# Role of Ingredients in flour confectionary products and estimation of nutritive value

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**ABSTRACT**

Among the bakery products particularly bread and flour confectionery are products the cheapest processed ready to eat product in the country. However, the per capita consumption of bread in India is only 0.8 kg as compared to 50 to 150 kg in advanced countries. Hence there is an unlimited scope for expansion of the bakery industry in the country. This would help in the effective utilization of the surplus wheat produced in the country. Cup cake was prepared by use of different ingredients with different percentage. The mean score in color the sample F is superior to C & J, whereas texture of sample F is at par with C & J, in appearance sample F is at par with C & J in the flavor & aroma and overall acceptability sample F is superior over sample C & J.

## INTRODUCTION

Around the world bread is the principal food and provides more nutrients than any other single food source. In 53 per cent of the countries bread supplies over 1/2 of the total caloric intake, in 87 per cent of the countries over 30 per cent. In India it is popular due to various advantages such as ready to eat conveniences. Cost competitiveness, better nutritive quality enhanced shelf life. In recent years bakery products have become popular among different cross-sections of population due to increased demand for convenience products.

Among the bakery products particularly bread and flour confectionery are products the cheapest processed ready to eat product in the country. However, the per capita consumption of bread in India is only 0.8 kg as compared to 50 to 150 kg in advanced countries. Hence there is an unlimited scope for expansion of the bakery industry in the country. This would help in the effective utilization of the surplus wheat produced in the country.

Bakery products offer advantages of nutrition and convenience at relatively. Low costs bakery products in India are now in common use and are used by a common man so there is a vast scope for bakery industries. As bakery products are gaining a new dimension in modern times owning their versatility in day to day life. Being highly demandable products, their popularity is increasing tremendously.

## MATERIAL AND METHODS

### Formulation of cup cake form wheat flour

The formulation of cup cake with wheat flour soybean flower was prepared at laboratory with the different sample in change of ingredients the sample, A, B, C, D, E, F, H. I and J were pretested with incorporation of wheat flour, semolina, soybean flour. The sensory evaluation of cup cake incorporated wheat flour to organoleptic test carried out for attribute like colour, texture, appearance, flavour taste and over all acceptability on a point hedonic scale by a panel of five semi trained judges. This due to high mean score value of sample A where the use of Maida 95, 90 and 85 per cent in sample A, B, C and use of wheat flour 5, 20 and 15 per cent respectively.

### Analytical Techniques

Tabular analysis, frequency, standard error, standard deviation, coefficient of variation and correlation coefficient and percentage method were used to analyze the data in present study.

## RESULTS AND DISCUSSION

Results obtained during the present study are presented and discussed under suitable caption.

Estimation of ingredient role in bakery and confectionery products is very important aspect for obtaining quality products for production and marketing. Which ultimately improve the economy of bakery industry.Result obtained from estimation and analysis of different ingredients used for production of yeast leavened bakery product i.e.

Bread, and Flour confectionery product i.e. cup cake, wheat flour in the primary ingredients in all bakery products.

**Table 1: Formulation of Cup cake from wheat flour for the preparation of Cup cake the incorporation of wheat flour are in the following parts.**

| Sr. No. | Ingredients | Standard/ Control | Sample A | Sample B | Sample C |
|---|---|---|---|---|---|
| 1 | Maida | 100 | 95 | 90 | 85 |
| 2 | Wheat flour | 0 | 5 | 10 | 15 |
| 3 | Sugar | 80 | 80 | 80 | 80 |
| 4 | Eggs | 100 | 100 | 100 | 100 |
| 5 | Fat/Ghee | 60 | 60 | 60 | 60 |
| 6 | Baking powder | 3 | 3 | 3 | 3 |
| 7 | Vanilla essence | 2 | 2 | 2 | 2 |

**Table 2: Formulation of Cup cake from Semolina** (gm)

| Sr. No. | Ingredients | Standard/ Control | Sample D | Sample E | Sample F |
|---|---|---|---|---|---|
| 1 | Maid | 100 | 95 | 90 | 85 |
| 2 | Semolina | 0 | 5 | 10 | 15 |
| 3 | Sugar | 80 | 80 | 80 | 80 |
| 4 | Eggs | 100 | 100 | 100 | 100 |
| 5 | Fat/Ghee | 60 | 60 | 60 | 60 |
| 6 | Baking powder | 4 | 4 | 4 | 3 |
| 7 | Vanilla essence | 2 | 2 | 2 | 2 |

**Table 3: Formulation of Cup cake from Soybean flour** (gm)

| Sr. No. | Ingredients | Standard/ Control | Sample H | Sample I | Sample J |
|---|---|---|---|---|---|
| 1 | Maida (Q) | 100 | 95 | 90 | 85 |
| 2 | Soybean flour | 0 | 5 | 10 | 15 |
| 3 | Sugar | 80 | 80 | 80 | 80 |
| 4 | Eggs | 100 | 100 | 100 | 100 |
| 5 | Fat/Ghee | 60 | 60 | 60 | 60 |
| 6 | Baking powder | 4 | 4 | 4 | 4 |

**Table 4: Physical characteristics of Refined Wheat flour (Maida)**

| Sr.No. | Physical parameters | Unit |
|---|---|---|
| 1 | Gluten content (Percent on dry-wt. basis) | 10.98 gm |
| 2 | Sedimentation value (ml) | 30 ml |
| 3 | Pelshenke value (min) | 205 min. |

**Physical characteristics of wheat flour (Maida).**

In the present investigation the physical characteristics of wheat flour with respect to protein quality in terms of content, sedimentation value and pelshenke value have been investigated ,the data pertaining to physical characteristics of wheat flour is given in table 4.

The result indicated that the wheat flour has got 8.98 per cent (dry weight basis), 26 ml sedimentation value and 198 minutes pelshenke value. Krishnamurthy (1981) analysed 450 sample of wheat and reported the gluten content 6 to 9 per cent in atta and 7.4 to 9 per cent in Maida. Further Krishnamurthy *et al* (1979) showed the sedimentation value ranged from 21 to 27 ml for Maida. These results are in close agreement to that of present investigations.

**Physical characteristics of refined wheat flour**

In the present investigation the physical characteristics of refined wheat flour with respect to protein quality items of gluten content, sedimentation value C and pelshenke value have been investigated viz. gluten estimation to (per cent of protein contained), pelshenke value for knowing the time and the activity of yeast for disintegration of dough and sedimentation value indicate. Water absorption capacity of gluten. Hence the data pertaining to physical characteristics of wheat flour in given in table.

**Pelshenke value**

The wheat flavor (3 gms) was mixed with 1.9 ml of yeast suspension to get a dough ball. The dough ball was dropped into beaker containing water kept at 30 degree. The time taken to disintegrate the dough ball after dipping in water was noted as pelshenke value A.O.C.C.(1976).

The result indicated that the wheat flour has got 10.98 gm per cent (Dry-Wt. basis), gluten control, 30 ml, sedimentation value.

**Estimation of Calorific value**

To know the calorific value of flour confectionery product i.e.

Cup cake was prepared by use of different ingredients with different percentage. Table 4.18 (i to x), showed that calorific value for sample C, F J to ten samples including control A, B, C, D, E, F and H,I,J for cup cake prepared for present study. Calorific value of cup cake for sample C, F, J was estimated, it was found that the total energy per 100 gm in 404.64 K.cal for sample C, where calorific value of sample F was 405.49 K.cal and sample J was 409.72 K.cal per 100 gm which was recorded highest value among these sample. These estimated calorific values are in close agreement to that of NIN reported value.

**Table 4.18 (i): Calorific value of (Energy value of Cup cake)(Control)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1 | Carbohydrate | 45.12 | 180.48 | 405.81 K.Cal. |
| 2 | Protein | 7.17 | 28.68 | |
| 3 | Fat | 21.85 | 196.65 | |

**Table 4.18 (ii): Calorific value of Energy value of Cup cake (Sample A)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1 | Carbohydrate | 45.05 | 180.2 | 405.39 K.Cal. |
| 2 | Protein | 7.18 | 28.72 | |
| 3 | Fat | 21.83 | 196.47 | |

**Table 4.18 (iii): Calorific value of Energy value of Cup cake (Sample B)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1. | Carbohydrate | 44.9 | 179.6 | 404.96 K.Cal. |
| 2. | Protein | 7.2 | 28.8 | |
| 3. | Fat | 21.84 | 196.56 | |

**Table 4.18 (iv): Calorific value of Energy value of Cup cake (Sample C)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1 | Carbohydrate | 44.9 | 179.6 | 404.64 K.Cal. |
| 2 | Protein | 7.2 | 28.8 | |
| 3 | Fat | 21.84 | 196.2 | |

**Table 4.18 (v): Calorific value of Energy value of Cup cake (Sample D)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1 | Carbohydrate | 45.13 | 180.52 | 405.54 K.Cal. |
| 2 | Protein | 7.16 | 28.64 | |
| 3 | Fat | 21.82 | 196.38 | |

**Table 4.18 (vi): Calorific value of Energy value of Cup cake (Sample E)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1 | Carbohydrate | 45.15 | 180.6 | 405.58 K.Cal. |
| 2 | Protein | 7.15 | 28.6 | |
| 3 | Fat | 21.82 | 196.38 | |

**Table 4.18 (vii): Calorific value of Energy value of Cup cake (Sample F)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1 | Carbohydrate | 45.16 | 180.64 | 405.49 K.Cal. |
| 2 | Protein | 7.14 | 28.56 | |
| 3 | Fat | 21.81 | 196.29 | |

**Table 4.18 (viii): Calorific value of Energy value of Cup cake (Sample H)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1 | Carbohydrate | 44.34 | 177.36 | 404.73 K.Cal. |
| 2 | Protein | 7.64 | 28.56 | |
| 3 | Fat | 22.09 | 198.81 | |

**Table 4.18 (ix): Calorific value of Energy value of Cup cake (Sample I)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1 | Carbohydrate | 43.56 | 174.24 | 407.96 K.Cal. |
| 2 | Protein | 8.12 | 32.48 | |
| 3 | Fat | 22.36 | 201.24 | |

**Table 4.18 (x): Calorific value of Energy value of Cup cake (Sample J)**

| Sr. No. | Nutrients | Nutrients of Product gm | Energy/calorie of product of K. Cal. | Total energy per 100 gm, |
|---|---|---|---|---|
| 1 | Carbohydrate | 42.90 | 171.6 | |
| 2 | Protein | 8.59 | 34.36 | 409.72 K.Cal. |
| 3 | Fat | 22.64 | 203.76 | |

**Table 4.19 Sensory evaluation of cup cake. Sample C, F, J for external characteristics.**

| Sample | Colour | Texture | Appearance | Flavour & Aroma | Overall acceptability |
|---|---|---|---|---|---|
| Sample C | 7.5 | 7.00 | 7.5 | 7.0 | 7.5 |
| Sample F | 8.5 | 8.0 | 8.5 | 8.0 | 8.0 |
| Sample J | 7.5 | 7.0 | 8.0 | 8.0 | 8.0 |
| S.E. | 0.42 | 0.27 | 0.52 | 0.30 | 0.42 |
| C.D. 5% | 1.29 | 0.82 | 1.60 | 0.92 | 1.29 |
| C.V. % | 9.30 | 5.76 | 7.20 | 6.70 | 9.30 |

**Sensory evaluation of prepared samples of cup cake**

The results are presented in table 4.18 (i) table revealed that in the external characteristics of cup cake out of these sample viz. C, F, J. The mean score in colour the sample F is superior to C & J, whereas texture of sample F is at par with C & J, in appearance sample F is at par with C & J in the flavour & aroma and overall acceptability sample F is superior over sample C & J.

The coefficient of variation among the different characteristics of samples range from 5.76 to 9.30 per cent.

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