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RESEARCH ARTICLE

Development and Standardization of *Moringa oleifera* Leaf Fortified Soup Mix and Herbal Mix

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ABSTRACT

Moringa oleifera is well-known medicinal herbal plant found in India. Whole tree like pods, leaves, seeds and flowers are highly rich in nutrients. Leaves can be directly consumed fresh or sometimes cooked. Leaves of the moringa can be stored for longer period of time without losing any nutrient by drying them and convert into powdered form. The methodology of the study is to develop the product (moringa soup mix, moringa herbal mix) by incorporating the moringa leaves powder, in different ratio and sensory evaluation was done by semi trained panel members. The study result showed that moringa mix soup (M_3), with incorporation of 30% Moringa powder and 70% Oats is more acceptable. Moringa herbal mix (T_1) made up of 80% Moringa powder and 20% Turmic powder is more acceptable as compare to control and other variants.

Keywords: *Moringa oleifera,* Moringa powder, Fortified food, Product development.

INTRODUCTION

Moringa oleifera is easily available and low cost food item in local area. Moringa called *Shanjana* and botanical name *Moringa oleifera*. *Moringa oleifera* belonging to the family of Moringaceae is an effective remedy for menopause woman, malnutrition, anemia, diabetic, cancer, and hypertension, mainly joint pain. Moringa is rich in nutrition owing to the presence of a variety of essential phytochemical present in its leaves, pods and seeds. *Moringa oleifera* in

rich nutrients vitamin C (ascorbic acid), vitamin A(carrot), calcium (milk), iron (green leaf vegetable like spinach), protein(pulse), potassium(banana). *Moringa oleifera* Lam. (Moringaceae) is one of the 14 species of family Moringaceae, native to India, Africa, Arabia, Southeast Asia, South America, and the Pacific and Caribbean Islands (Iqbal et al, 2006). *Moringa oleifera* is the most promising tree which has used for nutritional benefits, medicinal properties, environmental conservation, and consumption and is the perennial, multipurpose. *Moringa oleifera* is mainly name such as "cabbage tree", ''drumstick tree" or "horseradish tree", 'beanoil tree' or 'benzoil tree', 'miracle tree' and 'mother's best friend tree , super food'. (Koul and Chase, 2015).

All parts of *Moringa oleifera* plant are used culturally for its nutritional value, medicinal properties and taste, flavor, as a vegetable and seed. *Moringa oleifera* can be eaten fresh, cooked, and stored as a dried powder use for many months without any major loss of its nutritional value (Arabshahi-D et al, 2007; Fahey, 2005). According to Fahey (2005), the content of vitamin C in moringa leaves is seven times higher than that of oranges, quantity of vitamin A is four times to carrots, calcium is four times and protein content is two times to milk. There is also the presence of antioxidant compounds in moringa leaves. Due to these several health benefits and nutrients, the leaves, seeds, pods and flowers are widely used in the preparation of various kind of food (Juice, herbal mix, soup, cake, biscuit).

MATERIALS AND METHODS

The research study was conducted in the laboratory of Food Science, Jayoti Vidyapeeth Women's University, Jaipur, Rajasthan.

Procurement of raw material

The raw materials were procured from the local market (Jaipur, Rajasthan, India) for processing and developing of product. This include Moringa leaves powder, rice , oats ,Turmic powder, Cinnamon powder, black paper, ginger powder, cloves powder, cardamom powder.

Processing for moringa leaves

- Good quality of moringa leaves collect JVWU campus
- Clean properly
- Selected for drying
- Cleaned parts shade drying for 7 days at room temperature
- Weight
- Grinder
- Sieving
- Collect moringa powder

Formulation of Moringa soup mix powder

To make the moringa soup mix, raw materials were weighed (moringa powder ,rice powder, oats powder, cardamom powder, black paper powder, salt as shown in Table no. 1) Take 250 ml water and add moringa soup mix. Heat the content till half of the total volume (125ml) and strainer the soup. Then add salt, Turmic powder, black pepper, cinnamon powder, to the soup.

Formulation of moringa herbal mix

To make the moringa herbal mix , raw materials were weighed (dry moringa leaves powder ,Turmic powder, Black pepper, Cloves powder, Cinamum powder , Cardamom powder, Honey as shown in Table no. 2). Take 250 ml water and add moringa herbal mix. Heat the content till half of its initial volume (125ml) and strainer the soup. Then add salt, turmic powder, black pepper, cinnamon powder, to the herbal mix.

Sensory Evaluation

The moringa powder based product i.e. moringa mix soup and moringa herbal mix were evaluated for their sensory characteristic using 9- point hedonic scale.(Rangana 1986).

RESULTS AND DISCUSSION

Moringa soup mix

The product is prepared by the incorporation of *Moringa* leaves powder in three different concentrations i.e. 10%, 20% and 30% which is compared with the control (Table no.3). The mean scores secured for the colour attribute were ranging from 5.8±0.874 to 7.44±0.06.The mean score obtained for the taste varied from 6.00±0.942 to 7.11±0.99. Moringa soup mix prepared with 20% (M_2) of incorporation obtained the maximum score7.11±0.99. However, the third variant (M_3) with 30% incorporation obtained the minimum score 6.00±0.942 for taste. The data indicated that the mean score secured for the texture were between 5.8±0.94 to 7.22±1.03. The first variant with 10% of incorporation showed maximum score (7.22±1.03). However, the third variant (M_3) with 30% level of incorporation showed score is minimum (5.8±0.94).The mean score for the overall acceptability varied from5.8±0.99 to 6.88±0.99. Moringa soup mix (M_2), with incorporation of 20% moringa powder and 80% oats is most acceptable product as compare to the other variants and control.

Moringa herbal mix

The product is prepared by the incorporation of moringa leaves powder (*moringa Leaves powder)* in three different concentrations i.e. 20%, 30% and 40% which is compared with the control (Table no.4.1.4). The mean score obtained for the colour were ranging from 6.71±1.27to7.85±0.63. The mean score secured for the *taste* of moringa herbal mix were ranging from6.28±0.88 to 7.85±0.63. Moringa herbal mix prepared with 40% incorporation (T2) showed minimum score (6.28±0.88).The data indicated that the mean score obtained for the *texture* were between6.57±0.72 to 6.714±0.90. The third variant (T_3) with 40% incorporation has minimum score (6.57±0.72). The mean score secured for the appearance of Moringa herbal mix were ranging from 6.42±0.90to7.42±0.49. The data indicated that the mean score registered for the overall acceptability varied from6.57±0.72 to 7.57±0.49. The first variant with 30% of incorporation showed minimum score of control (6.57±0.72). Moringa herbal mix (T_1) made up of 80% moringa leaves powder and 20% Turmic is more acceptable as compare to other variants and control.

CONCLUSION

Moringa oleifera is nutritious food that provide sufficient amount of nutrients needed for, cancer, anemia, diabetes, hypertension, malnutrition and menopause woman. The outcome of the study demonstrated that the moringa leaves powder can serve as a good nutritional supplement for combating malnutrition as it is rich source of protein, carbohydrate, vitamin A, vitamin C , Iron and calcium.

REFERENCES

1. Aimunda Samia, Nogueira Brilhante, Jamille Alencar Sales, Vandbergue Santos Pereira.,(2017)." Research advances on the multiple uses of *Moringa oleifera*: A sustainable .alternative for socially neglected population. *Asian Pacific Journal of Tropical Medicine.*
2. Arabshahi-D, S.; Devi, D. V.; Urooj, A.(2007)." Evaluation of antioxidant activity of some plant extracts and their heat, pH and storage stability. *Food Chemistry*.
3. Fahey RM, Upadhyay SK. (2012)."*Food Additive*. Chapter, 1-30.
4. Fahey, JW. (2005)."*Moringa oleifera*: a review of the medical evidence for its nutritional, therapeutic, and prophylactic properties. *Trees for life Journal*.1(5):1–15

5. Iqbal, S.; Banger, M. I. (2006)."Effect of season and production location on antioxidant activity of *Moringa oleifera* leaves grown in Pakistan. J. *of Food Comp. and Anal.*19, 544-551.
6. Koul B, Chase N (2015). *Moringa oleifera* Lam.: Panacea to several maladies. *Journal of Chemical and Pharmaceutical Research* (7):687-707.
7. .Ranganna, S., (1986). Handbook of analysis and quality control for fruit and vegetable product. *McGraw Hill Education (India) Private Limited.* 330-374
8. Satya Prakash Mishra, Pankaj Singh, Sanjay Singh. (2012).Processing of *Moringa oleifera* Leaves for Human Consumption. Bull. *Env.Pharmacol. Life Sci. ©, Academy for Environment and Life Sciences, India.*2(1):28-31

Table .No.1. Moringa soup Mix

Ingredients	Control	10% Incorporation	20% Incorporation	30% Incorporation
Moringa powder	__	10	20	30
Oats	50	90	80	70
Rice	50	50	50	50
Black pepper powder	5	5	5	5
Cinamum powder	3	3	3	3

Table No. 2: Moringa Herbal Mix

Ingredients	Control	10% Incorporation	20% Incorporation	30% Incorporation
Moringa powder	__	10	20	30
Turmeric powder	1	2	3	4
Black pepper powder	3	3	3	3
Cinamum powder	2	2	2	2
Cloves	2	2	2	2
Cardamom powder	3	3	3	3
Ginger powder	2	2	2	2
Honey	5	5	5	5

Table No.3:- Acceptability Evaluation of food product (Moringa soup mix) in the term of sensory attributes.

Attributes	**Control**	**M1**	**M2**	**M3**
Colour	5.8±0.874	6.5±0.95	7.44±0.68	7.44±0.06
Taste	6.00±0.942	6.8±1.09	7.11±0.99	6.88±1.28
Texture	5.8±0.94	6.8±1.22	7.22±1.03	7.11±1.09
Appearance	5.83±1.2	6.7±0.30	7.33±0.81	6.94±1.13
Odor	5.5±0.83	6.5±1.06	6.88±0.99	6.33±0.94
Over all acceptability	5.8±0.99	6.3±1.24	6.88±0.99	6.55±1.25

Table No.4:-Acceptability Evaluation of food product (moringa herbal mix) in the term of sensory attributes

Attributes	**Control**	**T1**	**T2**	**T3**
Colour	6.71±1.27	7.85±0.63	7.00±0.75	6.85±0.83
Taste	6.71±1.16	7.85±0.63	6.85±0.63	6.28±0.88
Texture	6.714±0.90	7.71±0.69	6.85±0.63	6.57±0.72
Appearance	6.42±0.90	7.42±0.49	6.85±0.63	6.58±1.16
Odor	6.71±0.45	7.71±0.69	7.00±0.75	6.57±1.04
Over all acceptability	6.57±1.04	7.57±0.49	6.71±0.45	6.57±0.72

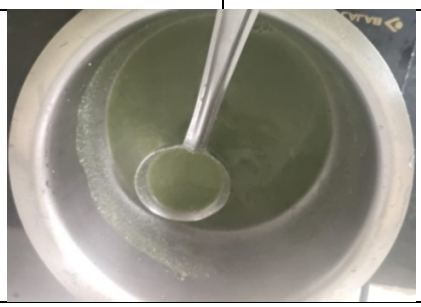

Fig 1. Preparation of moringa soup mix

Fig 2. Preparation of moringa herbal mix