

# Efficacy and enrichment of the products by using mushroom

Kiran Agrahari and Priya Jaiswal

The objective of present investigation was efficacy and enrichment of the products by using mushroom. Mushroom have a creamy flavour, soft texture and are easy to digest, mushroom are a high source of nutrients like moisture, energy, protein, fat, carbohydrate, minerals, calcium, iron, phosphorus, potassium, sodium, magnesium, thiamin, riboflavin and fibre. They are also a very filling food. Mushroom are considered useful in defending against several chronic, age-related diseases, including heart disease, cancer, diabetes and obesity and lower the high cholesterol levels and protect against heart disease. The developed products were given to the panel of 10 judges, products were tested for flavour and taste, body and texture, colour and appearance, overall acceptability. The Organoleptic evaluation of products was done by using score card method (9-point hedonic scale). The result of mushroom based products *i.e.* mushroom cutlet and mushroom uttapam ( $T_0$ ) and ( $T_1$ ) was best in all treatments in case of all sensory attributes. The overall acceptability of experimental ( $T_2$ ) mushroom cutlet and mushroom uttapam were 9.0, 8.4, respectively.

**Key Words :** Mushroom, Efficacy, Enrichment, Age-related diseases, Heart diseases

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## INTRODUCTION

Mushroom are the fruiting bodies of macrofungi. They include both edible/medicinal and poisonous species. The most important commercially grown variety that constituted 34.8 per cent of global mushroom produced in 1997 (Chang, 1999) and 2002 the total global production of mushroom was 12.25 million tons (Chang, 2006) where buttons still holds the dominant position followed by oyster mushroom and Shiitake, the position of oyster mushroom was 6<sup>th</sup> in 1975 (Doshi and Sharma, 1997). Mushroom

belongs to the kingdom fungi. Comprising about 1,00,000 species. Some mushrooms are umbrella-shaped with a central stalk and a cap called pileus. Mushroom are rich source of protein and contain basis. The proteins of mushrooms are of high quality low only in tryptophan content. Mushrooms contain a disaccharide of glucose, called trehalose. It constitutes upto 15 per cent of the dry matter of mushrooms. Due to its calorific value, fresh mushrooms can form an excellent slimming diet. As fresh mushrooms contain less fat, they can be consumed by patients having hyperlipidaemia. It has low carbohydrate content and it is also suitable for diabetics.

The history of mushrooms goes far back. Mushrooms have probably been eaten for as long as there are people on this planet. For centuries, our ancestors had to make due with mushrooms that could be found in fields and forests. Even the Romans had mushrooms on the menu, and the more ancient Aztecs and Egyptians considered

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the edible fungus to be the food of the gods. However, these records all concern wild mushrooms. This changed in the middle of the seventeenth century. A melon grower near Paris accidentally stumbled upon an important discovery. He poured water, used to wash wild mushrooms, over some melon leftovers. A little while later, many mushrooms sprouted in this spot. It was the start of the era of the cultivated mushroom. This new mushroom quickly gained the name champignon de Paris. The 'champignon de Paris' became an institution in the world of food lovers.

### Objective:

- To standardize and develop the products by incorporating mushroom.
- Organoleptic evaluation of developed mushroom rich products.

### METHODOLOGY

The present investigation on efficacy and enrichment of the product by using mushroom was carried out to standardize and develop the mushroom based product. The study was conducted in Department of Food and Nutrition, Faculty of Home Science, KNIPSS Sultanpur.

Justified, judicious and scientific methodological consideration is indispensable for any investigation to deduce meaningful interferences the objective of the study. The study design reflects to the logical manner in which units of the study are assessed and analyzed for the purpose of drawing generalizations. Thus, with the view of available resources, the best procedures for taking correct observation should be first sorted out in a logical manner so that unbiased interference can be down. This chapter delineates information pertaining to the research design and methodological step used for investigation. The research procedure has been distinctly described as under in following heads:

- Procurement of material
- Processing of raw material
- Development of the mushroom based products
- Sensory evaluation
- Statistical analysis.

### Method:

- Soaked the rice and dals overnight.
- Mixed them together and added salt and pepper and ground it well to a consistent batter.

**Table A : Mushroom uttapam**

Ingredient	Amount	
	Control	Experimental
Rice	1½ kg	1½ kg
Urad dal	250 g	250 g
Chana dal	100 g	100 g
Salt	Acc. to taste	Acc. to taste
Black pepper	Acc.To taste	Acc.To taste
Mushroom	-	30 g
Capsicum	30 g	30 g
Onion	30 g	30 g

- Heated tawa and sprinkled some water and wipe.
- Now sprinkled some oil on it and pour the mixture in a circular motion.
- Placed the vegetables on the uttapam.
- Press it lightly and sprinkle some oil on it.
- Once the uttapam turns brown and crispy, turn it over and cook for a few minutes.
- Serve hot with coconut or mint chutney.

**Table B: Mushroom cutlet**

Ingredients	Amount	
	Control	Experimental
Sliced mushroom	-	1 cup
Boiled and crumbled potato	2 large	1 large
Refine flour	4-6 tbsp	4-6 tbsp
Chopped coriander leaves	3-4 tbsp	3-4 tbsp
Garam masala	¼ – ½ tsp	¼ – ½ tsp
Salt	Acc. to taste	Acc. to taste
Green chilies chopped	4	4
Ginger garlic paste	1 tsp	1 tsp
Turmeric powder	½ tsp	½ tsp
Oil for deep frying	150 g	150 g

### Method:

- Mixed mushroom, onions, potatoes, chilies, masala powder, salt, coriander leaves turmeric and ginger garlic paste. Set aside for 5 mins.
- Heated the oil in a deep fry pan.
- Meanwhile mixed refine flour to the ready mushroom mix from step 2.
- Greased palms and made thin patties and roll. Once the oil is hot, reduced the flame to medium high and fry on both the sides till they turn golden.
- Serve mushroom cutlet hot with ketchup.

## OBSERVATIONS AND ASSESSMENT

The data were collected on different aspects per plan were tabulated and analyzed statistically. The result from the analysis presented and discussed chapter in the following sequence.

### Organoleptic evaluation of mushroom based products:

- Flavour and taste
- Body and texture
- Colour and appearance
- Overall acceptability.

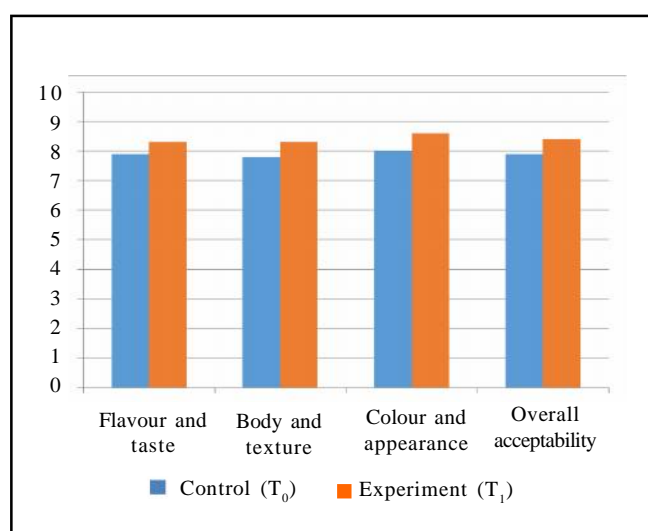
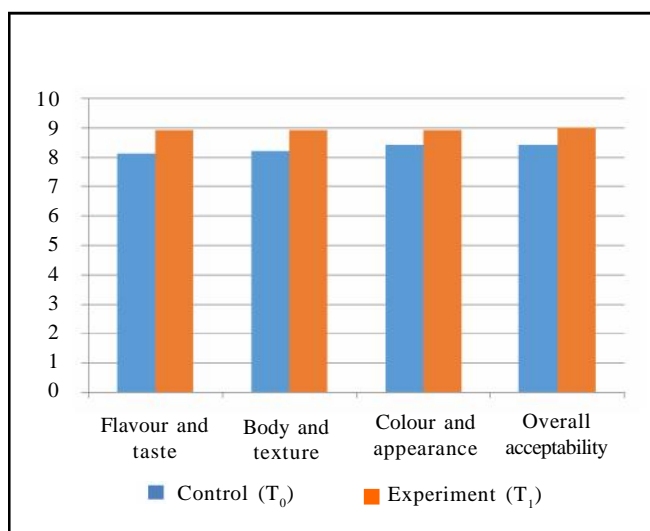
Table 1 shows that the experimental ( $T_1$ ) obtained maximum 8.3, 8.3, 8.6 and 8.4 for flavour and taste, body and texture, colour and appearance, overall acceptability; while control ( $T_0$ ) 7.9, 7.8, 8.0 and 7.9 for flavour and taste, body texture, colour and appearance, overall acceptability, respectively. This indicated that the experimental ( $T_1$ ) uttapam was found to be fallen under

category of “Liked very much to liked extremely”.

Chang (2006) conducted a study regarding the nutritional and medicinal benefits of mushrooms and find out the medicinal mushrooms trials conducted for HIV/AIDS patients generating encouraging results.

Table 2 shows that the experimental ( $T_1$ ) obtained maximum 8.9, 8.9, 8.9 and 9.0 for flavour and taste, body and texture, colour and appearance, overall acceptability; while control ( $T_0$ ) 8.1, 8.2, 8.4 and 8.4 for flavour and taste, body texture, colour and appearance, overall acceptability, respectively. This indicated that the experimental ( $T_1$ ) cutlet was found to be fallen under category of “Liked very much to liked extremely”.

Dunkwal *et al.* (2007) conducted a study on mushroom quality and find out food value of the mushroom. Because of its low calorific value and very high content of proteins, vitamins and minerals mushrooms may contribute significantly in overcoming protein deficiency in developing countries like India.



**Table 1 : Organoleptic evaluation of mushroom uttapam**

Product	Flavour and taste	Body and texture	Colour and appearance	Overall acceptability
$T_0$ (Controlled)	7.9	7.8	8.0	7.9
$T_1$ (Experimental)	8.3	8.3	8.6	8.4

**Table 2: Organoleptic evaluation of mushroom cutlet**

Product	Flavour and taste	Body and texture	Colour and appearance	Overall acceptability
$T_0$ (Controlled)	8.1	8.2	8.4	8.4
$T_1$ (Experimental)	8.9	8.9	8.9	9.0

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