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## Study on development and quality evaluation of fasting purpose biscuits by using buckwheat flour sago flour and peanuts flour

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### ABSTRACT

The composite flour was based on fasting ingredients Buckwheat flour (shingadaata), Sago flour (sabudanaata), Peanut flour (mongfaliatta). Fasting biscuits were prepared by using Buckwheat flour is a good and inexpensive source of carbohydrate are considered as a foodstuff of high nutritional value. Sago flour contains more amount of calorie (350), carbohydrate (85.5g), fat (0.2g) and protein (0.2g). It also provides a large amount of starch low amount of minerals, vitamins. Peanuts flour improves satiety and helps to maintain weight loss. Milk powder, salt less butter, sugar, and cardamom thoroughly were mixed, coconut powder used for garnishing and sodium bicarbonate used as a preservative increased the safety and quality of biscuits. By making the combination of these flour became nutritionally advantageous. In this experiments T1(100:0:0), T2(90:10:0), T3(90:0:10), T4(80:10:10), T5(80:0:20), T6(60:20:20), T7(80:10:10). Buckwheat, Sago, and peanut flour respectively in various proportion were used to prepare three blended flour samples from which fasting biscuits were prepared. The proximate composition of the various flour blends used for the preparation of fasting biscuits was determined using standard methods. The physicochemical analysis and sensory evaluation were done to know the acceptability of fasting biscuits. Sensory evaluation by taste flavor texture overall acceptability of fasting biscuits was also done. The biscuit analyzed for analytical and chemical analysis includes moisture content, crude fat, crude protein, total sugar, and carbohydrate content. The physical evaluation showed that there was no change in diameter and spread ratio of biscuits as compared to control. However, hardness and strength of biscuits increased with increase in the quantity of sago flour. Combination of these flour biscuits having high calorie and low-fat content compared to wheat flour. From proximate analysis showed that the moisture content of fasting biscuit samples ranged between % fat content of sample T7 is very

low in fat content 32.04% that is best for diabetes patients. Data obtained from the sensory scores clearly indicated that significantly higher scores were observed for appearance, taste, color, texture, flavor and overall acceptability in fasting biscuits containing flour Buckwheat, Sago and peanut flour respectively ratio of (60:20:20). Result obtained could be valuable for the bakery industries to utilize the nutritional advantage of fasting biscuits is high compared to buckwheat flour biscuits.

**Keywords**— Fasting biscuits, Buckwheat, Sago, Peanuts flour, Sensory evaluation

### 1. INTRODUCTION

A biscuit is a baked edible product. It is small and hard often sweetened, flour-based product. The need for nutritious easy to carry, and long-lasting foods on long journeys, particularly at sea, was initially solved by taking live food along journeys, however, this took up additional space, so the introduction of processed cereals including the creation of fluid, provided a more reliable source of food. Biscuits belong to the flour confectionary. It is flat crisp and may be sweetened or unsweetened according to preference. Biscuits can be made from hard dough e.g. crackers, hard sweet dough e.g. rich tea and short or soft dough e.g. shortbread and shortcake. Indian biscuits industry is largest among all the food industries and has a turnover of around rupees 3000 corers. India is known to be the second largest manufacturer of biscuits the first being UAS. Bread and biscuits are the major part of the bakery industry and cover around 80% of the total bakery products in India. Biscuits cover 70% of the total production of the bakery industry. The bakery product such as biscuits are predominantly based on refined wheat flour with any protein-rich ingredients can give a final product having high protein content. The bakery industry is made up of a variety of types of bakeries, Plant Bakeries, which are large companies, using automated production lines to produce large quantities of products. Craft Bakeries are small to

medium-sized firms producing a wide variety of products using a mix of machinery and handcraft skills. In-store Bakeries are located within supermarkets and vary in the amount they produce. The industry has gone through many changes due to the use of new technology and tends to be seasonally led to what is produced, the amounts and when e.g. Easter and Halloween. The types of hours etc. worked have changed as well but this is still dependent on what type of bakery people work in. ([www.bakerytraining.co.uk](http://www.bakerytraining.co.uk)). Wheat flour has a protein content of 12-16% and is very much deficient in lysine and other essential amino acid. Brazilian food products found that all of the sandwich and wafer biscuit samples evaluated were compliant with the legislation. The concept of observing a fast has many connotations. Fasting is a way to get closer to the almighty. Fasting is also seen as a way to give the body a much-needed break from the regular dietary routine. This explains the choice of food items that are light on the stomach, easy to digestion but are full of nutrients. So making fasting biscuits means ready to eat food without any physical work you can consume with full energy dense without any extra fat which dangerous to our body. Therefore few food items like buckwheat, sago, and peanut go into making a variety of flour, which could easily fill in the space created by the absence of refined flour or wheat flour biscuits. Because buckwheat is gluten free at the same is extremely nutritious. It is enriched with fiber which is best for a high diabetes patient, protein, vitamin B, magnesium and phosphorus. Another ingredients that attains great importance during Navratris sago and peanuts which also full of nutritional qualities making this composite flour biscuits gives best output energy to your body during fasting days while you busy work schedule, lack of time for preparing fasting foods then those days can make this types of biscuits and storage for at least one month in between you can consume it regularly.

done for parameters like color, taste, flavor, texture, and overall acceptability.

**2.3 Physical analysis- Diameter, Thickness, Spread ratio.**

The AOAC method (2000) was used to evaluate the cookies weight, thickness, diameter and spread factor. Cookies diameter (D) was measured by placing six cookies edge to edge to get an average width in millimeters. The cookies thickness (T) was measured by stacking six cookies on top of one another, then restacking in a different order and measuring them to get the average in millimeters. The weight of the cookies was measured by placing six cookies on the weighing balance and the average weight was taken. Spread Factor (SF) was determined by the following equation:

$$SF = D/T.$$

SF = Spread Factor

D = Diameter

T = Thickness

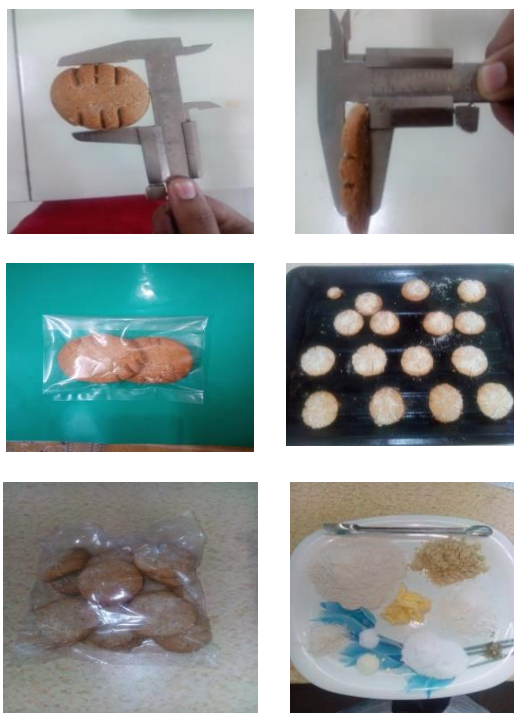
**2.4 Spread Ratio**

Three rows of five well-formed biscuits were made and the height measured. The biscuits were arranged horizontally edge to edge and the sum of the diameter measured with the height. The spread ratio was calculated by using formula.

**Spread ratio = diameter / thickness**

**2.5 Thickness**

The thickness was measured in mm using Venire caliper (Muto Toyo Make, Japan)



**2. MATERIALS AND METHODS**

**2.1 Requirement of unprocessed material**

The material such as buckwheat flour, sago flour, and peanut flour, baking powder, salt-free butter, milk powder, distilled water, and packaging materials were procured from the local market of Allahabad. The sago was sorting and then shallow fry with 1tsp ghee then cooling further reduced in size with grinder machine and sieved through the sieve and used as an ingredient as the same process for peanut flour except for shallow fry with ghee.

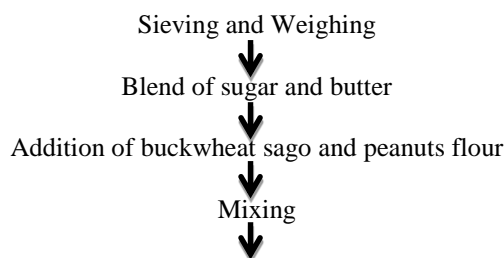
S.no	Treatments	Buckwheat flour	Sago flour	Peanut flour
1.	T1(control)	100%	0%	0%
2	T2	90%	10%	0%
3	T3	90%	0%	10%
4	T4	80%	20%	0%
5	T5	80%	0%	20%
6	T6	60%	20%	20%
7	T7	80%	10%	10%

**2.2 Sensory evaluation**

The sensory evaluation of the cookies was carried out by a 10 member semi – a trained panel comprised of postgraduate students and academic staff members of the faculty who had some previous experience in sensory evaluation of bakery products. The panel members were requested in measuring the terms identifying sensory characteristics and in use of score. Judgments were made through rating products on a 9 point Hedonic scale with corresponding terms ranging from 9 ‘like extremely’ to 1 ‘dislike extremely’. Sensory evaluation was

**3. PREPARATION OF PRODCUT**

Take the good quality of Buckwheat flour Sago flour peanuts flour and sugar.



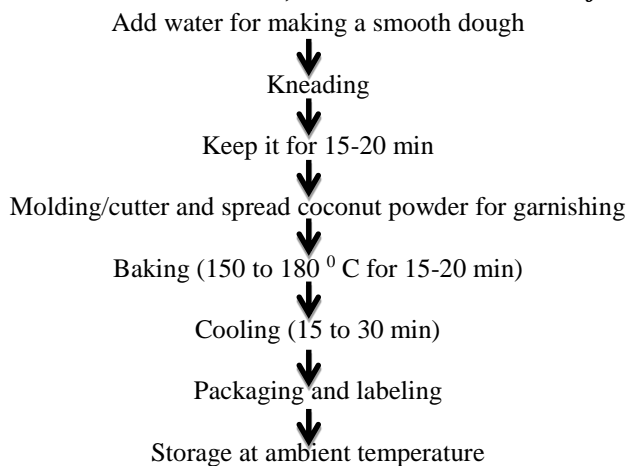


Fig. 1: Structural outline of fasting biscuits

4. RESULTS AND DISCUSSION

The biscuits prepared out of 60 g buckwheat 20 g peanuts, 20 g sago (T6) attains good sensory and textural properties with maximum acceptance value 8.7 during sensory analysis. Fasting biscuits were prepared to asses nutritional quality associated with different ingredients which can be used during fasting days to give health benefits and dense energy to the body. The study was conducted on different samples based on the different proportion of buckwheat flour, sago flour, and peanuts flour. Sample T6(60%,20%,20%) was the most acceptable and the best sample selected during sensory evaluation. On the basis of above results revealed in the present study, it might be concluded that this formulation of fasting biscuits was possible to satisfy consumer taste and preferences and will be accepted in the market as fasting purpose.

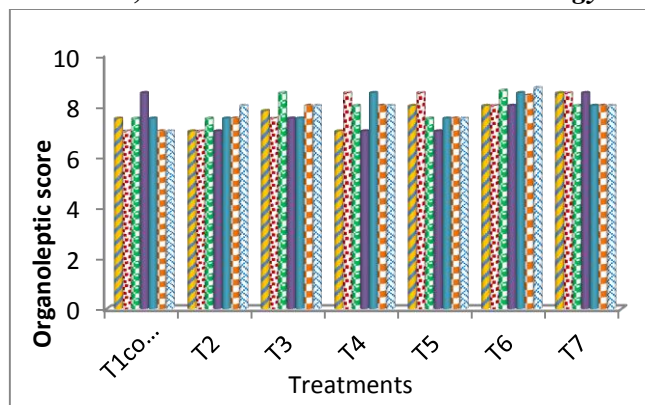


Fig. 4: Sensory evaluation of fasting biscuit

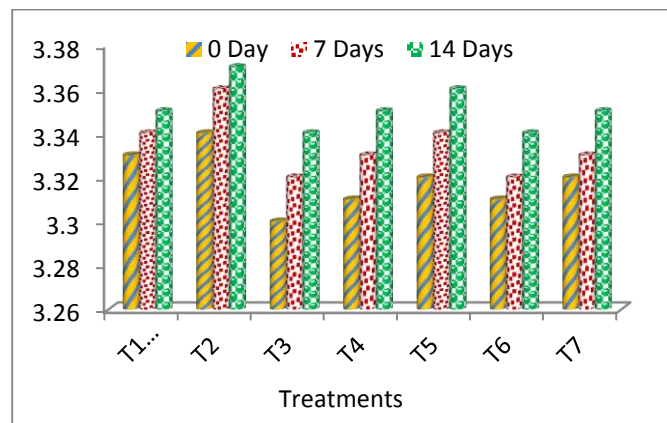


Fig. 5: Moisture content of fasting biscuit

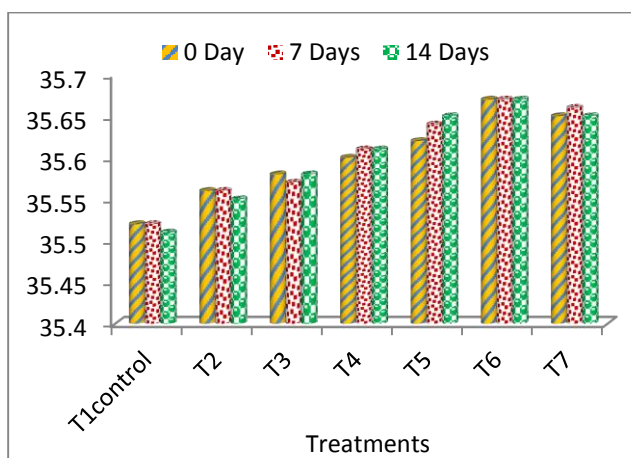


Fig. 2: Carbohydrate of fasting purpose

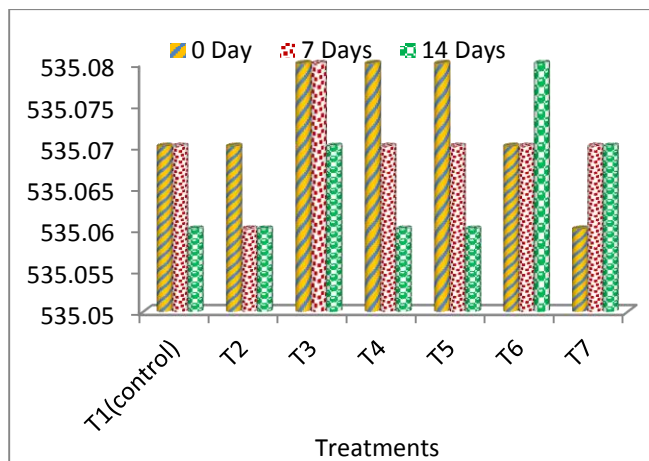


Fig. 3: Total energy of fasting purpose

5. CONCLUSION

- Fasting purpose biscuits were formulated and prepared from a different combination of buckwheat flour, sago flour, and peanut flour. Blend formulation showed the strongest impact on the formulation. The composition and nutritive value of biscuit samples based on buckwheat flour, sago, and peanut flour represent a balanced quantity of carbohydrate, protein, fat and these samples were acceptable in sensory evaluation.
- The moisture content of the experimental biscuit samples slightly increased with the level of incorporation of buckwheat flour over the storage period. Fat, Ash, Protein content of biscuit sample decreased slightly over the storage period.
- Fat content with the increase in storage period of biscuit and ranged from 32.01% to 32.25%. More proportion of peanut flour and buckwheat flour by product in baked biscuits may cause less fat retention property in final finished biscuits.
- On the evaluation of results, the highest score on color was achieved by sample T6 (60% buckwheat, 20% sago, 20% peanut flour) and T5 and T7 were a similar score of color during sensory analysis.
- Incorporation of 60% buckwheat, 20% sago and 20% peanut flour in biscuits show better physic-chemical properties as total energy, carbohydrate, fat content, protein content, and ash content and also have better sensory attributes.
- Hence the Sago flour which is full of energy and carbohydrates. Peanut flour rich in fat, protein content and buckwheat is recommend for incorporation in biscuit to control many health problems. Buck wheat has been linked to lowered risk of developing high cholesterol and high blood pressure. Buckwheat rich in the supply of flavonoids and also a good source of magnesium. Nutrients in buckwheat may contribute to blood sugar control and buck

wheat can help women avoid gallstones (shows a study published in the American Journal of Gastroenterology).

“The New Oxford Book of Food Plants,” traditional Indian medicinal medicine uses of sago cool the body during fasting days. It is quite easy to digest. It is low in calories and is preferred as a light meal option during fasting days. 5 milligrams of potassium is contained by 100 gram of sago. Potassium is known for improving the circulation of blood and also the whole cardiovascular system. Sago is considered to be one of the topmost cures of hypertension. Regular consumption of peanut promotes good health for both the skin and heart patients. They also help lower cholesterol levels thus improving blood circulation of the coronary arteries. So the successful combination of these types of proportion was best for making fasting purpose biscuits

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