



RESEARCH ARTICLE

PREPARATION AND STANDARDIZATION OF PAPAD USING URAD FLOUR, RAW BANANA AND SWEET POTATO AND ITS SELF LIFE STUDIES

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ABSTRACT

This research work was carried out to improve the level of resistant starch (RS), fibre, potassium, vitamin and calcium in uradpapad using unripe banana and sweet potato to investigate the effect of substitution of unripe banana and sweet potato. For urad flour the texture of papad, dough and characteristic of papad while preparing uradpapad, the urad flour was changed in variation with unripe banana and sweet potato with different degrees of substitutions including 20,25,30,40. The result indicated that substitution of unripe banana and sweet potato significantly affected the hardness and stickiness properties of papad dough. Results found that the papad prepared from 25% unripe banana and 25% sweet potato and 50% urad flour indicated the greatest changes on the textural properties. It also showed that the highest value of sensory evaluation score was observed for 25:25:50- unripe banana: sweet potato: urad flour.

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INTRODUCTION

Papad is a popular and tasty food item in the Indian diet since many centuries. Combination of pulses, cereals, processed cereals, fruits, roots and tubers used for preparation of papad varies from one region to another depending upon the preferences of local people. Papad is a traditional food item having a thin -crispy wafer like texture which is consumed as an accompaniment along with the meals and snacks. Market for papad is steadily growing across the country there are couple of national brands available but the market is predominantly controlled by local brands. Manufacturing of papad is yet to pick up and prospects (Patel, 2011). For new types of papad are bright, provided good quality is maintained and prices are competitive. It was proposed to study the consumption pattern of papad and its market availability in Dharwad city in Karnataka state to know the consumer preferences for introduction of new papads. The papad is sometimes described as a cracker or flat bread. It is made from pulses or rice flour salt and peanut oil are added to the flour to make the dough which can be flavoured with chilli, cumin, garlic or black pepper. Sometimes baking soda is also added. The dough is rolled manually in a thin, round flat bread and then dried (traditionally in the sun) and can be cooked by deep

frying, roasting over an open flame, toasting or microwaving depending upon the desired texture. (Rashmi and Jyothsna, 2011). The presence of pentosans in black gram makes the papad dough very hard which makes the subsequent rolling very uncomfortable, this work reports on the effective use of xylitol on the handling properties of papad and dough and further the effect on quality of papad processed. Papad can be of different varieties depending upon the type of pulses. Papad is commonly consumed commodity in every house it forms a tasty side dish and can be used in any combination. It is popular with people of all ages and it is consumed in meal time, tea time, as a part time snack or with alcoholic beverages. It can be toasted over a flame or fired before consumption. Manufacturing of papad is one of the traditional activities in the rural area in the country. Papad is one of the very popular and delicious eatable items. The product is having very good market demand throughout the country and also abroad. The activity does not require much effort and rolled in accordance to the uniform required size without much effort papad can be prepared with different tastes in different regions. The activity helps for creation of more employment opportunities in the country especially for women (Somjee 1978). Hence the objective of the research study is to assess and determine the nutrient composition of prepared papad and to evaluate the organoleptic attributes of the papad.

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MATERIALS AND METHODS

Raw Material and Ingredients

Raw banana, sweet potato, urad flour, asafotida, ginger, salt, black pepper, cumin seed, ajwain were obtained from local market in Murbad, Thane, India.

Formulation of papad

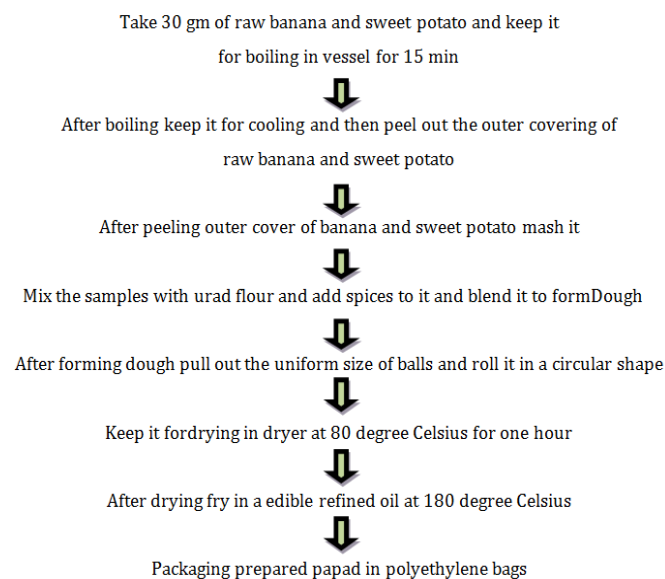
The prepared materials was then blend with urad flour and mixed with raw banana and Sweet potato and spices to form dough

- Hence these mixture was needed for 5 minutes to form the dough and hence after forming of dough make the equal quantity of small balls
- Roll out each ball on a rolling board with the help of rolling pins in a circular path apply oil if necessary if papad tends to stick on rolling board repeat with the remaining balls.
- The papad of uniform weight each with flat circular shape having 5cm radius and 0.3-0.5 thickness
- The papad was dried in a tray dryer at 50 degree Celsius to a moisture level of 14% and packed in polyethene bags
- The papad were fried for 4-5 sec in a groundnut oil at 180 degree Celsius.

Table 1. Formuzlation and preparation of papad

Ingredient	T ₀	T ₁	T ₂	T ₃
Udad flour	40 gm	45 gm	45 gm	50 gm
Raw banana	30 gm	25 gm	30 gm	25 gm
Sweet potato	30 gm	30 gm	25 gm	25 gm
Salt	5 gm	5 gm	5 gm	5 gm
Black pepper	1 gm	1 gm	1 gm	1 gm
Asafoetida	2 gm	2 gm	2 gm	2 gm
Ginger	–	1 gm	1 gm	1 gm
Chilli(green)	–	2 gm	2 gm	2 gm
Cumin seed	–	–	2 gm	2 gm
Ajwain	–	–	–	2 gm

Preparation of papad



Flow chart 1. Preparation of papad (T₀)

Table 2. Standardized recipe of papad

Ingredients	Amount
Raw banana	50 gm
Sweet potato	25 gm
Urad flour	25 gm
Salt	5 gm
Black pepper	1 gm
Asafoetida	2 gm
Ginger	1 gm
Chilli(green)	2 gm
Cumin seed	2 gm
Ajwain	2 gm

Proximate Analysis

Moisture, protein, fat, ash, crude fibre and total carbohydrate by difference method were determined (AOAC, 1995)

Oil content of each papad

The oil content of banana – sweet potato papad was determined by frying. The weight should be recorded before and after frying of papad. The weight of oil before frying is (w₁) and weight of the oil after frying is (w₂) and put these values in the oil content formula. Hence the oil content formula for the evaluation of oil content in papad is as follows;

$$\frac{\text{Oil in (ml) before frying} - \text{oil in (ml) after frying}}{\text{Total number of papad fried}}$$

Sensory evaluation of papad: Sensory evaluation of Papad was carried out by a panel of judges comprising “9 point Hedonic Scale”.

RESULTS AND DISCUSSION

Proximate Analysis of prepared papad

Proximate analysis of papad showed protein 21.8%, protein (15.95%), fat (2.5%), ash (6%), fiber (10%), energy (305 K. cal). The moisture content of papad varied the values ranged from (19.2 to 21.5%). The mean value of moisture content of Prepared papad (21.1%) is significantly higher than other market papads. The ash content of the soups ranged from 5 to 6.5%. The mean of ash content of prepared papad is (6%) is lower than other papads. The protein content of papad determined is (15.4%). The fat content of papad is calculated and that is (2%). The fat content of prepared soup was significantly lower than other papads (P<0.05). The fibre content of the finished papad is significantly is (10%). Among all the papads studied, the carbohydrate content of papads (55%) is significantly higher than the other papads. However there is high calorific energy of prepared papads is approximately (299.6 kcal).

Organoleptic Evaluation of prepared papad

Sensory evaluation: The organoleptic evaluation in respect of texture, taste, flavour, appearance was evaluated by trained/semi trained judges using 9 point hedonic scale (amerine *et al.*, 1965). This table shows that score for samples T₃ recorded highest score. This score for parameters like appearance (7.9±0.42) taste (8.1±0.63) flavour (7.7±0.56) texture (8.2±0.63) and overall acceptability (8.1±0.31) was found. The sample T₃ was Organoleptically better than other papad samples.

Table 2. Proximate Analysis of prepared papad

Proximate analysis							
Parameter	Moisture (%)	Protein (%)	Carbohydrate (%)	Fat (%)	Ash (%)	Crude fibre (%)	Energy (Kcal)
%	21±0.28	15.4±0.282	55.95±0.35	2.5±0.70	6±0.70	10.25±0.353	305.9

Table 3. Score of Organoleptic evaluation of prepared papad

Parameters/samples	T ₀	T ₁	T ₂	T ₃
Appearance	6.5±0.84	7.2±0.32	7.6±0.51	7.9±0.42
Taste	7.3±0.82	7.4±0.96	7.5±0.97	8.1±0.47
Flavour	7.1±0.87	7.3±0.67	7.5±0.70	7.7±0.17
Texture	7.5±0.97	7.5±0.97	7.8±0.69	8.2±0.48
Overall acceptability	6.9±0.73	7.2±0.94	7.4±0.69	8.1±0.47

This mean value is calculated of each parameter are presented in sample.

Table 4. Effect of storage on Organoleptic properties of prepared papad

SAMPLE	PAPAD				
STORAGE DAYS	Appearance	Taste	Flavour	Texture	Overall Acceptability
0	7.9±1.50	8.1±1.05	7.7±1.17	8.2±1.05	8.1±0.99
15	7.7±0.48	8.0±0.81	8.0±0.81	8.1±0.73	8.2±0.67
30	7.6±0.69	7.9±0.87	8.0±0.81	8.4±0.69	8.3±0.67
40	7.6±0.69	7.9±1.50	7.9±1.50	8.2±0.67	8.3±0.67

During storage of papad from 0 to 15 days there was decrease in sensory score for overall acceptability was found on day of storage. There was significant decrease in sensory score for flavor, taste and overall acceptability were reported by the panel members. There was no significant evidence of microbial spoilage. It could be concluded from the table that prepared papad based can be stored for 30 to 40 days at room temperature (about 20°C) without affecting sensorial parameters. However its acceptability score was slightly decreased and liked moderately

DISCUSSION

The papad is the food that can be consumed by all the age groups. Since the health concern among the people has increased, manufacturers are looking combined fruit and tubers based food which balance the health with diet. In the papad preparation we use raw banana and sweet potato which has higher nutritive value and because of their properties. The papad is prepared with the combination of raw banana, sweet potato and urad flour in same ratio. The ratio is taken on the basis of some digestible and nutritive properties and also beneficial for the papad's taste and Flavour. For the preparation of papad we take four trials in which first trial the product is form was not satisfied on the basis of sensory evaluation we rejected it and in the second trial we reduce the of urad flour quantity and increase some quantity of raw banana result but Flavour lost. And in third trials results taste was not satisfied which is not acceptable. Then we take fourth trial and take the same as first trial but increasing in same ratio raw banana and sweet potato quantity and changing spicy contents quantity which result in good texture, taste, flavour, colour, etc. And all attribute accepted by the sensory evaluation. Therefore we finalized the fourth trial as a standardized product. These are all trials are selected and rejected on the basis of sensory evaluation. Here we focused on Mostly try to provide nutritive and health beneficial food to the people. And papad which was prepared was having high nutritive value as per the papad which is available which is mostly like to the peoples. Hence the papad sample prepared by supplementation with raw banana fruit will be beneficial to growing children's, teenagers, women and health conscious peoples.

And we pack the product in polythene bags and storage study done at ambient condition and we concluded that are product is stored in ambient temperature it stores up to 40 days remains without any variation.

Conclusion

The investigation was undertaken with a view to assess the quality and shelf life of papad during storage upto 6 months under ambient condition. The papad addition with raw banana and sweet potato are the food that can be consumed by all the age groups. Since the health concern among the people has increased, manufacturers are looking combined fruit and tubers based food which balance the health with diet. In the papad preparation we use raw banana and tubers Like sweet potato which has higher nutritive value and because of their properties. The papad are prepared with the combination of raw banana, sweet potato, urad flour in same ratio. The ratio is taken on the basis of some digestible and nutritive properties and also beneficial for the papad's taste and Flavour.

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