



# DEVELOPMENT OF TRADITIONAL FOOD PRODUCTS INCORPORATED WITH POPPY SEEDS AND THEIR SENSORY ANALYSIS

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## ABSTRACT

Poppy seeds (*Papaver somniferum*) are oilseeds power house of beneficial nutrients. These are also called *Amapola* (Spanish), *Khuskhus* (Punjabi, Gujrati), *Posto* (Bengali) and *Postadana*, *Khuskhus* (Hindi). These are used in bakery products mainly breads, rolls, and cookies, cakes and pastries preparation. It can also be used as a thickening agent and excellent binding agent. Poppy seeds are used for Ayurveda treatments for a wide range of conditions and therapies. In Indian traditional medicine (*Ayurveda*), poppy seeds are ground into a fine paste with milk and applied on the skin as a moisturizer. Poppy seeds have a natural supply of alkaloids which is extremely beneficial for treating nervous disorders also make a perfect remedy for curing insomnia as well as breast cancer, heart attack and other heart diseases. This present study is an attempt to made traditional products fortified with poppy seeds like laddo and namakpare which are beneficial for health besides this they also introduces our traditional foods. The products were standardized and served as control (T<sub>0</sub>). Three treatments were given as T<sub>1</sub> T<sub>2</sub> and T<sub>3</sub> at level of 5, 10 and 15 percent for development of namakpare and besan laddo. All the developed products were evaluated organoleptically using 9 Hedonic Scale (B.Srilakshmi, 2007) by a panel of 6 judges of the Department of Foods and Nutrition, BPS institute of higher learning, on the basis of Colour and appearance, Texture, Taste, Flavour and overall acceptability. The result of sensory analysis was found that the traditional products namakpare and besan laddo was acceptable in all treatments as controlled.

Keywords: *Papaver somniferum*, *Amapola*, *Postadana*, *Khuskhus*, *Ayurveda* and alkaloids.

## INTRODUCTION

The oil content in poppy seeds varies between 32 % and 57%, including Proteins (21 – 27 %), sugars (3 % pentosans) and lecithin (0.25 – 1 %) ; the further components of poppy seeds (Azcan *et al.* 2004). Poppy seeds, also known as *khuskhus* impart a nutty sweet, spicy flavour to any dish. Nutty and pleasant in taste, poppy seeds are nutritious oilseeds used as condiment in cooking. These seeds are excellent source of B-complex vitamins such as thiamine, pantothenic acid, pyridoxine, riboflavin, niacin and folic acid. These are a rich source of omega-3 fatty acids and carbohydrates. Poppy seeds can help keep up body's energy levels. Poppy seeds are rich in iron and zinc that can help boost your immune system. These are rich source of fibre poppy seeds can help with your digestion and ease or prevent constipation.

Incorporation of poppy seeds in the form of flour is easy to incorporate for value added products and it is more acceptable as compared to whole seeds. Poppy seeds have a natural supply of alkaloids which is extremely beneficial for treating nervous disorders. Besides, due to their naturally easing effect, the alkaloids in poppy seeds make a perfect remedy for curing insomnia.

Poppy seed oil contains oleic acid which inhibits the activity level of the gene, known for triggering breast cancer. Increased level of oleic acid present in the body lower the number of cancer cells in the affected areas. Excessive calcium deposits are known for creating certain types of kidney stones. Poppy seeds contain oxalates that reduce your calcium intake, thereby preventing the formation of kidney stones. The high amount of dietary fibre found in poppy seeds is useful for lowering cholesterol levels, regulating insulin and blood glucose concentrations, and promoting gastrointestinal health.

Poppy seeds are used in bakery products, on top of dishes, in fillings of cakes and in desserts and to produce edible oil (Gessner *et al.* 1974). Poppy seeds are also used as poppy seed filling, which is a combination of ground poppy seeds, sugar, liquid (water or milk) and possible additional ingredients and spices. The poppy seed filling is usually heat treated before use in the food preparation (General *et al.* 2007).

Poppy seed containing foods go through several processes before being served. In the case of bread, often whole, untreated poppy seeds are used mainly as decoration and no other treatment than baking takes place. In other foods, poppy seeds are commonly ground before adding on top of a dish or before using in bakery products (Poppy seeds are also used as poppy seed filling, which is a combination of ground poppy seeds, sugar, liquid (water or milk) and possible additional ingredients and spices. The poppy seed filling is usually heat treated before use in the food preparation (Bernath *et al.* 2010).

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Poppy seeds oil has a high phosphorus content, which aids in the absorption of calcium into the bones, developed a simple preventative for osteoporosis (Journal of Oil and Fat Industries, 1975). The extracts from the opium poppy have been used by man for pain relief (for at least 3500 years). Other parts of the plant, namely poppy seeds, have been used as food and to produce edible oil (Bernath *et al.* 1998). Poppy seed oil is also used for pharmaceutical, cosmetic and technological purposes, besides food use as cooking oil and more recently as salad oil and dipping oil (Bozan *et al.* 2003).

## **MATERIALS AND METHODS**

The present investigation entitled “**DEVELOPMENT OF TRADITIONAL FOOD PRODUCTS ENRICHED WITH POPPY SEEDS AND THEIR SENSORY ANALYSIS**” was conducted in the **Department of Food and Nutrition, B.P.S.M.Vishwavidyalaya Khanpur Kalan, Sonipat during the year 2015-2016**. Various nutritious food products were developed from poppy seed. The research design and methodological steps used for the present investigation distinctively described under the following heading and subheadings:

The research procedures to achieve the objectives have been described following:

### PROCUREMENT OF RAW MATERIAL:

- White poppy seeds were purchased from the local market .
- The ingredients which were used in the products formulation incorporated with Poppy seeds were also obtained from the local market.

### EXPERIMENTAL SITE:

The present study was carried out in the research laboratory of the Foods and Nutrition Department, BPS institute of higher learning.

### DEVELOPMENT OF PRODUCTS:

White poppy seeds having good physicochemical properties and nutritive value were selected for preparation of various value added products.

Poppy seeds were incorporated for the development of nutritious products **Namak pare and Besan laddo**.

### DETAIL OF TREATMENT:

The products were standardized and served as control (T<sub>0</sub>). Three value addition treatments i.e. incorporation with poppy seeds at different percentages were referred as T<sub>1</sub> T<sub>2</sub> and T<sub>3</sub> treatments respectively for development of **Namak pare and Besan laddo**.

Treatment T<sub>1</sub> was incorporation of poppy seeds at 5 percent level with 95 percent main ingredient. Treatment T<sub>2</sub> was incorporation of poppy seeds at 10 percent level with 90 percent main ingredient. Treatment T<sub>3</sub> was incorporation of poppy seeds at 15 percent level with 85 percent main ingredient.

### ORGANOLEPTIC EVALUATION

All the developed products were evaluated organoleptically using 9 Hedonic Scale (**B.Srilakshmi, 2007**) by a panel of 6 judges of the Department of Foods and Nutrition, BPS institute of higher learning, on the basis of Colour and appearance, Texture, Taste, Flavour and overall acceptability.

### STATISTICAL ANALYSIS

The data obtained from sensory evaluation were statistically analyzed by using mean.

### RESULTS AND DISCUSSION

The products were evaluated for their sensory attributes.

### ORGANOLEPTIC EVALUATION OF PRODUCTS:

*Table 1 - Organoleptic acceptability of Namakpare incorporated with poppy seeds.*

Treatment	Colour	Appearance	Aroma	Texture	Taste	Mean
T <sub>0</sub>	8.2	8.5	8.3	8.3	8.3	8.3
T <sub>1</sub>	8.5	8.5	8.3	8.3	8.3	8.4
T <sub>2</sub>	8.3	8	8.2	8.5	8.3	8.3
T <sub>3</sub>	8.3	8.3	8.2	8.2	8.3	8.3

Control (T<sub>0</sub>): 100% Refined wheat flour

Treatment (T<sub>1</sub>): 95% Refined wheat flour + 5% Poppy seed

Treatment (T<sub>2</sub>): 90% Refined wheat flour + 10% Poppy seed

Treatment (T<sub>3</sub>): 85% Refined wheat flour + 15 % Poppy seed

“Namakpare” prepared with incorporation of poppy seed was subjected to sensory analysis. The panel evaluated the products for the colour, appearance, aroma, texture, taste and overall acceptability.

The result of sensory analysis presented in table 1 indicates that scores of control Namakpare were maximum T<sub>0</sub> (8.3) and fell in the category of very desirable. Score of namakpare prepared by incorporated with poppy seeds {(T<sub>1</sub> (8.4), T<sub>2</sub> (8.3) and T<sub>3</sub> (8.3)} was same in sensory score of colour, appearance, aroma, texture and taste and also were desirable.

It can be concluded that namakpare prepared by incorporated with poppy seeds are acceptable in all treatments as controlled.



**Control (T<sub>0</sub>)**



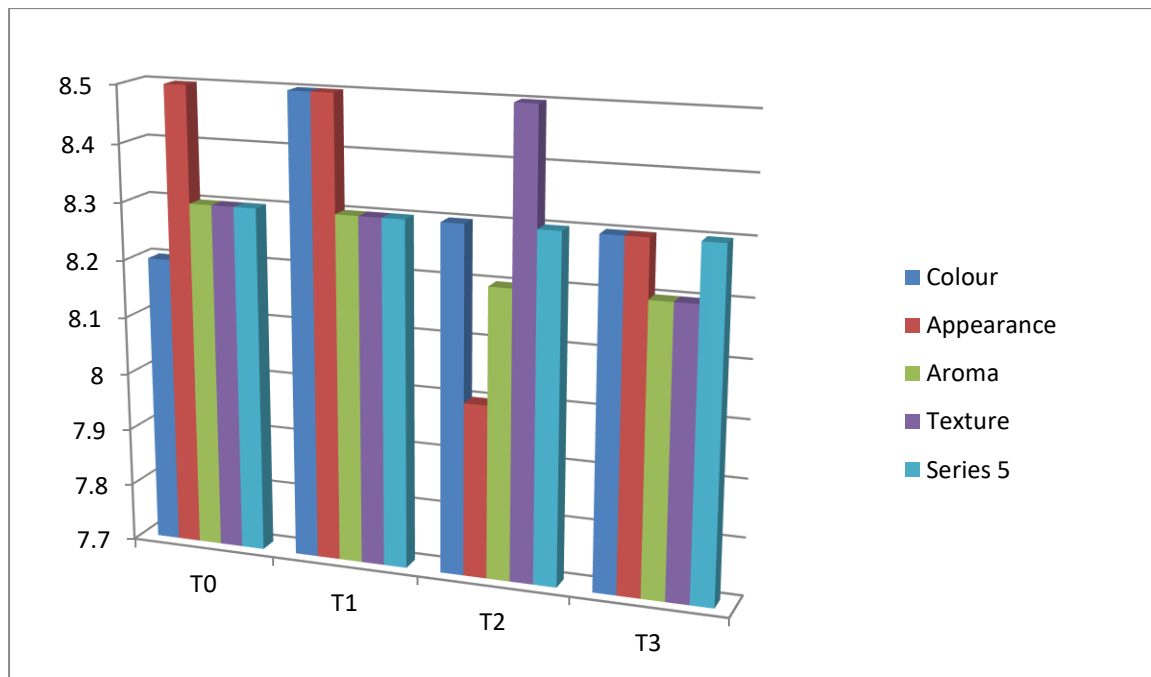
**Treatment (T<sub>1</sub>)**



**Treatment (T<sub>2</sub>)**



**Treatment (T<sub>3</sub>)**



Graphical representation of various parameters of **Namak Pare**.

Table 2- Organoleptic acceptability of **Besan laddo** incorporated with poppy seeds.

Treatment	Colour	Appearance	Aroma	Texture	Taste	Mean
T <sub>0</sub>	8.3	8.3	8.3	8.4	8.2	8.3
T <sub>1</sub>	8.5	8.3	8.1	8.3	8.5	8.3
T <sub>2</sub>	8.3	8.3	8.3	8.2	8.3	8.2
T <sub>3</sub>	8.2	8.1	8	7.6	7.7	7.9

Control (T<sub>0</sub>): 100% Bengal gram flour

Treatment (T<sub>1</sub>): 95% Bengal gram flour + 5% Poppy seed

Treatment (T<sub>2</sub>): 90% Bengal gram flour + 10% Poppy seed

Treatment (T<sub>3</sub>): 85% Bengal gram flour + 15 % Poppy seed

“Besan laddo” prepared with incorporation of poppy seed was subjected to sensory analysis. The panel evaluated the products for the colour, appearance, aroma, texture, taste and overall acceptability.

The result of sensory analysis presented in table 2 indicates that scores of control Besan laddo were maximum T<sub>0</sub> (8.3) and fell in the category of very desirable. Score of besan laddo prepared by incorporated with poppy seeds {(T<sub>1</sub> (8.3), T<sub>2</sub> (8.2) are same in sensory score of colour, appearance, aroma, texture and taste, fell in very desirable category and T<sub>3</sub> (7.9)} was fell in the desirable category.

It can be concluded that besan laddo prepared by incorporated with poppy seeds are acceptable in all treatments as controlled.



**Control (T<sub>0</sub>)**



**Treatment (T<sub>1</sub>)**

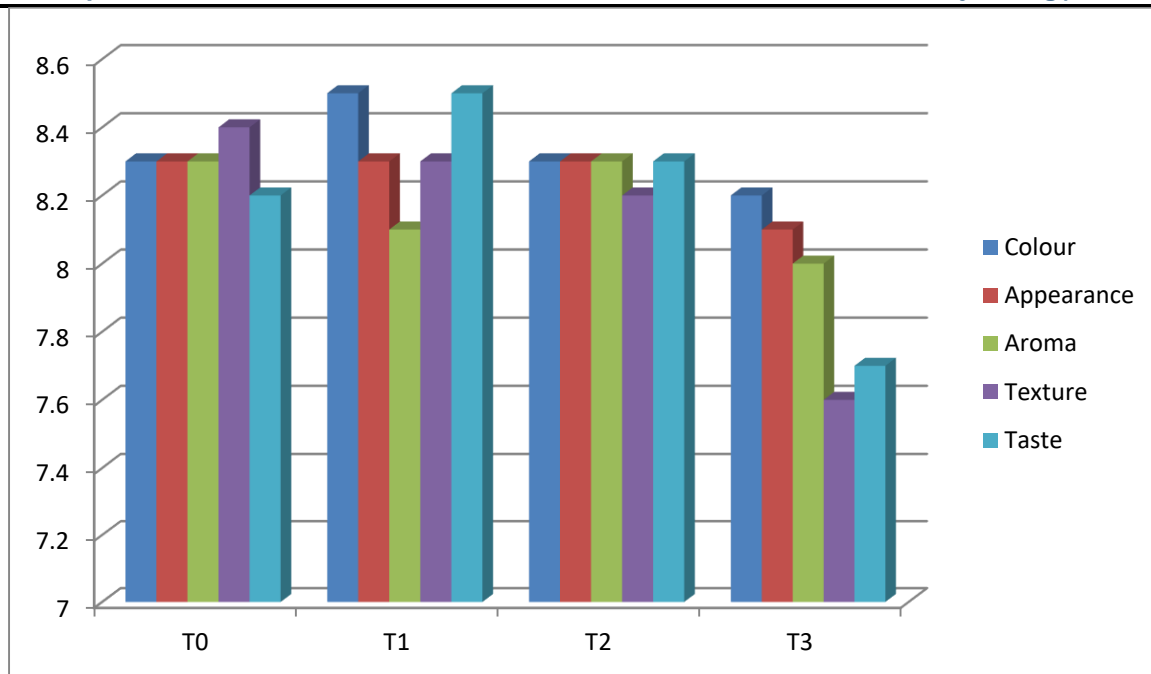


**Treatment (T<sub>2</sub>)**



**Treatment (T<sub>3</sub>)**





Graphical representation of various parameters of **Besan laddoo**

## CONCLUSION

Nutritious products (Namakpare and besan laddo) were successfully prepared with incorporation of poppy seeds in refined wheat flour and Bengal gram flour. Sensory evaluation of the prepared products were indicated that treatment T<sub>0</sub> (control) was liked more than others (T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub>). T<sub>1</sub> incorporation of poppy seeds at 5 percent level with 95 percent main ingredient (refined flour and besan) was liked desirable. Besan laddo and namakpare were acceptable. The other treatments were also acceptable. The amount of the nutrients like Fat, Iron, Calcium, Energy, Fibre, and Protein was increased by the incorporation of poppy seeds.

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