



Characterization on Sensory attributes of developed Therapeutic waffle by using Multigrain Flour, Turmeric and Mulethi

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ABSTRACT: Waffles are a type of bread or battercake that are made by mixing a runny batter (free of lumps) and pressing it on a specially designed iron plate with a crosshatched pattern, which creates a grid of indentations in the finished product. The iron's hinged design of waffle maker allows it to cook both sides of the waffle at once, that creates a crispy golden-brown food which can be served in a variety of ways. Waffles are made by all-purpose flour and waffle filling was a kind of preserve (jam, rind jelly, jelly). Majority of preserves are rich in calories, but this study deals to enrich the nutritive value of the waffle and will also work as an immunity booster. The main ingredients that are used in the waffles are Multigrain Flour, Jaggery, Mixed Dry Fruits, Mulethi, turmeric, Black pepper, Butter, Milk, Baking Powder and Baking Soda. The nutrients of waffle premix are carbohydrate, fiber, vitamin, protein, fat, minerals, antioxidants. The objective of the study was to develop a therapeutic waffle by using multigrain flour, turmeric, mulethi and characterize it. The present study was carried out in Food and Nutrition Laboratory, BBAU for a period of 3 months. The sample was an immunity booster waffle. An experimental design was conceptualized to meet out all objectives in the research work. Waffle was evaluated by 50 participant consumers on the basis of colour, flavour, texture and appearance using a 9-point hedonic scale. The samples were prepared by different ingredients on the basis of sensory evaluation. Appearance-wise, my product was found to be more acceptable among the 50 consumers. The study concluded that instant waffle premix is a substitute of high fibre rich in terms of the bakery product.

Key words : Multigrain waffle, Sensory evaluation, Instant waffle Premix, Acceptability

Introduction:

Waffles are a type of bread or battercake that are made by mixing a runny batter (free of lumps) and pressing it on a specially designed iron plate with a crosshatched pattern, which creates a grid of indentations in the finished product. The iron's hinged design of waffle maker allows it to cook both sides of the waffle at once, that creates a crispy golden-brown food which can be served in a variety of ways. Many European nations have a traditional form of this food, and there are some regional specialties including Brussels and Liege waffles.

The waffles dates back to the Middle Ages, when wealthy families owned wafer-irons, hinged cast iron moulds which could be used to back them over a fire. Medieval waffles were typically baked in moulds with coats of arms, landscapes, and sometimes inspirational verse, although a few wafer-irons featured the cross-hatched pattern which many people associate with this food today(1). Usually, waffles are made by all-purpose flour and waffle filling was a kind of preserve (jam, rind jelly, jelly). Majority of preserve are rich in calories, but this study deals to enrich the nutritive value of the waffle and will also works as an immunity booster. The main ingredients that are used in the waffles are Multigrain Flour, Jaggery, Mixed Dry Fruits, Mulethi, turmeric, Black pepper, Butter, Milk, Baking Powder and Baking Soda .

Multigrain flours are typically made with at least two whole grains , but often contain seven or , including barley , wheat oats brown rice and even seeds. This is higher in fiber and protein than other flours. It is low in carbohydrates and rich in other essential nutrients(2). Jaggery , also known as gur, is an excellent source of plant-based iron. Jaggery also contains calcium , potassium and phosphorus .Dry fruits and nuts are good source of macronutrient and micronutrient and they are also an excellent source of natural sugars. Licorice root , also known as Mulethi, is an ingredient which used in many Ayurvedic medicines. It has antioxidant, antimicrobial, anti-inflammatory and hepatoprotective properties. It can also be used for coughs, sore throats, jaundice, ulcer etc(3). Turmeric is a common spice obtained from the root of turmeric longa. It contains a chemical called curcumin that has many scientifically proven health benefits, such as the ability to improve heart health and prevent Alzheimer's and cancer. It is a powerful anti-inflammatory and antioxidant. The chemical present in black pepper is called piperine. These drugs appear to have many effects on the body. Reduces pain, improves breathing and relieves pain. Black pepper helps you absorb important nutrients. It can increase the bioavailability of certain nutrients, such as calcium and selenium, due to its inhibitory effect on drug-metabolizing enzymes(4).

Material and Method

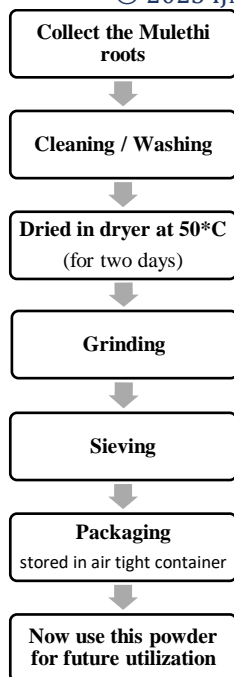
The present study was conducted at Food and Nutrition Laboratory Babasaheb Bhimrao Ambedkar University, Lucknow, for a total period of 9 months. The present study is experimental design.

Sampling

The raw material for the development of food products like Multigrain flour, Mulethi, Jaggery, Dry fruits, Turmeric, Black pepper, Butter, Milk, Baking powder and Baking soda was purchased from a local market near BBAU University Lucknow.

Preparation of Mulethi powder

Mulethi roots are cleaned, washed and dried in a dryer at 50 degrees Celsius .The dried roots were pulverized in a mortar and grinder to obtain a fine powder, packaged in airtight containers and stored at room temperature.



Flow chart of techniques used in preparation of Mulethi powder

Preparation of Instant Waffle premix

Multigrain flour, mulethi powder, dry fruits, jaggery, turmeric, black pepper, butter, milk, baking soda, baking powder, were mixed in various composition and make powder as a premix and stored it in a air tight container.

Formulations:

Formulation of Instant Waffle premix

Formulation	Multigrain flour (gm)	Mulethi (gm)	Jaggery (gm)	Black pepper (gm)	Turmeric (gm)	Baking Powder (gm)	Baking soda(gm)
T1	100	10	50	0.36	0.36	2.5	1

Consumer acceptability and sensory evaluation

In terms of consumer acceptance, the hedonic scale is used to measure sensation and improve product acceptance as a description of product acceptability, including the 9-point hedonic scale.

because the 9-point hedonic scale indicates and defines consumer satisfaction and acceptance. This study was conducted on 50 people who were in our university. Consumers should evaluate waffle premixes for flavour, aroma, taste, color and appearance. They provided the hedonic certificates shown in the table.

Rating scale / Hedonic scale	Score
Like Extremely	9
Like Very Much	8
Like Moderate	7
Like Slightly	6
Neither Like or Dislike	5
Dislike Slightly	4
Dislike Moderately	3
Dislike Very Much	2
Dislike Extremely	1

Result and discussion

For organoleptic evaluation total 50 people were selected from our university and were given a one waffle sample. The sample were distributed amongst the people and were sensory evaluated on the basis of taste, aroma, flavour, appearance, texture.

Table 1Sensory Scores of Waffle Formulation on the basis of overall acceptance

Sensory attributes	Total	Percentage	Mean	Standard Deviation
Appearance	437	87.40%	8.74	1.86
Taste/Flavour	382	76.40%	7.64	1.23
Aroma	431	86.20%	8.62	2.26
Texture	431	86.20%	8.62	2.26

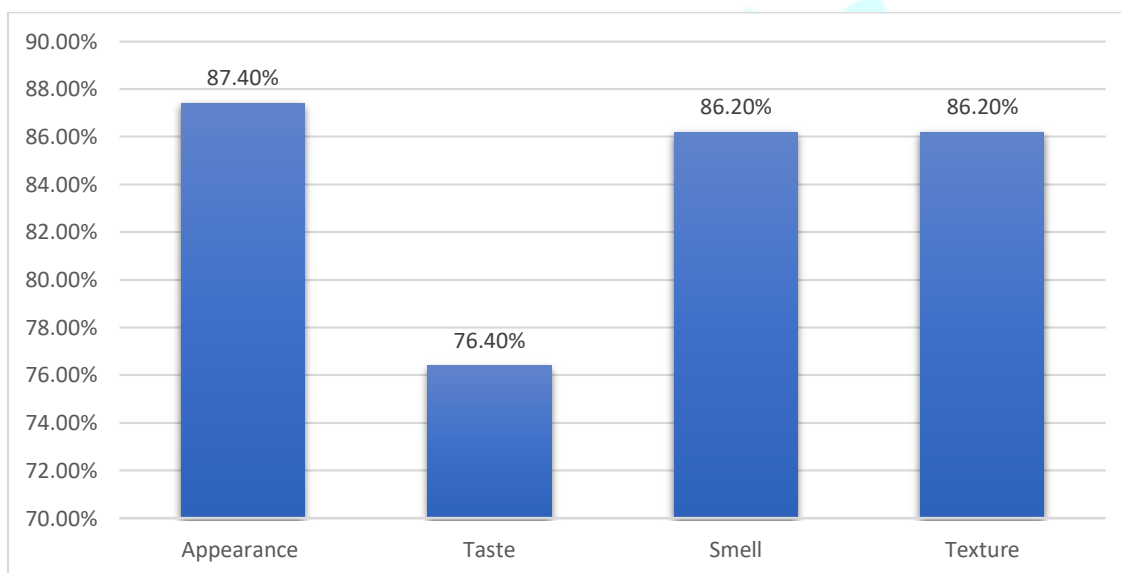


Fig 0.1Graphical representation of overall acceptance

Overall Observation

Parameters beyond the full warranty of waffles are test or flavour, texture, colour and appearance. Total numbers, standard deviations and means are shown in the table above. The product was tested for various parameters and the model was found to be acceptable.

Table 2 Mean scores of the five sensory attributes of the waffle formulation

Attributes	T1
Appearance	8.74
Taste	7.64
Texture	8.62
Aroma	8.62
Mean	6.724

Conclusion

The Consumer acceptability of the developed product which is prepared by the using Multigrain flour, mulethi, jaggery, butter, black pepper, turmeric, milk powder vanilla essence, baking soda and baking powder was tested by using 9-point hedonic scale by the faculty of BBAU and the people of the BBAU university. The sample were prepared by different ingredients and on the basis of the sensory evaluation, appearance wise my product was found to be more acceptable among the 50 participants.

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