Journal of Science and Technology
ISSN: 2456-5660 Volume 5, Issue 6, Nov-December 2020

www.jst.org.in *DOI: https://doi.org/10.46243/jst.2020.v5.i6.pp01-06*

Utilization of Pumkin Powder as Valuable Food Ingredient In Wheat Based Cookies

Chorage C. A[1], Solanke G.M[2], Rojina Swayamsiddha Sahu[3]
[1,2](PhD scholar, Department of Food Process Engineering, Vaugh Institute of Agricultural Engineering & Technology, SHUATS Allahabad, U.P., India)
[3] (M.sc in Food Science, Sambalpur University, Orissa)
[2]Corresponding Author: gopalsolanke456@gmail.com

To Cite this Article
Chorage C. A , Solanke G.M and Rojina Swayamsiddha Sahu, "Utilization of Pumkin Powder as Valuable Food Ingredient In Wheat Based Cookies", Journal of Science and Technology, Vol. 05, Issue 06, Nov-December 2020 pp01-06

Article Info
Received: 20-06-2020 Revised: 18-08-2020 Accepted: 10-09-2020 Published: 22-09-2020

Abstract:*The objectives of the study were to utilize the pumpkin powder in wheat based cookies. The pumpkins were properly dried to form powder. Standard methods were used to measure proximate parameters like Physical and Chemical. Fifteen (15) panelists conducted sensory tests of cookies from five formulations. The T_3 sample of pumpkin cookies was founds the most preferred in colour, flavour, Taste, Appearance and overall sensory evaluation properties. Product T_3 was predominantly Pale yellowish in colour. The Pumpkin cookies were more appealing and tasty than the plain cookies of control treatment*

Keywords*:Pumpkins, cookies, Appealing, Sensory evaluation and nutritional value*

I. Introduction

Cookies usually refer to a baked product containing three main ingredients: flour, sugar, and fat; these are combined with other minor ingredients to form dough **(Soni, 2018)** [1]. Bakery products are new in common on use in India and are preferred and love by almost individual irrespective of class and age. Bakery products are ready to eat. Convenient to used and passes satisfactory nutritional quality. India is the larger producer in bakery products. Cookies are one of the best one quick snack products. Cookies is an American name derives from the Dutch world KOKEJE or KOEKIE which means little cake and arrived in American English through the Dutch in north America .They are characterized by a formula high in sugar and shortening and low in water. In the United States and Canada cookies is a small, flat, baked treat usually containing fat, flour and sugar. Cookies are most commonly baked until crispy or just long enough that they remain soft, but some kinds of cookies are not baked at all. Cookies are broadly classified according to how they are including at least these categories. Cookies are one of most popular bakery products made from the cereals that are consumed by school children and nearly all people. This is due to its ready-to-eat nature, convenience and availability in different varieties and affordability. Wheat as the major raw material for the production of cookies also lacks some nutrients such as amino acids especially lysine **(Ihekoronye and Ngoddy, 1985)** [2]. The simplicity and ease of production makes cookies the best choice as excellent carriers of a blend of different and varied functional ingredients, without obvious detraction from the sensory quality and shelf stability of the resultant products, thus, cookies can be formulated into food a product that contains all the nutrients needed by the body **(Ndife, *et al.*, 2014)** [5].

Robinson, *et al.*, (1997) noted that pumpkin is the one of the popular vegetable in tropics. A pumpkin is cultivator of the squash plant, most commonly Cucurbitapepa that is round with smooth slightly ribbed skin and deep yellow to orange coloration. Pumpkin like other squash are native to North America, pumpkin is widely grown for commercial use and is used both in food and recreation. The color of pumpkin is derived from the orange pigment abundant in them. The main nutrients are Lutein and both a and ß carotene. The later of which generate vitamin A in the body. The premature fruit is cooked as a vegetable, while the ripe fruit is sweet and used to make occasionally

alcoholic confectionery and beverages. The fruit has a strong b-carotene content and a modest carbohydrate, vitamin, and mineral content [3].

Cokrojoyo, (2017) reported that some people assume pumpkins are more like a Halloween decoration or a pie filling for Thanksgiving, but there are also a lot of health benefits pumpkin has. The word pumpkin was originally named Pepõn by a Greek word meaning big melon, so it was turned into the word 'pumpkin' by the French, English and American. Pumpkin has a lot of advantages for people around the world, not only using a seasonal decoration but also having an effect on human wellbeing. Researchers find that the example of food that has an exceptionally nutrient-dense diet is pumpkin, meaning it's full of vitamins and minerals but low in calories. There are many ways pumpkin can be creatively eaten into recipes, such as soups, cookies, preserves or salads. The health benefits of eating pumpkins include reducing the risk of obesity, helping to prevent heart disease, diabetes, helping with hair teint, lower body weight and increased energy. It is understood that pumpkin has a lot of beta-carotene, a powerful antioxidant that gives its vibrant colour to orange fruits and vegetables, and then, once eaten, beta-carotene is converted into vitamin A in the body [4].

II. Material And Methods

Procurement of Pumpkin

The fresh pumpkins were purchased from the local market of Chiplun.

Experimental procedure for preparation of Pumpkin powder

Fresh pumpkin

⇩

Washing

⇩

Cutting into equal pieces

⇩

Drying

(Tray Dryer, Hot Air Oven)

(At temperature 60^0C, 70^0C^0C for different time)

⇩

Grinding

⇩

Sieving

⇩

Pumpkin Powder

⇩

Packaging

⇩

Storage at ambient temperature

Figure: 1 Flow diagram for preparation of Pumpkin powder

The Fresh Unripe Pumpkin was selected by visual appearance of fresh and dark coloured, without any physical damage, on the surface. Then the selected Pumpkin were washed by pure water for removing of the dust. Then after Pumpkin was cut into pieces and placed in the dryer maintained at the temperature of 60^0C for drying as per the requirement to obtain bone dry product**.** Then grinding of the dried Pumpkin pieces was done by the grinder to obtain Pumpkin powder. Sieving was done by the 32-number sieve size screen to obtain fine powder.

By following the above procedure, the fine Pumpkin powder was obtained. The fine Pumpkin powder was then packed in the LDPE packing bags for the further storage.

Treatment combinations

T1 – Cookies flour (Control)

Experimental cookies

T2 – Cookies flour + 5% of Pumpkin powder

T3 – Cookies flour + 10% of Pumpkin powder

T4 – Cookies flour + 15% of Pumpkin powder

Flow Diagram For Pumpkin Cookies Preparation

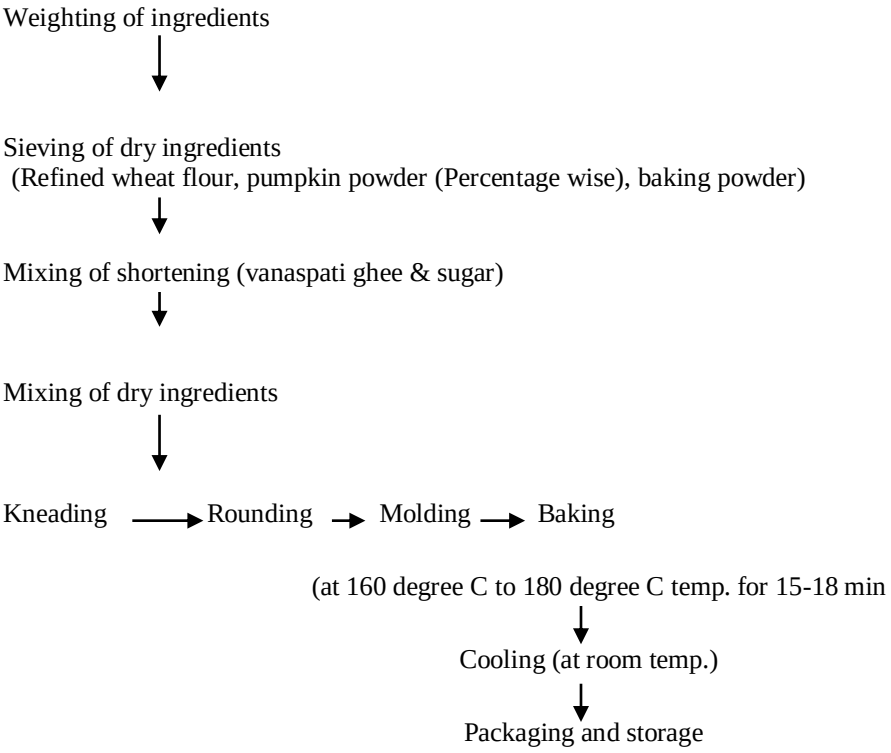

Figure: 2 Flow diagram for pumpkin cookies preparation

III. Result

Physical Analysis of Developed Cookies

The developed cookies was analyzed for their physical properties such as weight, diameter, thickness, spread ratio of cookies is determined by the index of refraction. The data regarding weight, diameter, thickness, spread ratio of cookies was presented in following table.

Table: 1 Physical property of Developed cookies

Treatment combination	Weight (g)	Diameter (Cm)	Thickness (Cm)	Spread ratio (D/T)
T_0	9.97	6.8	0.50	6.3
T_1	9.91	6.6	0.67	6.1

T_2	9.86	6.3	0.65	6.0
T_3	9.78	6.1	0.64	5.8
T_4	9.70	5.9	0.62	5.7

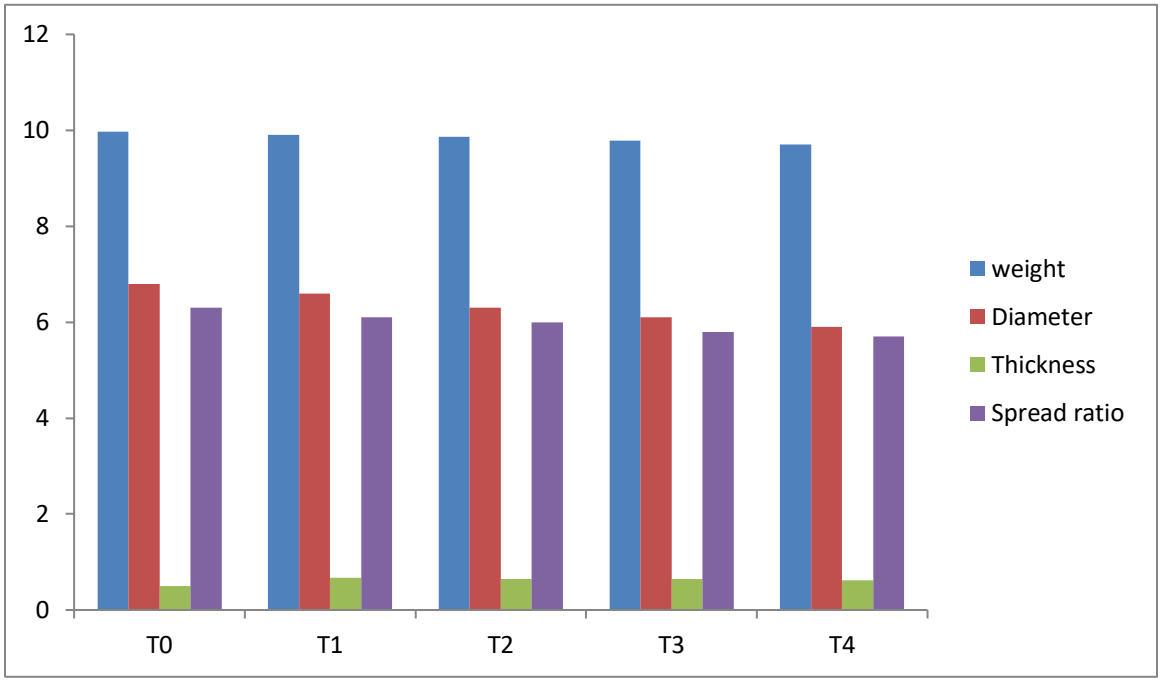

Figure: 2 Physical property of Developed cookies

Chemical Analysis of Cookies

Chemical composition represents the nutritional quality of product. Analysis of proximate composition of developed cookies decides the nutritional profile of prepared cookies as pumpkin is a novel ingredient. The proximate composition of developed cookies was determined in using the Official Methods of Analysis **(AOAC, 1990)** [6] and the tests were moisture, total ash, crude fibre, crude protein, carbohydrate and fat. The results are discussed in following table.

Table: 2 Chemical compositions of developed cookies

Treatment	**Moisture (%)**	**Ash (%)**	**Crude fat (%)**	**Protein (%)**	**Crude fibre (%)**	**Carbohydrate (%)**
T_0	2.01	2.35	12.3	10.27	2.98	70.09
T_1	2.65	2.56	12.6	11.60	3.14	67.55
T_2	3.08	3.29	12.8	12.23	3.60	65.21

T_3	3.28	3.56	12.11	12.93	3.95	63.35
T4	3.40	3.72	12.13	13.40	4.12	62.23

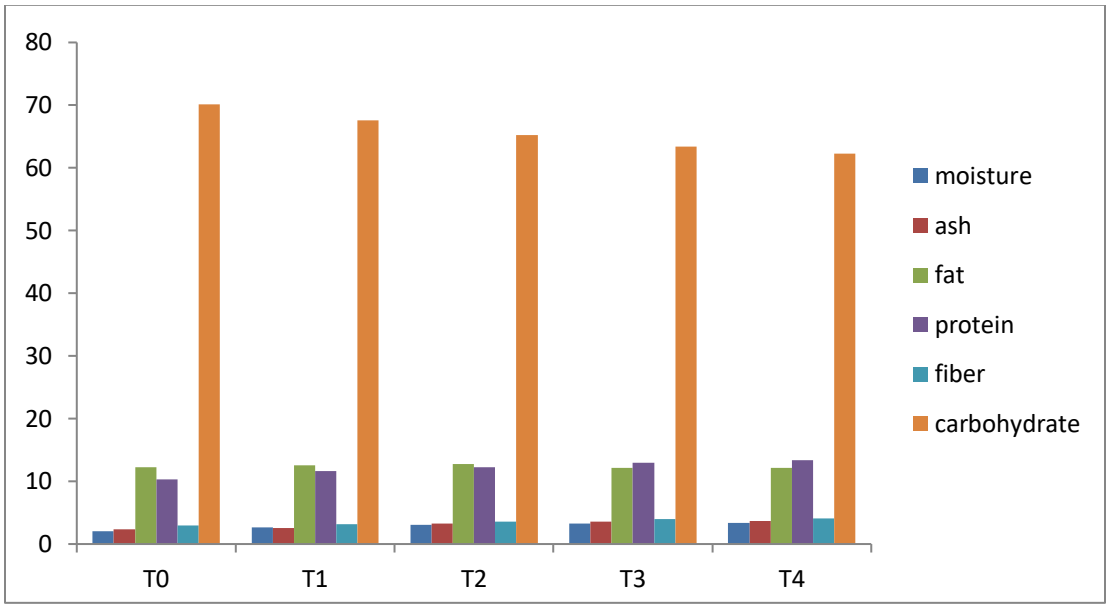

Figure: 3 Chemical compositions of developed cookies

Evaluation of Sensory Characteristic of Developed Cookies

The data about sensory evaluation of cookies incorporated Pumpkin powder as Valuable food ingredient in Wheat based Cookies. The judgment was made by rating product on a 9-point hedonic scale with corresponding descriptive term ranging from 9 "like extremely" to "dislike extremely" to determine the pleasurable and un pleasurable feel of Pumpkin cookies.

Table: 3 Evaluation of sensory characteristic of Developed cookies

Treatment	Colour	Taste	Flavour	Texture	Appearance	Overall acceptability	Mean value
T0	8	7.6	7.6	7.3	7.7	7.7	7.65
T1	8.1	8	7.9	7.6	8.1	8.1	7.96
T2	8.4	8	8.3	8.1	8.1	8.3	8.2
T3	7.6	7.1	7.3	7.1	7.4	7.2	7.28
T4	7.2	6.8	7.3	7	6.8	6.9	7

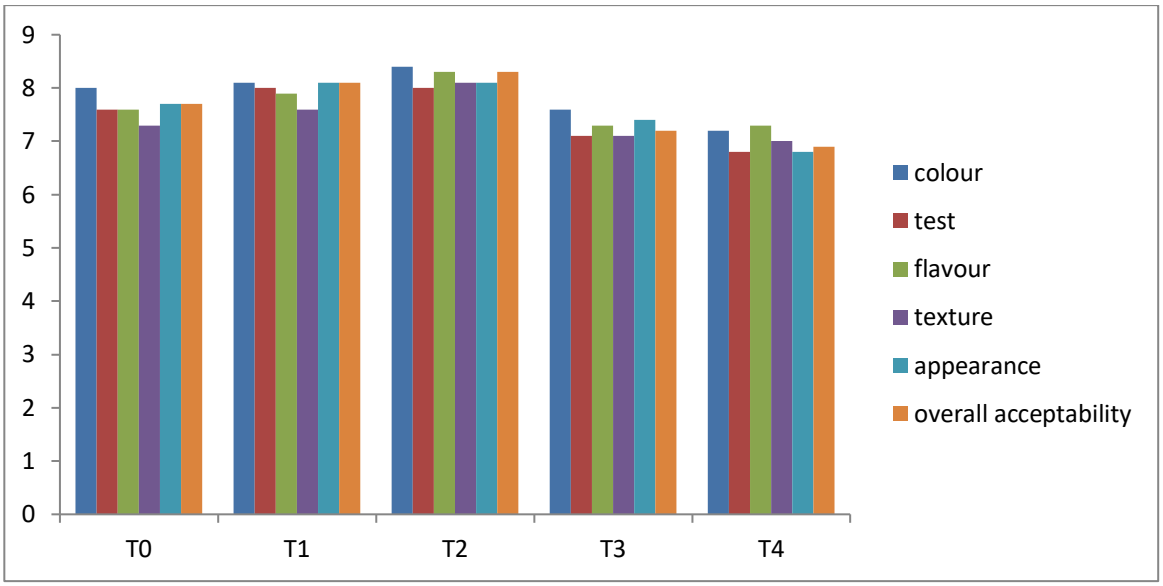

Figure: 4 Evaluation of sensory characteristic of Developed cookies

IV. Conclusion

The product was developed by incorporation of wheat flour and pumpkin powder. Different treatments where taken with different ratios. According to these proportions cookies were prepared for sensory parameters like colour, taste, texture, flavour, appearance, over all acceptability and after taste by trained panel members in which they found that T3 was showing highest overall acceptability. The research work showed that developed cookies were analyzed for proximate analysis i.e. fat, protein, moisture, carbohydrate, crude fiber which was found that moisture content 3.08%, protein 12.23%, ash 3.29%, carbohydrate 65%, fat 12.59% and crude fiber 3.60% Having high fiber content and protein content in pumpkin powder. With the help of result we can conclude that, developed cookies were beneficial to consume and the combination of Pumpkin powder and refined wheat flour obtained a good result for sensory parameters.

References

[1] Soni N, Kulkarni AS, Patel L. Studies on development of high protein cookies. IJCS. 2018;6(6):439-44.
[2] Ihekoronye AI, Ngoddy PO. Integrated food science and technology for the tropics. Macmillan; 1985.
[3] Robinson RW, Decker-Walters DS. Cucurbits. New York: CAB International. Crop Prod Sci Hortic. 1997;226.
[4] Cokrojoyo N. *RESEARCH AND DEVELOPMENT FINAL PROJECT "PUMPKIN JAM"(Jam with High Potassium Content and Vitamin A from Pumpkin–Improving Eye Health and Lowering the risk of cancer)* (Doctoral dissertation, OTTIMMO INTERNATIONAL MASTERGOURMET ACADEMY), 2017.
[5] Ndife J, Kida F, Fagbemi S. Production and quality assessment of enriched cookies from whole wheat and full fat soya. European Journal of Food Science and Technology. 2014 Jun;2(1):19-28.
[6] AOAC (1995) Official Methods of Analysis 15th Edn., Association of Official Analytical Chemists, Washington DC.