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DEVELOPMENT AND NUTRITIONAL EVALUATION OF A MULTIPURPOSE SPREAD (MORITA) UTILIZING *MORINGA OLEIFERA*

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Abstract: This study details the development of "Morita," a multipurpose food spread incorporating *Moringa oleifera* (drumstick) leaves and carrot. The research aimed to determine if a drumstick leaf-based paste could achieve a taste and texture comparable to commercial spreads like peanut butter while enhancing nutritional value. The final product was evaluated for its sensory attributes using a 9-point Hedonic scale and its nutritive content was calculated.

Keywords – Innovative, Nutrition, Ergonomics

I. INTRODUCTION

Moringa oleifera, often referred to as the "Miracle Tree" or "panacea," is a nutrient-dense underutilized plant. Its leaves are exceptionally rich in essential minerals (Calcium, Potassium, Zinc, Magnesium, Iron) and vitamins (A, B-complex, C, D, and E). Furthermore, it contains vital phytochemicals such as flavonoids and alkaloids, which contribute to its roles as an antioxidant and antimicrobial agent.

Carrot (*Daucus carota*) was selected as a co-ingredient for its high beta-carotene content and significant trace elements, which are known to improve eyesight and digestion. The objective was to combine these ingredients with traditional dairy bases (butter and milk powder) to create a spread that is both palatable and healthy.

II. MATERIALS AND METHODS

The primary ingredients procured for the development of Morita included:

- ❖ Drumstick Leaves (*Moringa oleifera*): The core nutritional component.
- ❖ Carrot: Added for flavour and nutritional synergy.
- ❖ Milk Powder: Used to adjust protein and calcium levels and ensure a uniform texture.
- ❖ Butter: Serving as the fatty base to provide a spreadable consistency.

2.1 Product Development

The preparation involved a standardized process (detailed in the full report's flowchart) where drumstick leaves and carrots underwent pre-treatment before being processed into a paste and blended with the dairy components.

2.2 Evaluation

- ❖ Sensory Evaluation: Conducted using a 9-point Hedonic scale covering appearance, colour, flavour, taste, and consistency.
- ❖ Nutritive Calculation: The total nutritional value was calculated based on the standardized quantities of the ingredients used.

III. METHODOLOGY

The methodology pertaining to the study on “Development of Multipurpose Spread Made from Moringa Oleifera (Morita)” is presented under the following headings:

3.1. Selection and procurement of Materials

3.2. Pre-treatment of Drumstick leaves and Carrot

3.3. Development of the product

3.4. Conducting the acceptability trial

3.5. Calculating the nutritive value

3.1. Selection and procurement of Materials:

Fresh drumstick leaves and carrot were purchased from Dindigul vegetable market located in Dindigul district, Tamil Nadu, India. The butter and the milk powder were checked for its expiry date and obtained from the departmental store in Chinnalapatti, located in Dindigul district.

3.2. Pre-treatment of Drumstick leaves and Carrot:

- ❖ The bundles of drumstick leaves were checked for its quality and sorted. Then the leaves were separated from the stalk manually and washed the leaves with water thoroughly.
- ❖ To remove the dirt, sand, and then strain the water. It was boiled in water for 2-3 minutes.
- ❖ After boiling, the water was drained and spread it to remove the excess water.
- ❖ Carrot was washed to remove the dirt and sand in a running tap water. After washing
- ❖ It is wiped with clean cotton cloth to make it dry. Then they were cut into small slices.

3.3. Development of the product

For making a 100g Morita Multipurpose Spread mix, 50g of boiled drumstick leaves, 25g of sliced carrot, 80g of butter and 50gm of milk powder was mixed using a mixer Grinder.

3.4. Conducting the acceptability trial:

To find out the acceptability of the product 9-point Hedonic scale was used. The product was given to ten members and the points were rated.

3.5. Calculating the nutritive value:

The nutritive value for 100g of the product was estimated using the Food Composition Table 2017 by National Institute of Nutrition (NIN).

IV. RESULTS AND DISCUSSION

The product was successfully developed to meet the target texture of a spreadable multipurpose food.

4.1. Sensory Profile:

Preliminary trials indicated that the drumstick leaf paste could successfully substitute for conventional nut-based pastes while maintaining acceptable sensory qualities.

4.2. Nutritional Impact:

The inclusion of *Moringa* significantly boosts the mineral and vitamin profile of the spread compared to traditional butter-based products.

4.3. Traditional Context:

The use of 'Moringa' aligns with Ayurvedic and Traditional Chinese Medicine (TCM) principles, where it is recognized for its ability to treat malnutrition and "purify" the blood.

V. CONCLUSION

The development of "Morita" demonstrates that underutilized plants like *Moringa oleifera* can be successfully integrated into common food formats like spreads. This product offers a nutritionally superior alternative to commercial spreads, providing a rich source of calcium, iron, and vitamins, particularly beneficial for addressing malnutrition.

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