



Development Of Millet Based Nutritious Porridge Powder And Its Sensory Evaluation

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ABSTRACT

Millets or nutria-cereals are high-energy foods which are domesticated and cultivated. Millet are the small-seeded grains, which belongs to the *gramineae* and *poaceae* families, is used worldwide for food and fodder. India is the largest producer country in the world, contributing 20% of the total production in 131 countries across the world. As a breakfast cereal, millets are a fantastic choice. They are gluten-free grains that offer a range of health benefits. The modern sedentary lifestyle associated with several health issues has people to seek for healthy and nutritious diets and small millets satiate these requirements of modern society by being a healthy food choice because millets are a storehouse of nutrients. Foxtail millet and Finger millets along with mung bean were incorporated with basic porridge ingredient like oats and spices such as cinnamon and cardamom were also added to it. The product has made and checked for the consumer acceptability by sensory evaluation. Sensory evaluation is the scientific discipline which used to quantify the acceptable level of the product. For that Hedonic scale rating test was done by using amount of 25 random people in the university including semi-trained and untrained panel members. The panel members were advised to rate the small portion sample by tasting and observing the product. The rating was done for the parameters such as appearance, colour, taste, aroma and overall acceptability.

Keywords: Millet, Porridge, Foxtail millet, Finger millet, Sensory evaluation, Hedonic scale

1. INTRODUCTION

Porridge is easy to chew, swallow, digest and absorb as it is a semi-fluid food. Cereal porridges are based on common grains, such as rice, maize, wheat, oat, or sorghum. They are combined with large volumes of water and swell during cooking, making them very viscous restraining. Porridge it is also called as kanji or kooz, it is a dish made by boiling ground, crushed or chopped cereal in water, milk or both, with optional flavourings, usually served hot in a bowl or dish. It may be sweetened with sugar or served as a savoury dish. Breakfast cereals have potential to contribute as nutritious food because of dietary fibre and other health significant bioactive compounds in whole grains.

Foxtail Millet: Foxtail millet is rich in dietary fiber and essential minerals like iron and magnesium. It helps in regulating blood sugar levels, aids digestion, and promotes weight loss. It is a small grain cereal have high nutrition components like dietary fiber, vitamins, fat, protein and essential minerals like iron, magnesium, phosphorous. The bran of foxtail millet is higher in vitamin E, C and B.

Finger Millet (Ragi): Finger millet is a powerhouse of nutrients. It is high in calcium, making it beneficial for bone health. Ragi is also rich in antioxidants and has a low glycemic index, making it suitable for diabetics. It is an essential cereal crop because of its incredible nutritive value, which is superior to rice and identical to the wheat. Finger millet is consumed without dehulling after the harvest and also being indigenous minor millet used in the preparation of geriatric, infant foods and health foods in both natural and malted forms. When malted, it is regarded as wholesome food for diabetes patients.

The millet based nutritious porridge powder was made by using the millets such as foxtail and finger millet along with mung bean, oats, cardamom and cinnamon sorted in a frying pan at certain temperature and time and grinded to make powder. It can be served cooking with milk or water as the consumer preference. The millet based porridge mix is the abundant source of the dietary fiber, protein, and energy which help and nourishes the human body. The millets were used as the primary source for the product preparation since it has been underutilized grain food groups which has high nutritional profile.

The scientific field of sensory analysis uses statistical analysis and experimental design concepts to assess consumer products by utilizing human senses. Sight, smell, taste, touch, and hearing are the senses used to evaluate a sample through sensory assessment. The discipline demands that human assessment panels evaluate the subjects on whom the products are tested and document based on their comments. The prepared product's organoleptic qualities, including appearance, taste, flavor, scent, and texture, were assessed in the current study. the approval by the semi-trained panel, which was made up of 25 members who were selected from among BBAU staff, students, and friends. Observations were asked of panelists using a 9-point hedonic scale.

2. MATERIALS AND METHODS

2.1 Sources of experimental materials

The study was to develop millet based nutritious porridge powder and the preparation was done in the Department of Food and Nutrition, School of Home Science, Babasaheb Bhimrao Ambedkar University, Lucknow-226025, Uttar Pradesh, India. Foxtail millet, finger millet, mung bean, oats, cinnamon and cardamom were collected from the hyper market of Lucknow area.

2.2 Preparation of the product

Millets: Millet grains are the source of high-quality protein and nutritive substitute for cereal protein preferred as a substitute of wheat. The millets were incorporated with normal porridge ingredients to make it more nutritious. For the preparation of the millet based nutritious porridge powder; millets such as foxtail and finger millet were used along with oats, mung bean, cardamom and cinnamon.

2.3 Equipment Required

1. Grinder
2. Seiver
3. Weighing balance
4. Utensils: bowls, plates and glass jar.
5. Frying pan
6. Spatula

2.3 Ingredients Specification

Ingredients	Weight (g)
Foxtail millet	30 g
Finger millet	30 g
Mung bean	10 g
Oats	20 g
Cinnamon	5 g
Cardamom	5 g

Table no 2.1: List of ingredients

2.5 Procedure

The ingredients were weighed according to the list given on **Table no.2.1** Foxtail millet, finger millet and mung bean were pan fried at 55-60°C for 30 min. and then added the rest ingredients; oats, cinnamon and cardamom were pan fried at same temperature and time. After that they were cooled in room temperature. In a clean and moisture free grinder and the ingredients were grinded to make powder. The powder was collected, sieved and transferred to moisture free and sterile glass container.

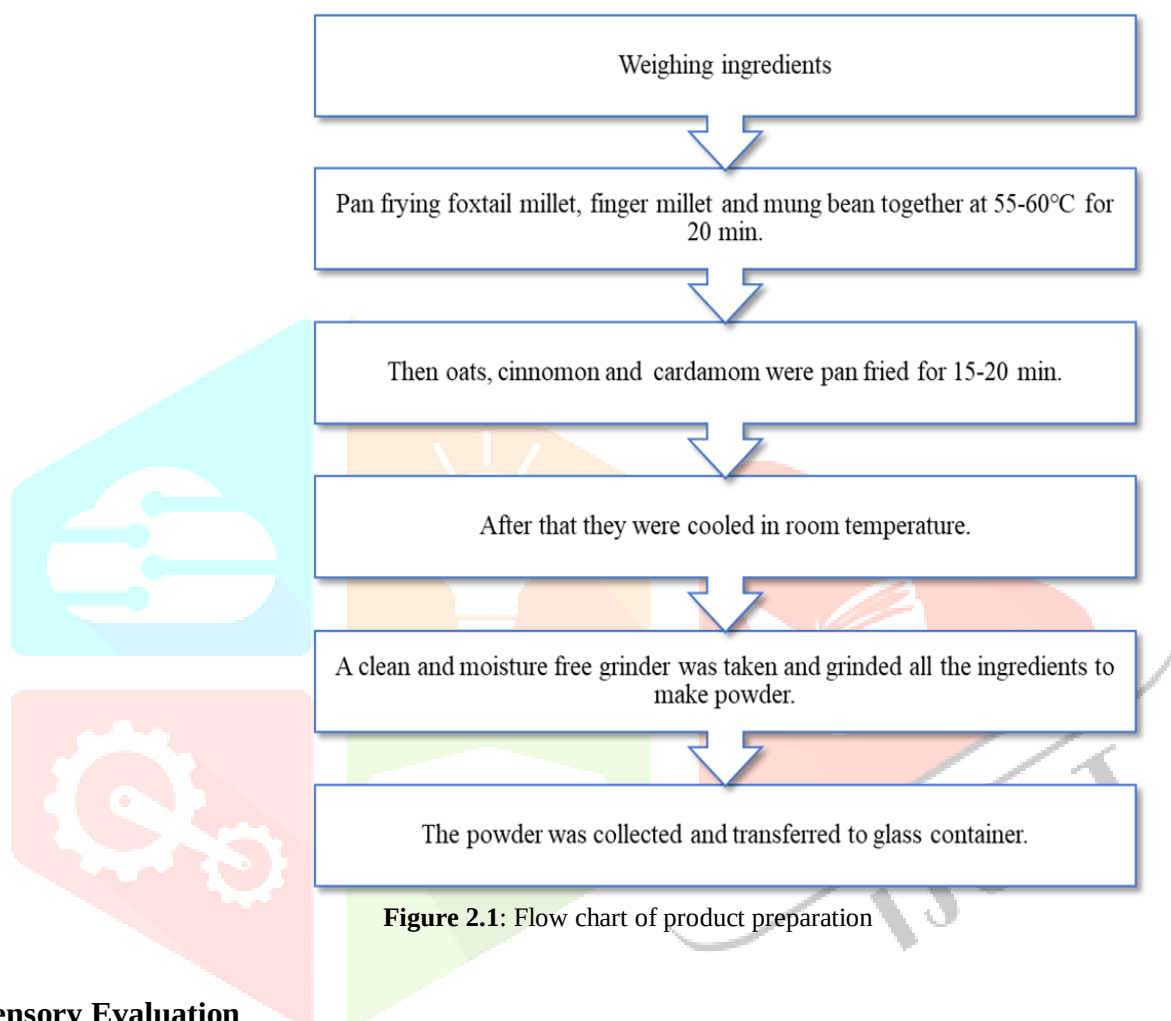


Figure 2.1: Flow chart of product preparation

2.6 Sensory Evaluation

The sensory evaluation was performed for the prepared product using 9-point hedonic scale rating test. The organoleptic characters such as appearance, taste, texture, aroma and overall acceptability was rated by 25 semi-trained and untrained panel members of the university. The 9-point hedonic scale rating card was given to every panelist to record the results where 9 is referred as extremely like 1 as dislike extremely.

3. RESULT AND DISCUSSION

The results of the study were discussed as given below;

3.1 Prepared product

The prepared product has the p^H OF 6.09. The product has the yield of 90.5/100 g.

3.2 Sensory Evaluation

The prepared millet-based healthy porridge powder was subjected to a sensory analysis utilizing a 9-point hedonic scale, where 1 represented extreme dislike and 9 represented extreme liking. the sensory qualities, including acceptability overall and appearance, texture, taste, and scent. The average value for each of the

aforementioned features was calculated, and the results were displayed on a graph and the table that is provided below.

Attributes	Score
Appearance	7.24
Texture	6.48
Taste	7
Aroma	6.88
Overall acceptability	7.28

Table 3.1: sensory evaluation result

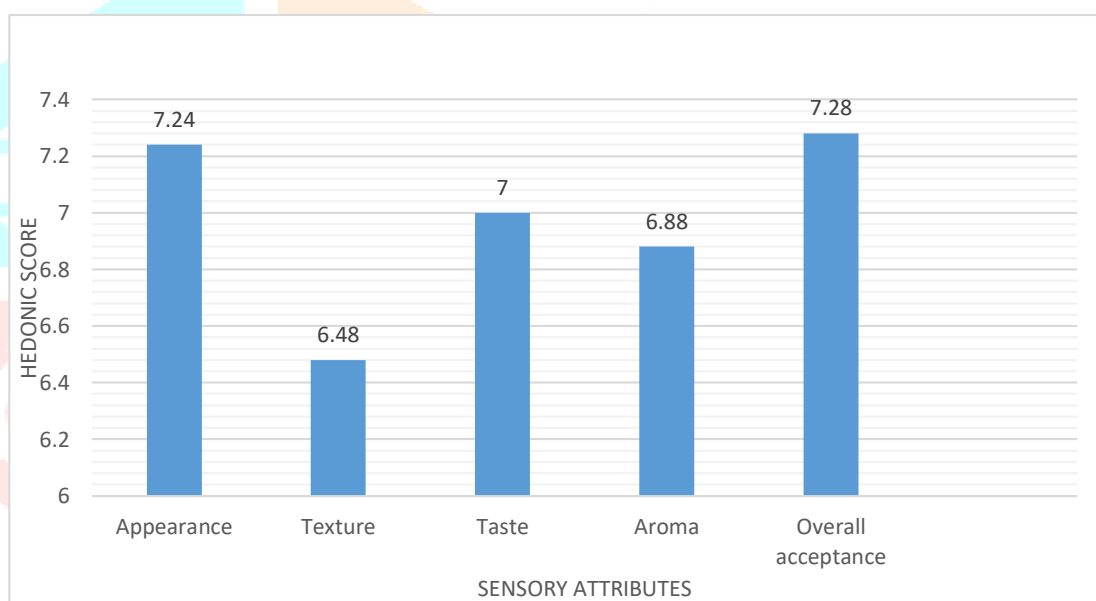


Figure 3.1: Graph of sensory evaluation

4. CONCLUSION

A total of 100 g of raw components were used in the preparation of the product, with a yield of 90.5 g. The pH value of the product was estimated to be 6.09. Using a hedonic scale rating test, sensory analysis was conducted, and the product's overall acceptable level was determined to be 7.28. The results were 7.24, 6.28, 7, and 6.88 for appearance, texture, taste, and scent, respectively.

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