

# SENSORY EVALUATION OF DEVELOPED MUSHROOM PICKLE

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***Abstract:***

*The goal of this project was to create a pickled product using dried mushrooms (*Lentinus edodes*). The mushrooms were dried in the sun with or without a 5g/l citric acid pretreatment. F1, F2, F3, F4, and F5 were the five distinct formulas used to create Pickle. The produced pickles were judged to be organoleptically satisfactory. Formula 2, F2, was shown to be the most nutritionally beneficial. Such created goods can bring mushrooms to the table of the average person while also providing commercial value to mushroom growers.*

***Key words:*** *Mushrooms, *Lentinus edodes*, Organoleptically, Pickles*

## 1. Introduction

Mushroom is an extremely nutritious natural vegetable that provides high quality protein, vitamins, and fibre. It is a fleshy spore bearing fruiting body of fungus. It's a popular vegetable as well as a traditional remedy. Mushrooms are very perishable and, depending on storage circumstances, begin to deteriorate after a few hours. Due to its high moisture content, delicate texture, and unique physiology, mushrooms have a shelf life of 1-2 days at room temperature (1). Mushrooms' shelf life can be increased by turning them into value-added products.

The value-added products not only decrease post-harvest losses, but also offer mushroom producers with additional money while also providing customers with nutraceutical low-fat, protein-rich meals (2). Mushrooms are processed into pickles to extend shelf life and enhance customer acceptance. Pickles are a popular appetiser among people of all ages because they contain a high concentration of lactobacilli bacteria, which aid in the digestion of grains and vegetables and provide the body with the typical beneficial probiotic qualities (3).

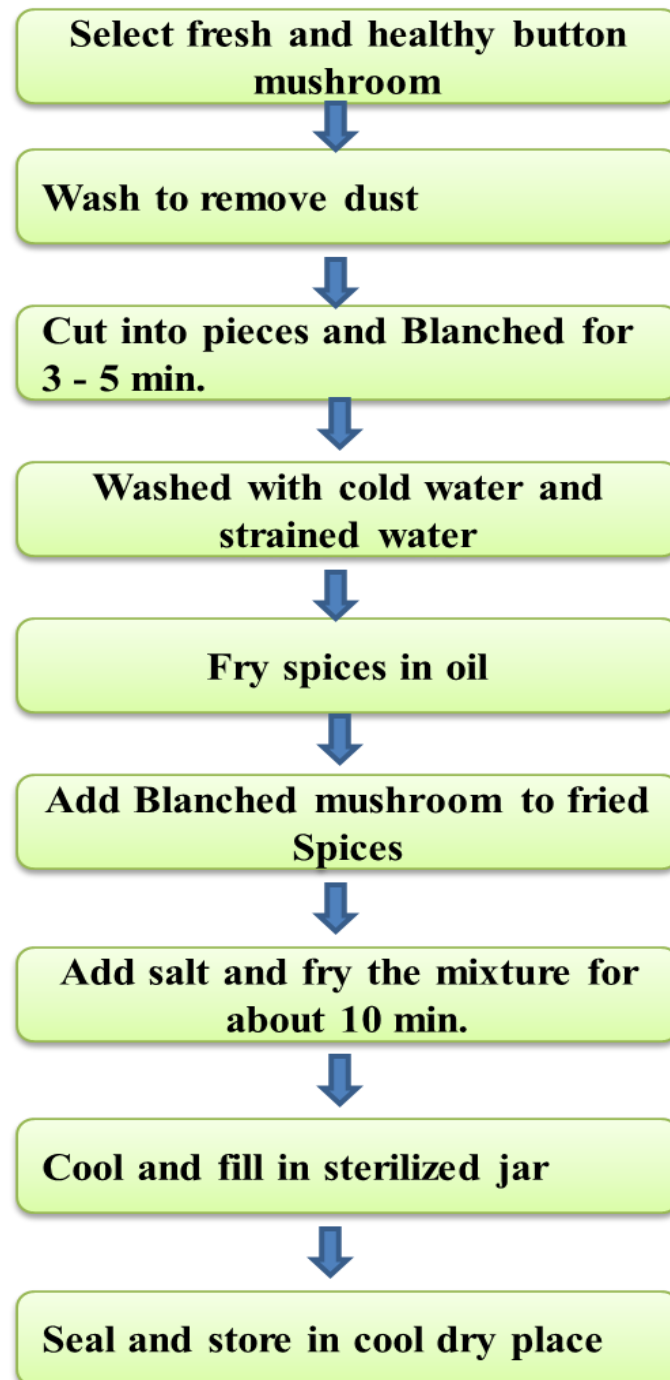
For enhanced shelf life and to prevent the infestation of mould, yeast, and bacteria, a correct salt concentration is essential for pickling. The product becomes slimy, mushy, and contains a lot of water if the salt content is low. As a result, the average salt content should not go below 5.3%. (4). One of the most important elements governing customer acceptability of food items and purchase intent is sensory attribute. The overall quality of a food product is determined by a variety of sensory characteristics such as look, texture, and flavour. Texture is also one of the most important sensory quantitative properties of pickles, with a significant impact on consumer acceptability (5) According to Rodrige and Alvarruiz, the pickle production process is carried out under ideal conditions, although some changes in the texture of basic goods occur, affecting the pickle quality (6). Because mushroom pickle is very perishable, the problem of shelf life is more acute in Manipur, thus efforts are taken to reduce spoiling through the application of preservatives and the use of high-quality fresh mushrooms.

## 2. Methodology:

### 2.1. Sample collection:

Fresh, nutritious button mushrooms were obtained from the Gomtinagar market, Lucknow, as were other components such as spices, oil, acetic acid, and vinegar obtained from the local market. The study was place over the course of a year. **2.2. Pickle preparation:**

For the present study we have used fresh healthy button mushroom collected from Gomtinagar market and all other standards ingredients such as spices salt and oil natural sugar cane vinegar taken from local market of Lucknow. Take mushroom and then wash it well tab water to remove dust and dirt particle then remove stalk .mushroom cut into small desire shape and size . mushroom were sorted on the basis of their physical appearance having small size uniforms of diameter of pileus.mushroom were blanched for 5 min in water with 2 %salt and keeping the temp. Of water 85-90°C .mustard oil was heated and put all ingredients (spices)for few seconds and added the blanched mushroom and fry for 4 - 5 min in low flame till it blend properly .salt and remaining oil were added the fried mushroom pickle was cooled filled in to sterilize(100°C) glass, bottle and air tight container.



**Figure 1: Flow chart of button mushroom pickle preparation**

### 2.3. Sensory analysis

Sensory evaluation was performed by 9 point hedonic scoring test (9 = like extremely, 1 = dislike extremely) for color, flavor, texture, taste and overall acceptance. Different formulations were prepared by varying their proportions and the products were served in identical odor free disposable plastic containers. The evaluation was carried out by 20 panelists comprising of teachers and students of CCT including 4 female and 5 male.

Sensory evaluation was carried out in individual booth with adequate light and free from

obnoxious odors. Each panelist was provided with 4 samples in first step and 5 samples in second step coded with three digits random numbers and evaluation card. They were provided with portable water for rinsing between the samples. Verbal communication among the panelist was prohibited. They were asked to evaluate the samples individually using score card (7).

## 2.4. Data analysis

Data on sensory analysis were tabulated for comparison and were graphically represented using Microsoft Excel-2002(10.2614.2625) Copyright Microsoft Corporation 1985-2001. Data were statistically processed by GenStat Discovery Edition 3, GenStat Procedure Library Release PL15.2, Version 7.22 DE (Copyright 2008, VSN International Ltd) for Analysis of Variance (ANOVA). Means of the data were separated whether they are significant or not by using LSD (least square difference) method at 5% level of significance (8).

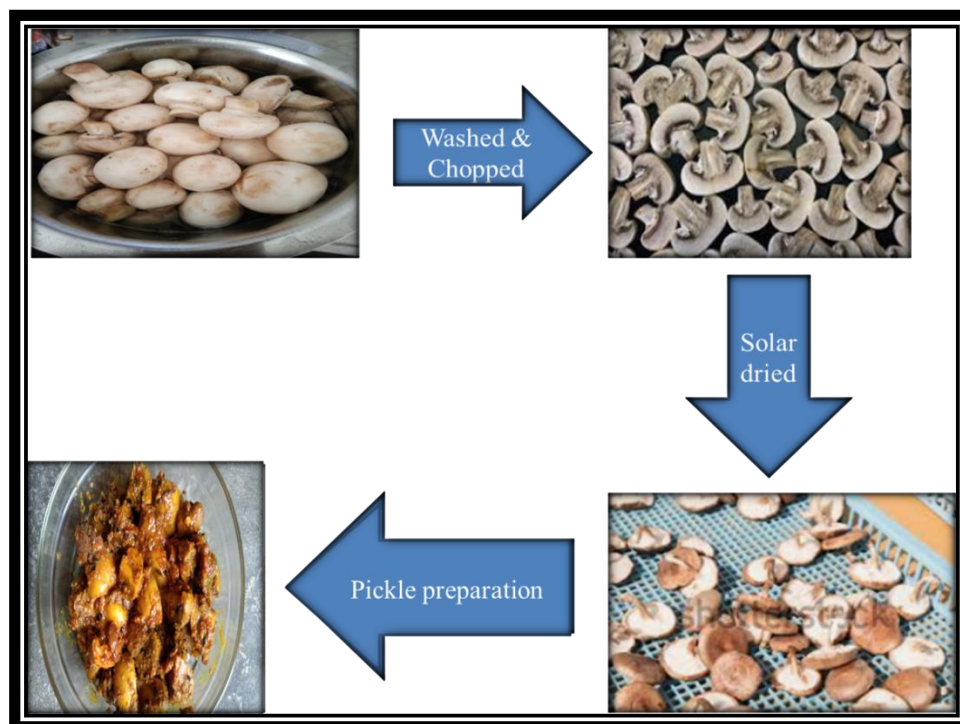
## 3. Results and Discussions:

### 3.1. Sample collection and preparation

Mushroom sample was collected from the local market and then allowed to wash with tap water and distilled water. Further the mushrooms were cutted into small pieces and kept for solar drying. Half of the dried samples were grinded and converted into powder. The powder is used for nutritional analysis and the remaining dried mushrooms were used for pickle preparation.

**Table 1: Ingredients for mushroom pickle**

S no.	Requirements (g)	Formulation				
		F1	F2	F3	F4	F5
1	Rehydrated mushroom	500	250	500	250	500
2	Seed powder of black mustard	8	8	4	4	5
3	Turmeric Powder	10	10	5	5	8
4	Red Chilli powder	4	4	2	2	3
5	Cumin seed powder	2	1	1	2	3
6	Fennerl Seed Powder	1.5	2	2	1.5	3
7	Carom Seed	3	1	1	2	3
8	Nigella Seed	2.5	2.5	3	3	4
9	Oil (ml)	60	60	80	80	70
10	Salt	15	10	10	15	18
11	Acetic acid (ml)	5	5	5	5	5
12	Sodium benzoate	1	1	1	1	1



**Figure 2: Sample preparation for nutritional analysis**

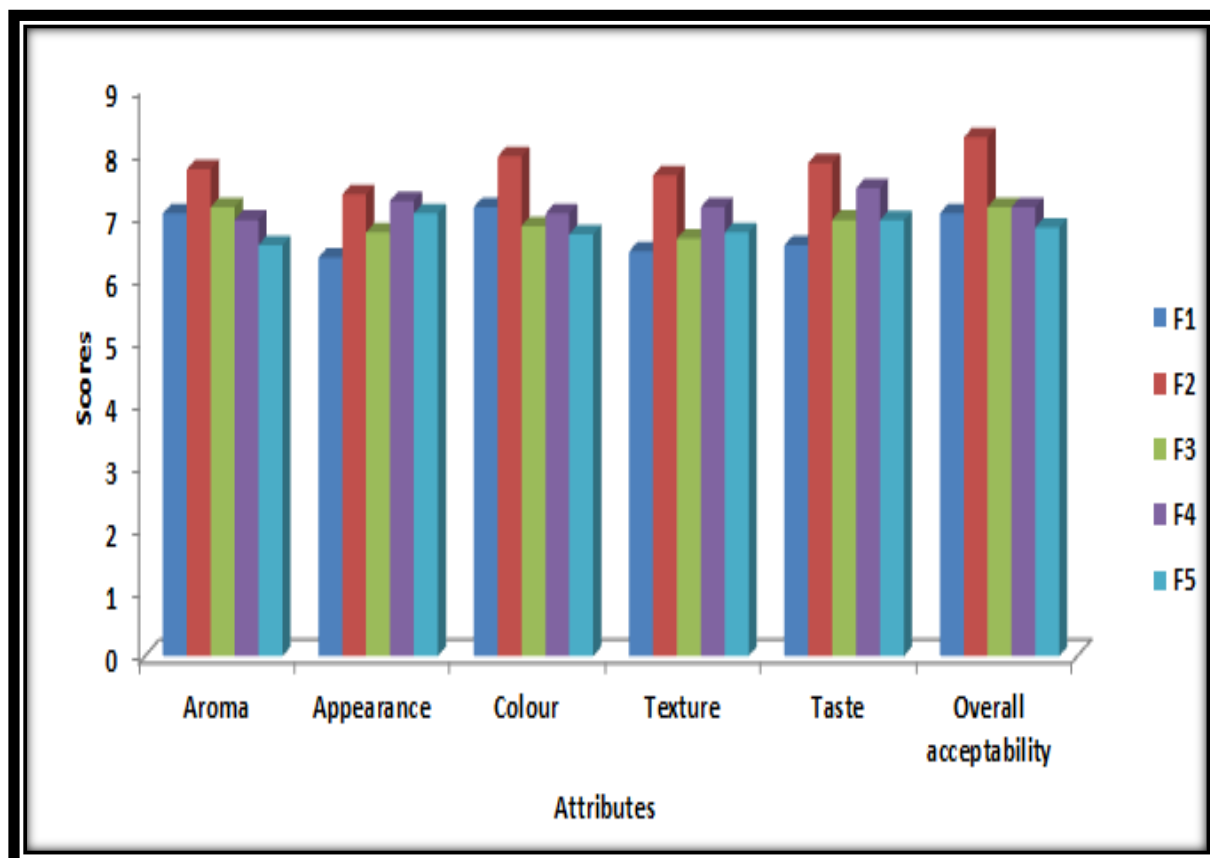
### 3.2. Sensory evaluation for Mushroom Pickle:

On a 9-point hedonic scale, the colour, texture, and flavour of mushroom pickle F-2 were rated as "loved very much," while the look, scent, and general acceptability were rated as "liked somewhat." Color, look, fragrance, texture, taste, and general acceptance of various mushroom pickle formulations. In terms of colour, look, and aroma, there was no significant difference ( $P \leq 0.05$ ) in the scores of two pickles. Pickles, on the other hand, received substantially higher ( $P \leq 0.05$ ) evaluations for texture, flavour, and overall acceptance as given in graphs.

As a result, the judges approved of the produced pickles. Several additional writers have reported similar work on product creation and assessment. From dried button mushrooms, Wakchaure et al. (9) created some unique value added products. They reported crisp button mushroom biscuits of high quality, comparable in look and flavour to commercially available biscuits. Dunkwal et al. (10) made mushroom products as well. On the basis of Formulation and sensory evaluation F2 selected as best pickle.

**Table 2: Mean scores of the six sensory attributes of mushroom pickles.**

Attributes	F1	F2	F3	F4	F5
Aroma	7	7.7	7.1	6.9	6.5
Appearance	6.3	7.3	6.7	7.2	7
Colour	7.1	7.9	6.8	7	6.67
Texture	6.4	7.6	6.6	7.1	6.7
Taste	6.5	7.8	6.9	7.4	6.89
Overall acceptability	7	8.2	7.1	7.1	6.78



**Figure 3: Graphical analysis of six sensory attributes of mushroom pickles.**

### 3.3. Storage and Stability of Mushroom pickle:

The product was packed in two different packaging materials for its shelf life study and was stored at ambient condition ( $25\pm 3^{\circ}\text{C}$ ). For this purpose PP ( $80\mu\text{m}$ ) and LDPE ( $65\mu\text{m}$ ) were selected. After packing the product in PP pack, it was sealed but the product in LDPE was not sealed. It was just tied by the thread and kept as done in household level.

### 4. Conclusion:

Judges approved of the produced pickles, which had an excellent nutritional profile. Such created goods can bring mushrooms to the table of the average person while also providing commercial value to mushroom growers.

### 5. References:

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