



## Optimization of oats product on sensory and their nutritional level

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### Abstract

They are mainly eaten as porridge, as an ingredient in breakfast cereals and in baked goods (oatcakes, oat cookies and oat bread). Over the past few decades oats have become a very popular "health food". Oats are loaded in dietary fibre (containing more than any other grain) and have a range of healthy cholesterol-lowering properties. Three major products were developed using different composite of value added product. Selected youth as acceptance of value added oats product. Developed product was evaluated on various parameters: sensory evaluation & nutritional analysis. Sensory evaluation of prepared product was carried out using 9 point hedonic scale, out of the there. Hence, highest acceptable product was put forth for the nutritional analysis & percentage of protein, energy, carbohydrates and fat were respectively.

**Keywords:** health food, youth, sensory evaluation, nutritive analysis and value added oats snacks

### Introduction

The amount of oats used for human consumption has increased progressively, owing its dietary benefits and nutritional value. In fact, the health effects of oat rely mainly on the total dietary fibre and  $\beta$ -glucan content (Kerckhoffs *et al.*, 2003).

Oat protein is nearly equivalent in quality to soy protein, which has been shown by the World Health Organization to be equal to meat, milk, and egg protein. Oat has a well-balanced nutritional composition. It is a good source of carbohydrates and quality protein with good amino acid balance. Oat contains high percentage of oat lipids especially unsaturated fatty acid, minerals, vitamins and phytochemicals (Head *et al.* 2010). Oats' nutritional components and their percent availability.

In recent years, demand of oat based product has been increased due to increased knowledge about the many nutritional benefits of oats. Increased youth awareness towards health has emphasized on intake of high fibre diet. Oat is an excellent source of dietary fibre. Thus promoting its use in functional food products based on oat such as snacks, oatmeal, muesli, granola bars, oat flour, oat bread, muffins, biscuits and cookies, oat milk, oatrim, oat based probiotic drink, oat based breakfast cereals, flakes and adult food. Oat  $\beta$ -glucan can be used to stabilize ice creams.

Healthy foods such as low calorie, low fat and high fibre snacks and cereals are developed using oats and its resistant starches. Value added snacks of oat based cereals are very tester in mouth feel as well as good for gestational system. In our youth generation they becomes a very conscious for own health so that this type of product will be very helpful for their health. Oat compounds provide various opportunities for incorporating oats in functional food products. There is a great

need to determine the bioavailability of antioxidants from oat and other food sources and to determine various effects on human and animal health.

### Methodology

#### Preparation of Experiment

This phase mainly deals with the preparation of three different types of snacks products for experiment by using Oats and value added product.

#### 1. Oats Ragi Ladoo

**Tools:** Pan, grinder, gas cylinder, stove and bowl.

**Techniques:** Take 1 tbsp of ghee in pan and roast the oats flour on low flame for few minutes. Now take another pan and heat the remaining ghee and roast ragi flour until the rawness is removed on low flame. Now mix the oats flour in the ragi flour and mixwell keeping on low flame. Now add the dates paste into it and mix well. Then add half of honey and mix. Now add cardamom powder and mix well. Keep on low flame for few minutes and off the stove.

Take the mixture out of stove and let it cool for some time. Now add the pieces of dates.

Now add the remaining honey and mix well into dough. Now take some dough into hand and put a cashew and make it in the form of ladoo. Mix the sesame seeds in to coconut powder. Now roll the ladoo in this mixture and coat it.

#### 2. Oats Banana Muffins

**Tools:** Oven, large bowl, blinder, muffin tin, butter paper and paper muffin base cups.

**Techniques:** Combine flour, oats, sugar, baking powder, soda, and salt. In a large bowl, beat the egg lightly. Stir in the milk, oil, and vanilla. Add the mashed banana, and combine

thoroughly. Stir the flour mixture into the banana mixture until just combined. Line a 12-cup muffin tin with paper bake cups, and divide the batter among them. Bake at 400 degrees F (205 degrees C) for 18 to 20 minutes.

### 3. Oats Kabab

**Tools:** Pressure cooker, grinder, pan, spechula, bowl, knife.  
**Techniques:** Boiled urad and chana daal in pressure cooker. And then grind this after cooling in grinder. Then another pan roast the rolled oats for few minutes. chopped the onion and green chili in small pieces. Take the bater and put the rolled Oats, chopped onion, green chilli, black pepper powder. Salt, zeera powder, garam masala and dreid mango powder and mix well. After that take the bater in few amount and give the rolled shape. Then take another pan and sallow fry the tikki in vegetable oil till brown color.

#### Method for Evaluation

The prepared products were coded T1, T2, T3 according to own desirability and they were further evaluated by faculty members according to certain parameters mentioned in the 9-point hedonic scale i.e, flavour, texture, appearance, overall acceptability and then markings were given according to them. At the end of this phase marking of individual products were calculated and the best acceptable product was further put forth for the study.

### Result and Discussion

#### Characterisation of Developed Product on Various Parameters

The experimental snacks product were characterised as developed product in the present study. The various parameters were incorporated for product development to reach acceptability & edible for human population. For that sensory evaluation process was done by set of panellist constitute 5 members in the expertise field of nutrition. For evaluating, a 9-point hedonic scale which is one of the sensory evaluation method used to evaluate any product. Four parameters were used to analyse the acceptability of developed product these are as below-

- Body and Texture
- Color and Appearance
- Flavor and Taste
- Overall Acceptability

#### Flavour and Taste

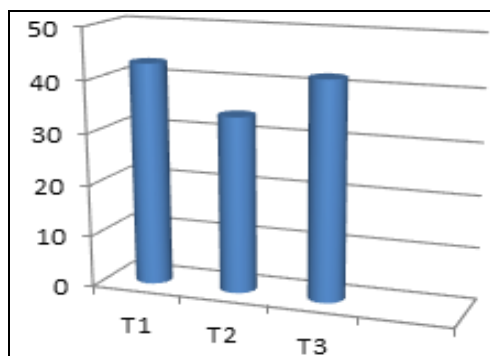


Fig 1: Graphical Representation of Scores for Flavour and Taste

Where T<sub>1</sub>= Oats ragi ladoo  
 T<sub>2</sub>= Oats banana muffins  
 T<sub>3</sub>= Oats kabab

The above mentioned table represent score of individual markings by members on the basis of flavour and taste the minimum average scored is 34 by T<sub>2</sub> while maximum is of T<sub>1</sub> with an average of 43, which shows the highest acceptability of sample T<sub>1</sub> in respect of flavour & taste.

#### Body and Texture

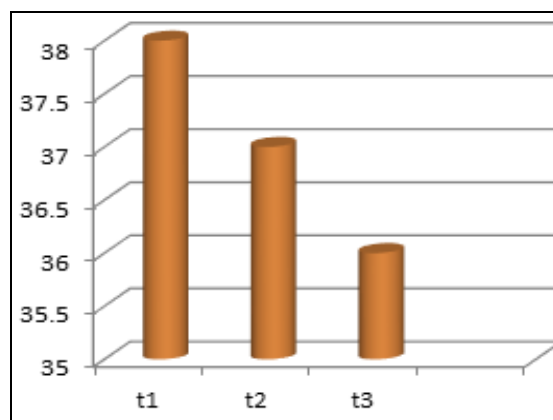


Fig 2: Graphical Representation of Scores for Body and Texture

The above mentioned table represent score of individual markings by 5 panellist members on the basis of body & texture the minimum average scored is 36 by T<sub>3</sub> while maximum is of T<sub>1</sub> with an average of 38, which shows the highest acceptability of sample T<sub>1</sub> in respect of body & texture.

#### Colour and Appearance

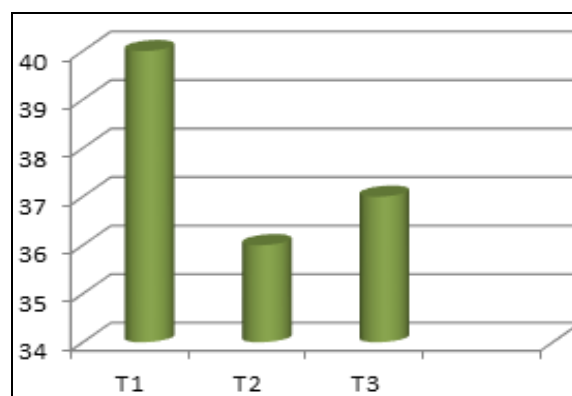
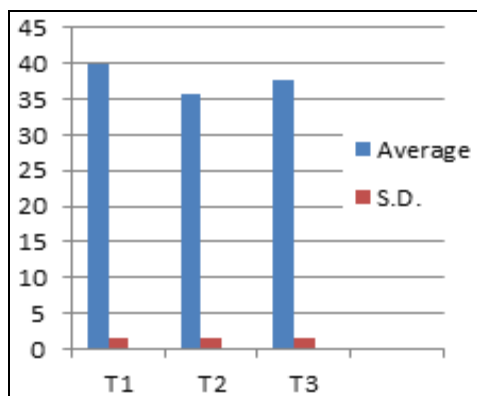


Fig 3: Graphical Representation of Scores for Colour and Appearance

The above drawn table represent score of individual markings by 5 panellist members & their average marks on the basis of colour & appearance the minimum average scored is 36 by T<sub>2</sub> while maximum is of T<sub>1</sub> with an average of 40, which shows the highest acceptability of sample T<sub>1</sub> in respect of colour & appearance.

## Overall Calculation



**Fig 4:** Graphical Representation of Average Score and Standard Deviation for Overall Calculation

Where T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub> was coded samples prepared

### P= Parameter

(P1= Flavor and Taste, P2= Body and Texture, P3= Color and Appearance and P4= Overall Acceptability)

### S.D= Standard Deviation

(SD reflex the fluctuation in the marks given by different Members and for different parameter)

**T1:** Scored maximum with highest average and least SD which indicate its highest acceptability among the three prepared experimental samples.

## Associate Serving Quantity of Developed Product of Oats Ragi Ladoo

Comparison between the nutritive values of control sample i.e oats flour, Ragi flour and dates with that of nutritive value of experimental sample. This result was shown in form of table below-

**Table 1:** Nutrient contents in control and experimental product

| Parameters        | Control | Experimental |
|-------------------|---------|--------------|
| Fat (Gm)          | 10.05   | 12.99        |
| Protein (Gm)      | 8       | 5.68         |
| Carbohydrates(Gm) | 75      | 66.39        |
| Energy(Kcl)       | 430     | 405          |
| Total Mineral     | 0.9     | 1.59         |
| Dietary Fiber     | 5       | 0.97         |

The above table shows the higher value of energy fat, protein, carbohydrate, energy, total mineral and Dietary fiber.

## Summary and Conclusion

### To find out acceptability of developed product by sensory characteristics.

- Two snacks were prepared using oats and value added product.
- One product prepared using oats, ragi, dates and some flavoring ingredients i.e. oats ragi ladoo..
- Second sample prepared using oats flour and banana i.e. oats banana muffins.
- Third sample prepared by using oats flour, chana daal and gram daal i.e. oats kabab.
- The overall acceptability of T2 and T3 had showed same

with scoring of and 36 respectively with T1 being the highest of all with the total score of 39.

## Suggestion and Recommendation

- Value added oats snacks are prefer for any occasionally era.
- The snacks are very healthy for health.

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