancers (monosodium glutamate, disodium inosinate, disodium guanylate), starch, hydrolysed soya beans, clove, pepper, chilli, refined palm oil, colour (caramel E150c), water, onion, Iron pyrophosphate, Emulsifier (Soya Lecithin), and Yeast extract. (Bluemountainpeak, 2023).

A slight concern about this is that it is a synthetic product which could have adverse effect on health over a long term usage. Food safety regulators from Barabanki, India (Najar, 2015) reported that samples of Maggi 2 Minute Noodles contained high levels of monosodium glutamate (MSG) and increased levels of lead (Pb). Some risk factors (Toriola, 2021) associated with daily consumption of Maggi include hypertension, stroke or heart attack arising from clogged arteries, since Maggi contains trans-fat. Excess intake could interfere with nervous coordination, since glutamic acid acts as a neurotransmitter and may induce side effects like headache, pain, nausea and rapid heartbeats (Toriola, 2021). Due to the adverse effect of Maggi cubes on health, the study aims to produce a seasoning from spices (garlic, ginger, scent leaf, turmeric, calabash nutmeg), sea food (catfish, crayfish) and plant protein (locust beans), which are loaded with nutrients and promote good health.

Materials and Methods

Materials Used

The materials used include garlic, ginger, scent leaf, turmeric, calabash nutmeg, catfish, crayfish and locust beans.

Equipment Used

Weighing Balance, Oven, Blender

Source of Materials

The Spices and other food items were purchased at Oja Oba in Owo, Ondo State.

Preparation of the Materials

The spices were washed with clean water, oven dried at 65°C and weighed. After weighing, they were blended and packaged.

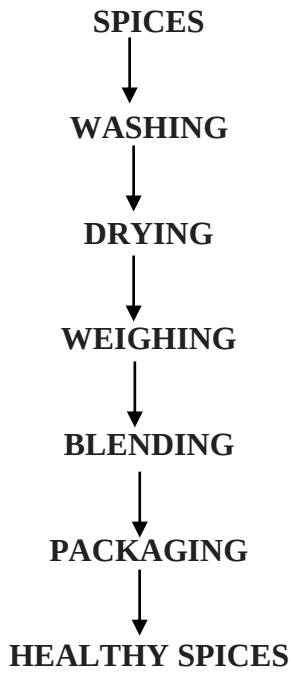

Figure 1: Flowchart for the production of seasoning made from spices

Determination of Proximate Composition

The moisture, fat, fibre, ash, protein and carbohydrate content of the sample were determined, using AOAC (2005) described method.

Sensory Evaluation

Fifteen (15) judges from the female hostel of Rufus Giwa Polytechnic, Owo, Ondo State were selected to carry out sensory evaluation of food cooked with the spices and maggi. They were given a questionnaire to state their comments about the colour, taste, aroma and overall acceptance of the food cooked with the spices (Sample B) and Maggi (Sample A), using 5 point hedonic scale.

Results and Discussion

The result of the proximate analysis, mineral, vitamin content and the sensory evaluation are shown below.

Table 1: Proximate Composition of the Spice Seasoning

Parameter	Sample
Moisture %	16.71±7.77
Ash (g)	4.16±0.004
Fat (g)	18.62±0.004
Fibre (g)	6.11±0.02
Protein (g)	17.87±0.01
Carbohydrate (g)	36.53±0.02

Table 2: Mineral Composition of the Spice Seasoning

Parameter (mg)	Sample
Na	112.40±0.14
Ca	236.20±0.14
K	806.55±0.35
Zn	2.84±0.004
Mg	49.37±0.004
Se	1.13±0.004
Fe	6.21±0.003
Cu	0.58±0.003
P	261.40±0.006
I	3.11±0.006

Table 3: Vitamin Composition of the Spice Seasoning

Parameter (mg)	Sample
Vitamin A µg	33.78±0.04
Vitamin B_1	16.22±0.01
Vitamin B_2	1.53±0.002
Vitamin B_3	2.74±0.004
Vitamin B_5	0.63±0.001
Vitamin B_6	0.44±0.004
Vitamin B_9	284.18±0.01
Vitamin E	196.53±0.007

Table 4: Sensory Properties of the Prepared Rice

Attributes	Sample A	Sample B
Colour	5.00±0.00	2.69±0.90
Aroma	4.47±0.83	2.47±1.60
Taste	4.60±0.63	2.27±1.10
Overall Acceptance	4.87±0.35	2.33±1.05

KEY:

Sample A = Rice cooked with Maggi
Sample B = Rice cooked with healthy spices

For years, Maggi cubes have been used in everyday cooking in all homes in Nigeria, both rural and urban. Being a synthetic product which contains lead and mono-sodium glutamate (Dhananjay and Amit, 2019) that has adverse effects on health, it is imperative to produce seasoning from natural ingredients that will improve people's health and wellbeing. A healthy seasoning was produced from spices (garlic, ginger, scent leaf, turmeric, calabash nutmeg), sea food (catfish, crayfish) and plant protein (locust beans), with the intent to remove Maggi cubes from daily cooking, and phase out the health challenges that come with the consumption of synthetic product.

Proximate analysis showed that the sample contains moisture (16.71%), ash (4.16g) which portrays the minerals in the product, fat (18.62g), fibre (6.11g) which prevents constipation, lowers risk of diabetes, maintains healthy weight, controls blood sugar levels and lowers cholesterol levels (Mayo Clinic, 2023); protein (17.87g) for body building and tissue repair, and carbohydrate (36.53g) for energy and strength for daily activities.

Some mineral composition of the spice seasoning include Calcium (236.20mg), Potassium (806.55mg), Zinc (2.84mg), Magnesium (49.37mg), Iron (6.21mg), Selenium (1.13mg), Iodine (3.11mg) and Phosphorus (261.40mg). These minerals are important for vital life processes.

Vitamin content of the healthy seasoning includes vitamin A (33.78µg), Thiamin (16.22mg), Riboflavin (1.53mg), Niacin (2.74mg), Pantothenic acid (0.63mg), Folic acid (284.18mg), and vitamin E (196mg). Vitamins are essential to prevent diseases like night blindness, scurvy, beri-beri, pellagra, etc.

The bioactive compound in ginger (gingerol) has antioxidant and anti-inflammatory properties which reduce joint pains and stiffness caused by osteoarthritis (Leech, 2023). The Scent leaf component of the seasoning is known to lower blood pressure, lower blood sugar level, protect pancreatic cells from damage. It equally helps to eliminate nicotine from the body (Nwokolo, 2023a).

Catfish is a good source of vitamin B_{12} (Cyanocobalamin) which is important for cell metabolism, DNA production and nerve function (Selemin, 2022). It is suggested that most people are not consuming enough vitamin B12, but this can be resolved by adding this seasoning to their staple. People must be actively involved to learn to incorporate healthy foods (rich in nutrients) in their daily diet. We need to shift away from the modern fast food, high sugar, high salt, high fat unhealthy diet that is causing so much harm to people.

The calcium and magnesium in crayfish, help in the development of strong bones (Nwokolo, 2023b). Crayfish also contains omega-3 fatty acids, which promote healthy skin, improve brain function, and reduces the risk of Alzheimer's disease (Nwokolo, 2023b).

Organoleptic assessment of the prepared rice showed that the subjects preferred sample A (made with Maggi cubes) to sample B (made with healthy spices). This may be due to the fact that their taste buds are used to Maggi flavour, a condiment they have been accustomed to for so many years. The taste of the healthy seasoning is unique and novel, it will take some time for people to get used to it.

Conclusion and Recommendation

A novel seasoning was produced from blends of catfish, crayfish, turmeric, ginger, garlic, locust beans, scent leaf and calabash nutmeg as a replacement of Maggi. Health is priceless, and should be guarded jealously. Many studies have reported that Maggi cubes (mono-sodium glutamate) are dangerous to health, giving rise to detrimental ailments like hypertension, stroke and heart attack. This seasoning is produced from organic bioactive substances, packed with many health benefits, and actively reducing disease conditions like diabetes, hyper glycemia, high blood pressure, coronary heart disease. It also helps to fight cancer cells, removes free radicals, and eliminates nicotine from the body.

The Food Industry should shift to cultivation and production of organic seasoning; they should stop chasing after profit at the expense of people's health. The use of commercial preservatives and artificial flavouring agents should be discontinued, for general wellbeing of the population.

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