



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Preparation of Mahua Cookies

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Abstract: Mahua cookies are a distinctive blend of the traditional Indian snack Mahua with contemporary baking methods. This study examines the culinary and cultural aspects of Mahua cookies. The research explores the components and their importance in generating the unique flavor profile, as well as the historical origins and regional variances. The investigation delves into the meticulous techniques of processing, highlighting the incorporation of Mahua essence into the cookie formula. In addition, possible adjustments for a range of dietary choices are investigated, as well as health-related factors. This study advances our knowledge and appreciation of Mahua cookies as a delectable treat that combines traditional and modern culinary techniques.

Index Terms - Mahua, traditional, culinary, flavor, essence, dietary, modern.

I. INTRODUCTION

Mahua Cookies are a delicious blend of modern cuisine and traditional legacy. These cookies showcase the unique flavor of Mahua flowers and are a tasteful fusion of tradition and modern design. Mahua, which comes from the Madhuca longifolia tree, has long been a pillar of local culture. The finely pulverized Mahua flowers give a distinct floral aroma and flavor profile to the Mahua Cookies, elevating them above typical treats in terms of sensory appeal. The desire to honor the diverse range of customs connected to Mahua is what inspired the creation of Mahua Cookies. These cookies add a fresh and delicious edge to the culinary scene while honoring the historical significance of Mahua. Mahua Cookies capture not only the essence of flowers in every mouthful, but also the customs, traditions, and subtle cultural elements that are ingrained in Mahua's heritage.

Mahua, a plant revered for generations, has many uses in rituals, food, and customs. This hardy tree, which is native to the Indian subcontinent, is more significant botanically than culturally, because mahua has a lot of sugar. Mahua's floral aroma has been used by culinary lovers to create unique delights; Mahua is now a popular ingredient in drinks, traditional sweets, and new and inventive inventions such as Mahua cookies. When the flowers are finely powdered, they add a unique and aromatic flavor to the food, combining traditional flavors with modern ones. According to (Sinha et al. 2017), mahua flowers can be used as a food ingredient for a variety of dishes, including biscuits, cakes, laddoo, candies, bars, jam, jelly, sauces, and many more. Cakes have been made using mahua flowers with rice, ragi, jowar, or sweet potatoes (Behera et al., 2012). Several authors have documented the use of Mahua flowers as a sweetening factor in a variety of regional and customary dishes made by the tribal people, including meethi puri, halwa, kheer, and burfi. Mahua flowers are not being widely used to their full potential. In many regions of the nation, just a little amount of flowers are consumed raw, roasted, or fried (Patel and Naik, 2010).

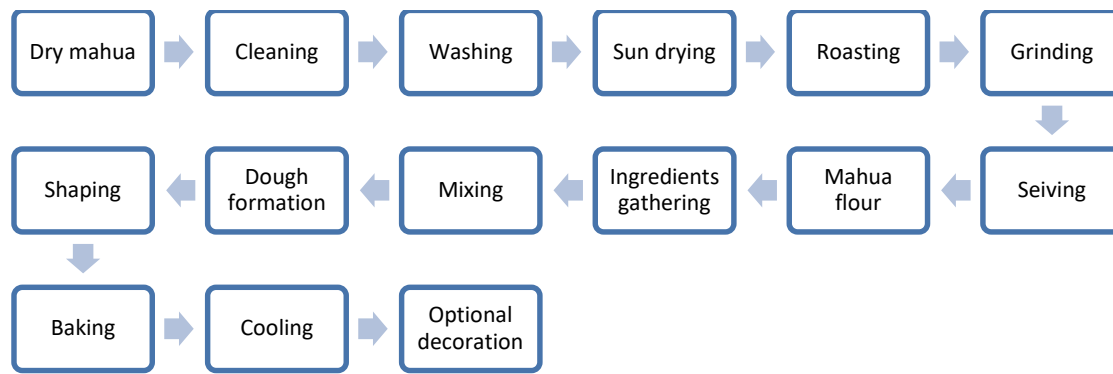
II. MATERIALS & METHODS

In the food technology department of the Ballarpur Institute of Technology in Bamni-Ballarpur, Chandrapur, Maharashtra, Mahua cookies were prepared. Mahua flowers are made by mixing them with a basic cookie recipe to make Mahua cookies. For a different taste, finely powder the Mahua flowers and mix them into the cookie batter.

Methodology

Collection of Raw Material:

The raw materials required for the research include dry mahua, sugar, maida, butter, baking powder, cardamom, and dry fruits obtained from D-Mart, Chandrapur, whereas vanilla essence was obtained from Bangalore bakery, Chandrapur. Oven obtained from from processing lab of food technology department, Ballarpur Institute of Technology, Bamni-ballarpur. All the ingredients used in manufacturing were of good quality. They were free from dirt, dust, soil, insect damage, or mechanical injury.

Preparation of Mahua cookies:**Fig.1. Flow sheet of prepared Mahua Cookies****Proximate analysis of the developed product**

Proximate analysis is a fundamental approach to determining the nutritional composition of food products, including cookies. It involves measuring key components such as moisture, ash, protein, fat, fiber, and carbohydrates. The estimation of moisture content, fat content, ash content, and protein content was done in the processing lab of the food department.

Estimation of Moisture Content:

Determining the moisture content of cookies using the oven drying method is a reliable and standard procedure in food analysis.

A sample of the cookie was produced with a mortar and pestle. The moisture content was ascertained using the oven drying method. An empty Petri dish (W1) was first filled with a prepared sample weighing around 10 g, and the weight of the mixture was noted (W2). Now, the Petri dish is baked for four hours at 105 oC. After 4 hours, the Petri dish is taken out of the oven and allowed to reach room temperature in the desiccator. The next step is to weigh the cooled Petri dish (W3).

The moisture content is determined by using the formula as given below:

$$\text{Moisture (\%)} = [(W2 - W3) / (W2 - W1)] \times 100$$

Where,

W1= Weight of empty Petri-dishes

W2= Weight of Petri-dish with sample before drying

W3= weight of Petri-dish with the sample after drying

Estimation of Ash Content:

Estimating the ash content in cookies involves incinerating a known quantity of the sample to remove all organic matter, leaving behind inorganic mineral residue (ash).

The estimate of ash is performed in a muffle furnace. A part of the prepared sample weighing 5g was burned. It was charred in a crucible and then fired at 550 °C for four hours in a muffle furnace. The crucible was moved outside and then cooled in a desiccator.

The total ash content is determined by using the formula given below:

$$\text{Ash (\%)} = (W2 - W1) / (W1) \times 100$$

Where,

W1= Wight of empty crucible

W2= Weight of crucible with the sample taken for the test

W3= weight of crucible with ash

Estimating the Fat Content:

Estimating the fat content in cookies typically involves solvent extraction methods, such as the Soxhlet extraction method. This method extracts fat from the sample using a solvent, and the amount of fat is then measured by weight difference.

The quantity of fat present can be determined by weighing the fat that is recovered after it is extracted from a sample using petroleum ether as a solvent. Using a mortar and pestle, grind the sample until it's tiny enough to fit into the extraction thimble. Once the empty thimble (W1) has been weighed and approximately 10 grams of sample have been added, note the weight (W2). Weigh the empty round-bottom flask (RBF1). Using a measuring cup, pour 150 milliliters of petroleum ether into the flask. Place it over the mantle heater. Assemble the Soxhlet tools on a surface, being cautious to secure each piece with a clamp. As petroleum ether boils at 70 oC, turn on the heat source and make adjustments. Three hours are needed for sample extraction. Remove the thimble and let the petroleum ether to gather in the Soxhlet tube so that it can be mainly distilled out once the extraction period has ended. After heating the mantle continuously for five minutes, the sample completely evaporated. After the flask has been weighed, note the result (RBF2).

Fat content is determined by using following formula:

$$Fat (\%) = [(T2-T1)/(RBF2-RBF1)] \times 1001\%$$

Where,

T1= empty thimble weight

T2= thimble weight with sample

RBF1= empty round bottom flask

RBF2= round bottom flask weight after recovering the solvent

Estimation of Protein content:

Estimating the protein content in cookies typically involves the Kjeldahl method, a standard procedure in food analysis. This method measures the total nitrogen content, which is then converted to protein content using a conversion factor.

Calculation:

$$Nitrogen (\%) = [(TV-Blank) \times N \text{ of HCl} \times 0.014 / \text{weight of sample}] \times 100$$

Where,

$$TV = \text{titre value Protein (\%)} = N\% \times 6.25$$

Sensory analysis :

Sensory analysis was conducted in the campus of Ballarpur Institute of Technology by a sensory panel consisting of 10 panelists. Panelists evaluated the product on a scale of 0 to 10, with 10 representing the maximum and 0 representing the minimum, based on factors such as color, appearance, flavor, texture, taste, and overall acceptability.

III. RESULT

1) Sensory Analysis of prepared Mahua Cookies

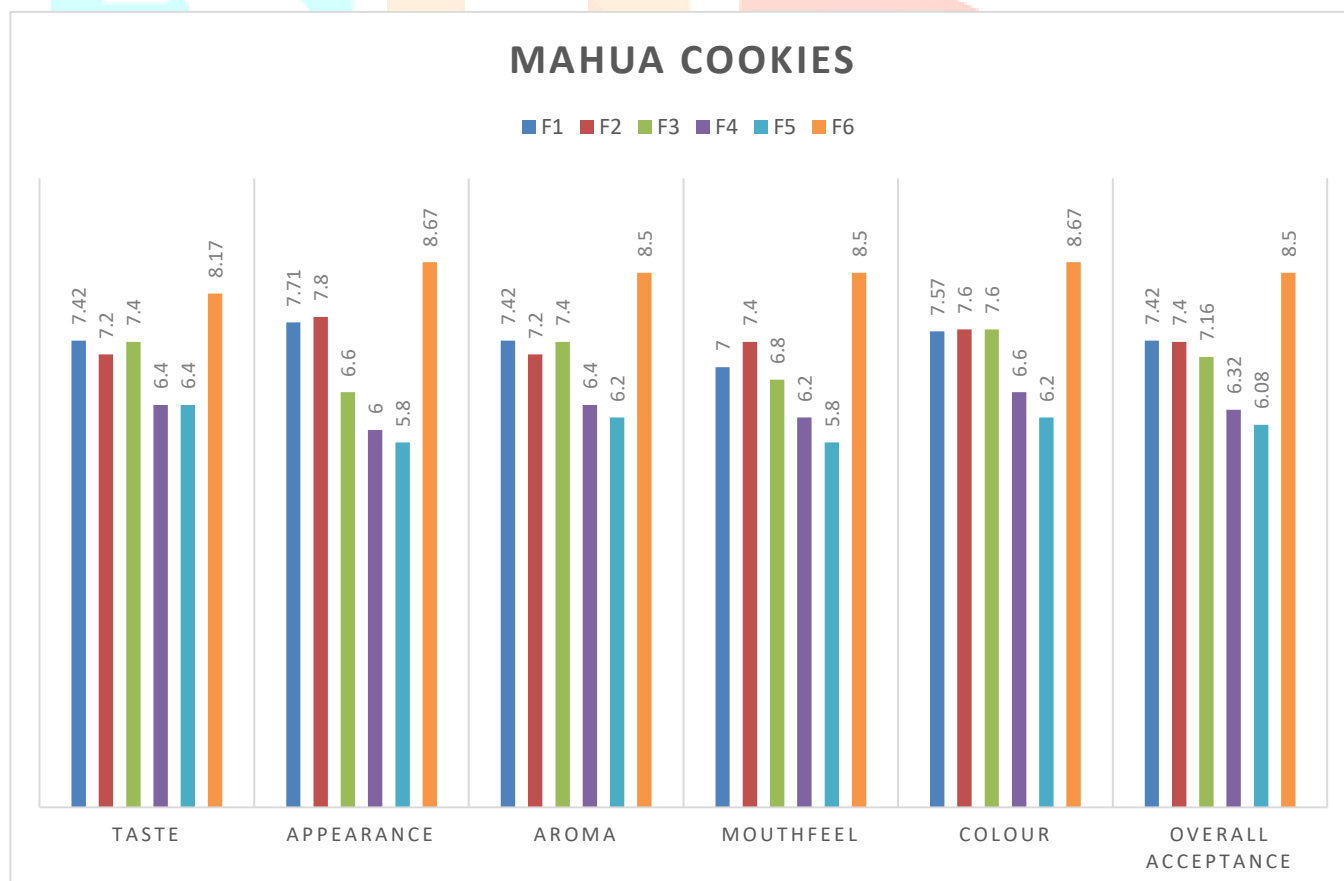


Fig.2. Sensory Analysis of prepared Mahua Cookies

2) Proximate Analysis of prepared Mahua Cookies

| Parameters (%) | Result |
|------------------|--------|
| Moisture Content | 5.2% |
| Ash Content | 2.1% |
| Fat Content | 8.5% |
| Protein content | 15.3% |

Table 1. Proximate Analysis of prepared Mahua Cookies

3) Cost Analysis of prepared Mahua Cookies

| Material | Quantity | Cost |
|-----------------|--------------------|-------|
| Mahua | 50gm | 10 RS |
| Sugar | 50gm | 10 Rs |
| Maida | 35gm | 10 RS |
| Butter | 25gm | 15 RS |
| Cardamom | 5pcs | 5 Rs |
| Vanilla essence | 4-5drops | - |
| Dry fruits | As per requirement | 15 Rs |
| Baking soda | 3.5 gm | 5 Rs |

Table 2. Cost Analysis of prepared Mahua Cookies

IV. CONCLUSION

A blend of culinary inventiveness can be found in mahua cookies. In addition to providing a distinct flavor profile that might highlight the flowery undertones of Mahua, the Cookies also let you customize them by adding spices like nutmeg or cardamom. From Mahua flower to cookie, the journey symbolizes a link to customs and regional history. As these cookies take shape in your kitchen, they demonstrate how Mahua may be used for many purposes outside of its customary uses. Taken alone or in tandem with a steaming tea, Mahua cookies are a unique handcrafted treat that invite people to enjoy the cultural importance weaved into every delicious mouthful. They offer a sensory experience that goes beyond simple eating.

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