

PREPARATION OF PAPAD FROM URAD DHAL FLOUR AND SOYABEAN SEEDS FLOUR

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Abstract - This research was carried out to check the possibility of papad from black gram dhal (*Phaseolus mungo* L.) with the addition of soya bean seeds along with black pepper powder and roasted cumin powder and salt for taste enhancement. Black gram dhal and soya bean seeds have high nutritional value and are beneficial for health. Blended flours of 70% soya bean seeds, 30% black gram dhal, and 50% soya bean seeds, 50% black gram dhal produced dry papads which were not at all mouth-filling and were very difficult to roll considering the parameters as rolling property and sensory quality attributes. To get rid of the dryness and to improve the rolling property of the dough Margarine (as a substitute for fat) was used. To expand the papad and to increase shelf life papad Khar (alkaline salt made up of Sodium Carbonate and Sodium Bicarbonate) was used. Among them, 50% black gram dhal flour and 50% soya bean seeds flour in addition to Margarine and papad Khar showed better sensory quality attributes concerning taste, color, flavor, and texture. But 70% soya bean seeds flour, 30% black gram flour along with the addition of margarine and papad Khar did not produce good quality papads.

Key Words: Blackgram dhal, soyabean seeds, papad, nutritional value, sensory attributes

1. INTRODUCTION

Papad is an Indian snack and very popular food item, widely consumed in south Asian countries. The food item name is derived from papadam. There are varieties of recipes for papads. The recipe of papad varies from region to region and from family to family but in general, it is made with a combination of lentils, black gram, and potato slurry or rice flour. Papad is a thin round shaped flatbread. It is a traditional food item and consumed by people accompanied by a proper Indian meal. It has a growing market in India. There are many national brands for papad but the market is mainly held by the local brands. The papad is sometimes described as a wafer. It is made from pulses, soya seeds, and black gram dhal and black pepper powder and roasted cumin powder are added as a taste enhancer. Sometimes papad Khar is also added for crispiness and to increase shelf life. The dough is rolled into a very thin, round, flatbread and then it is tray dried for 1 hour. The dried papads are then fried, roasted, and deep-fried depending on the preference of the consumer along with vegetable curries. According to

literature, papads are mainly made from the black gram. It is commonly consumed as a side dish in Indian meals. All age groups people can enjoy this snack item at tea time or as a side dish with their meal. Nowadays, there are many types of different shapes of papads in the market which are very popular with young kids. The traditional round-shaped papad manufacturing is done in the rural area of the country. The activity of papad-making in rural areas boosts employment opportunities, especially for women.

As Papads are mainly made with pulses and cereals they are rich in protein and energy. Hence health concern among people has increased and manufacturers make nutrition and taste combined food products for a healthy diet. For that, in the papad, the preparation we have used black gram flour which is high in carbohydrates, and soya seed flour which is a good source of protein. We have added soya seed flour which is beneficial for growing children, teenagers, and also for old people as it contains protein. Health-conscious people can simply roast the papad and they can enjoy the taste. The nutritional value of the papad is very high.

2. NUTRITIONAL VALUE OF SOYABEAN SEEDS AND BLACKGRAM DHAL

Black gram which is popularly known as urad dhal is a highly nutritious pulse. It is a rich source of protein, carbohydrate, vitamin B. Urad dhal also contains calcium, iron, niacin, thiamine, and riboflavin. Also, this is a good source of dietary fiber. Urad dal contains a good amount of magnesium and potassium which can protect the heart. Urad dhal controls cholesterol. This offers lots of benefits for pregnant women because it contains iron. The rich minerals such as magnesium, potassium, iron, phosphorus, and calcium are present in urad dhal which helps to improve bone muscle. Urad dhal is also good for skin and hair. It has some natural antiseptic properties which fight acne-causing bacteria. The essential fatty acids in urad dhal also cure dry and rough hair.

Another ingredient is soya seed or soya bean seed. Soya seed has become one of the most favorite and widely consumed legumes among both vegetarians and non-vegetarians. This contains a high amount of protein. So, for vegetarians, they can easily intake soya seed as a protein source. Having a high amount of protein, it also contains saturated fat, fiber, antioxidants, omega 3 fatty acids, and other essential nutrients for the body. Soya seed also contains a high

amount of calcium. Soya seed is full of vitamins, minerals, and beneficial compounds so it reduces the risk of prostate and breast cancer.

Table -1: Nutritional value

COMPONENTS (per 100 gm)	URAD DAL (gm)	SOYA SEED (gm)	HEALTH BENEFIT
Carbohydrate	59	30	Carbohydrates are an excellent energy source, and they help fuel our brain and kidney.
Protein	25	36	It increases muscle strength and is also good for bones.
Calcium	0.138	0.277	It helps to build and maintain strong bones.
Iron	0.00757	0.016	Iron is a mineral need for good growth and development.
Potassium	0.983	1.797	Potassium helps to regulate fluid balance and muscle contraction.
Saturated fat	0.1	2.9	They make bones stronger.

3. MATERIALS AND METHODS

3.1. RAW MATERIALS AND INGREDIENTS

Blackgram dhal, soya bean seeds, margarine, papad khar, crushed black pepper, roasted cumin seeds powder and salt were bought from local stores.

3.2. FORMULATION OF PAPAD

All the dry ingredients were mixed and to it, papad khar mixture (4tbsp of papad khar in boiling water) was added, and then it was kneaded to form dough.

- The mixture was kneaded for almost 6-7 mins to form the dough and after forming of dough it was divided into an equal quantity of small balls.

- Each ball was rolled out on a rolling board and oil was applied if the papads tend to stick on the board and this process was repeated with the remaining balls.
- Then with the help of a cutter, the rolled papads were cut into perfect circular shapes.
- The papad was then dried in a tray drier at 60 degrees Celsius and packed in a polythene bag.
- The papad was then fried for few secs in soyabean oil at 180 degrees Celsius

3.3 PREPARATION OF PAPAD

Take 50 gm of blackgram and 50 gm of soya bean seeds and grind them into a fine powder



Take 4 gm of black pepper and grind them



Roast 14 gm of cumin seeds and grind them to a fine powder



Mix the dry ingredients together with a pinch of salt



Boil some water and add 4tbsp of papad khar to it



Now mix this with the dry ingredients mixture and form a soft dough



After making the dough pull out the uniform size of balls and roll it into a circular shape



Cut these shapes with a cutter to give perfect circular shapes



Keep these in tray dryer at 60 degrees Celsius for about one hour and then fry them in edible refined oil at 180 degrees Celsius

Table -2 Formulization and preparation of papad

Ingredients	Q1	Q2
Soya bean seeds	70 gm	50 gm
Blackgram dhal	30gm	50 gm
Crushed black pepper	4 gm	4 gm
Cumin seeds powder	14 gm	14 gm
Salt	5 gm	5 gm
Margarine	30 gm	30 gm
Papad Khar	4 tbsp	4 tbsp

Table -3 Final recipe of papad

Ingredients	Amount
Soya bean seeds	50 gm
Blackgram dhal	50 gm
Crushed black pepper	4 gm
Cumin seeds powder	14 gm
Salt	5 gm
Margarine	30 gm
Papad Khar	4 tbsp

3.4 PROXIMATE ANALYSIS OF PAPAD

Moisture content, Ash content, Protein content and Carbohydrate Content was determined using different procedures.

3.5 SENSORY EVALUATION OF PAPAD

Sensory evaluation was carried out by a panel of judges.

4. RESULTS

4.1. PROXIMATE ANALYSIS OF PREPARED PAPAD

Proximate analysis of papad showed the following results. The moisture content of papad (dry basis) is 18.104 % and the wet basis moisture content is 15.329 %. The ash content of prepared papad is 6.11 %. The protein content of the prepared papad is 17.2 %. The carbohydrate content of the prepared papad is 54.6%.

Table -4 Proximate analysis of prepared papad

Parameter	Percentage
Moisture (dry basis)	18.104
Moisture (wet basis)	15.329
Ash	6.11
Protein	17.2
Carbohydrate	54.6

4.2. ORGANOLEPTIC EVALUATION OF PREPARED PAPAD

4.2.1. SENSORY EVOLUTION

The organoleptic evaluation of the prepared papad was done based on the following factors such as taste, texture, flavor, color and appearance, and it was evaluated by a panel of judges. The table given below shows the scores for the samples prepared.

Table 5. Score of organoleptic evaluation of prepared papad

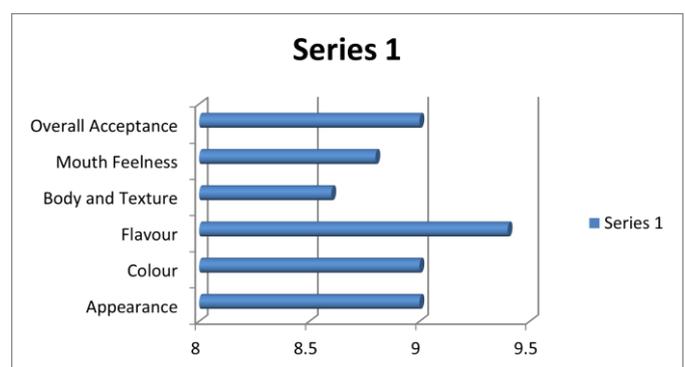


Fig -1: Bar graph of sensory analysis

Sl. no.	Appearance	Colour	Flavour	Body and Texture	Mouth Feelness	Overall Acceptance	Signature of the Panel of Judges.
1	9	9	9	9	10	9	[Signature]
2	9	9	10	9	10	9	[Signature]
3	9	9	10	9	8	9	[Signature]
4	9	9	9	8	8	9	[Signature]
5	9	9	9	8	8	9	[Signature]

Fig -2: Sensory evaluation by panel of judges



Fig -3: Final product (before frying)

5. DISCUSSION

Papad is such a food which is consumed by people of all ages. Our main motive is to make nutritious papad as the majority of the people have become health conscious. In the papad preparation, we use black gram flour which is high in carbohydrates, and soya bean seed flour which is a good source of protein in some ratios along with salt, crushed black pepper, cumin seeds powder, and margarine and papad Khar. The ratio is taken based on some tests and sensory attributes. For the preparation of papad, we take three trials. In the first trial, the ratio is 70 gm soya bean seeds, 30 gm black gram dhal. The product quality is not good, it is dry and not mouth-filling, so it is rejected. In our second trial, we change the ratio to 50 gm soya bean seeds, 50 gm black gram dhal. We face the same issue as before. The product is dry. But this time there is an improvement in taste and color. So, in our third trial to reduce the dryness we use margarine (as a fat substitute) and papad Khar (for crispiness, increase shelf life) with the other ingredients. This time the ratios which we follow are 50 gm soya bean seeds and 50 gm black gram dhal. The ratio of other ingredients is the same in all the trials. This results in good texture, color, and flavor, and also the dryness is reduced. This trial is accepted by the panel of judges and so we take it as our final product.

6. CONCLUSION

The project report is based on the making of nutritious papad. We have discussed the nutritional value and the procedure of this protein reaching papad. Papad is an Indian snack item that is consumed by all age groups peoples. Papad can also be consumed at teatime. The shelf life of these dried papads is approx. 1-2 months. If they are dried properly then they can be stored for approx. 4-5 months. We have made this papad with urad dhal flour and with soya seed flour. Both the ingredients have many health benefits. Black pepper and roasted cumin powder are added as a taste enhancer. Here we have used 50% of urad dhal and 50% soya seed instead of 100% urad dhal because of the health benefit of soya seed. The papad is prepared with the combination of all the ingredients at a ratio for which the taste and the flavor are mouth-filling and acceptable to all.

ACKNOWLEDGEMENT

We Neha Das, Baishali Deb want to express our deep sense of gratitude to our Mentor and Guide Assistant Prof. Dr. Deborshi De for his continuous support and valuable suggestions during the entire course of project work. We would like to express our gratitude to Prof. Dr. Shantanu Kr. Sen, Principal of Guru Nanak Institute of Technology for giving us this opportunity.

We are grateful to Dr. Kakali Bandyopadhyay, HOD of the Dept. of Food Technology for the constant support and guidance during the entire course of the project. Our regards to our laboratory assistants who have helped us in our Laboratory work.

Last but not least our heartfelt gratitude to our parents and the Almighty for being with us always.

REFERENCES

- [1] https://www.researchgate.net/publication/324329961_PREPARATION_AND_STANDARDIZATION_OF_PAPAD_USING_URAD_FLOUR_SWEET_POTATO_AND_ITS_SEL
- [2] https://www.researchgate.net/publication/335714054_Standardization_of_spiced_papads_preparation_from_different_pulses
- [3] <https://www.wikipedia.org/>
- [4] <https://kalingatv.com/features/urad-dal-for-health-here-are-5-benefits-check-out/>
- [5] https://www.google.com/search?q=nutritional+value+of+urad+dal&rlz=1C1CHZL_enIN698IN698&oq=nutritional+value+of+urad+dal&aqs=chrome..69i57j0i20i263i512j0i22i30i6j0i390i2.9981j0j7&sourceid=chrome&ie=UTF-8
- [6] <https://www.healthifyme.com/blog/top-10-health-benefits-of-soybean/>
- [7] https://www.google.com/search?q=nutritional+value+of+soya+seeds&rlz=1C1CHZL_enIN698IN698&sxsrf=ALiCzsbkYVOWsPFcspv4iXRnf4KIZiMjVA%3A1652353024878&ei=AOh8YuaqNe_y1sQP-NW8oAE&oq=nutritional+value+of+soya+see&gs_lcp=Cgdnd3Mtd2l6EAEYADIFCAAQgAQ6BwgAEFcQsAM6BwgAELADEEM6BAGjECc6CggAEIAEEICCEBQ6BwgAEIAEEA06BAGAEAo6BggAEBYQHjoICAAQFhAKEB5KBAhBGABKBAhGGABQ0QRYICxgvzhoAnABeACAAekBiAHbGZIBBjAuMTIuNZgBAKABAcgBCsABAQ&scient=gws-wiz
- [8] https://www.google.com/search?q=iron+content+in+urad+dal&rlz=1C1CHZL_enIN698IN698&oq=iron+amount+in+urad+dal&aqs=chrome..69i57j0i22i30i6j0i390i4.10830j0j7&sourceid=chrome&ie=UTF-8
- [9] https://www.google.com/search?q=calcium+content+in+urad+dal&rlz=1C1CHZL_enIN698IN698&sxsrf=ALiCzsbqYADnB-H3izijpwHjQ05198VkoQ%3A1652355522390&ei=vwF8YpHDF5ucseMPm8SM6A8&ved=0ahUKEwiRrNH_79n3AhUbtMwGHRsiA_0Q4dUDCA4&uact=5&oq=calcium+content+in+urad+dal&gs_lcp=Cgdnd3Mtd2l6EAMyBQgAEIAEQgcIABBHELAD0gYIABAHEB46BggAEAgQHjoICAAQDRAFEb46BAGAEa1KBahBGABKBAhGGABQ3AdYsSRgtSloAXABeACAAY0CIAHOFJIBBTauNy42mAEAoAEByAEIwAEB&scient=gws-wiz