

Development of Vegetable Omelette Mix

M. Madhankumar, R. Padmavati

*Food and Nutritional Biotechnology
SRM University, Chennai, India.*

Abstract: Vegetable omelette mix is a rich nutritious food with high protein content and less fat content which is highly suitable for dietary purposes. The main ingredient moong dal used in this product was proved to have reduced risks of blood pressure and prevent hypertension. Moong dal and gram dal were taken in three different proportions and processed by two methods namely frying and soaking method. Also, the other ingredients used were all rich in nutritional value. The anti-microbial property and physicochemical property of the samples were tested. Since there was a very low content of moisture in the product, there was no growth of bacteria and fungi resulting in the extended shelf life of the product. Sample obtained using frying method was found to be devoid of any microbial contamination even after a long period of time because of the low moisture content than that of the sample obtained using soaking method. Also, the protein content in the frying method sample was analysed to be higher than the sample obtained using the soaking method. Thus, this study shows that frying method gives better taste, texture and flavour compared to the soaking method.

Keywords: *moong dhal, sensory analysis, physicochemical properties, and shelf life studies.*

I. INTRODUCTION

The word 'food' refers to the chemical substances taken into the body in order to keep the body in a healthy and active condition. The body requires food for growth, repair and replacement of its worn-out tissues. Hence, food has to provide the required raw material, energy and other regulating substances, like vitamins and minerals, for the smooth functioning of the body, besides meeting the calorific requirements like carbohydrates, proteins, fats, etc., India is the world's second largest producer of food next to China and has the potential of being biggest industry with

food and agricultural sector contributing 26 per cent to Indian GDP. It has the capacity of producing over 600 million tons of food products every year; it is likely to be doubled in next ten years.

In India, majority of food consumption is still at home. Nevertheless, out of home food consumption is increasing due to increase in urbanization, breaking up of the traditional joint family system, desire for quality, time which translates into an increased need for convenience, increasing number of working women, rise in per capita income, changing lifestyles and increasing level of affluence in the middle income group had brought about changes in food habits. In India, majority of food consumption is still at home. Nevertheless, out-of-home food consumption is increasing due to increase in urbanization, breaking up of the traditional joint family system, desire for quality, time which translates into an increased need for convenience, increasing number of working women, rise in per capita income, changing lifestyles and increasing level of affluence in the middle income group had brought about changes in food habits. Hence, Instant Food Products came into light, which originated in Japan with Instant noodles and had its beginning in India in 80's, are found today in the kitchen shelves of every Indian household. The advancement of science and technology offered the people new foods processing vessels, equipment and tools but still people were in search of new techniques to speed up the cooking process in order to cope up with mechanical life, as they do not have sufficient time to cook food in the conventional methods. Capitalizing this situation, business houses ranging from small time manufactures to multinational corporations have started innovating and commercializing "easy to cook food items" like noodles, vermicelli, gulab jamun, instant idli, vada, dosa mix etc... that are otherwise called instant. The instant food products are not only easy to cook

but also have a significant role and place in the celebration of the family functions and religious functions of the people. Instant food products which are prepared and packaged often in powdered form are required only the addition of a liquid as water or milk for final preparation” Unlike olden days where man used to have his food lavishly and slowly, the present trend changed the habits to foods, which are simple and easy to digest. Hence, the existence of these foods fulfilled all the needs of modern human being. Canned foods, convenience foods, fast foods, frozen foods, instant products, dried foods, preserved foods, etc. all comes under instant foods or ready-to-eat foods. The food habitats in India have changed due to the Western influence and the usage of these foods is also on the rise.

The main ingredient of the vegetable omelette mix is moong dhal, to which gram dhal is added. Moong dhal has high protein content with minimal fat content which is mainly used for dietary purpose. It also has an advantage of reducing blood pressure and prevents hyper tension. This mix is mainly targeted for vegetarian who does not consume egg and egg products. Non vegetarian can also prefer this mix as it has more health benefits.

II. MATERIALS AND METHODS

Ingredients used to optimize vegetable omelette mix are

INGREDIENT	PROPRTION FOR 100 GRAM
MOONG DHAL	88
GRAM DHAL	8
CASHEW	2
BLACK SALT	1
WHITE PEPPER	1

METHODS: Preparation by two methods:

- **Frying method**
- **Soaking method**

By using three different proportions.

TABLE 1

Proportion for 100 gram

Moong dal (gram)	Gram dal (gram)
95	5
90	10
85	15

2.1. Frying Method:

Moong dal and gram dal were taken in the above mentioned proportions and fried till the colour changes. 1gram of black salt and 0.5 gram of white pepper were added. Turmeric was added for color and its anti-microbial property. Cashew nuts were added for enhancing the taste. All these ingredients were then grinded.

2.2. Soaking Method:

Moong dal and gram dal were taken in the above mentioned proportions and soaked for three hours and then dried. 1gram of black salt and 0.5 gram of white pepper were added. Turmeric was added for color and its anti-microbial property. Cashew nuts were added for enhancing the taste. All these ingredients were then grinded.

2.3 Nutritional Analysis

6 samples were tested for protein, carbohydrate, moisture, fat and ash content

2.3.1. Moisture Content

Moisture content of the sample was analyzed using DGHS manual-2005 method.

2.3.2protein

Protein content of the sample was analyzed by DGHS manual 2005 method.

2.3.3. Carbohydrate

Carbohydrate content of the sample were analyzed by nutritive value of indian foods nin (by calculation)

2.3.4. Fat

Fat content of the sample were analyzed by AOAC 922_06 19th edition method.

III. RESULTS AND DISCUSSION

3.1. Sensory Analysis

Hence the samples were prepared according to the above variables and the sensory analyses of the 6samples were conducted according to 9 point hedonic scale rating during various time intervals. They were assessed on the following parameters such as color, texture, aroma, consistency and taste. It shows that frying method gives better results when compared to soaking method except for its colour. Figure 1 shows the comparison of soaking and frying method's sen-

sory analysis test.

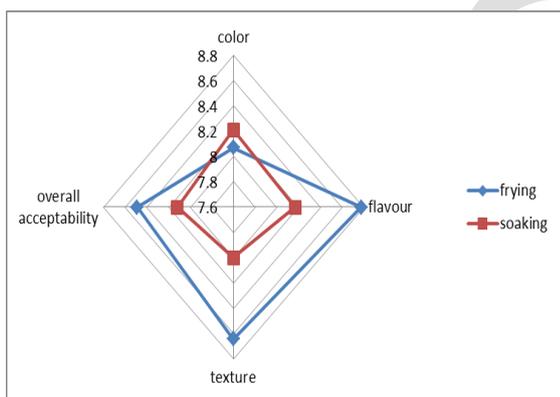
3.2 Estimation of Protein

The samples were analysed for the protein content. It shows that the sample prepared by frying method has slightly higher content of protein than that of the sample prepared by soaking method.

3.3. Estimation of Proper Packaging Material:

The product was kept for storage in the following material and chemical analysis of the product was carried out once in 15 days. The following materials were used are Retort pouch and pet bottles

The results of the physico-chemical and microbial analysis of the product was carried out at interval months. As long as the mix is kept in this sealed material, there will not be any changes in nutritious value and the level of moisture will be minimum. This packing material is suitable for longer storage of the product.



Comparison of soaking and frying method

Figure 1. sensory analysis.

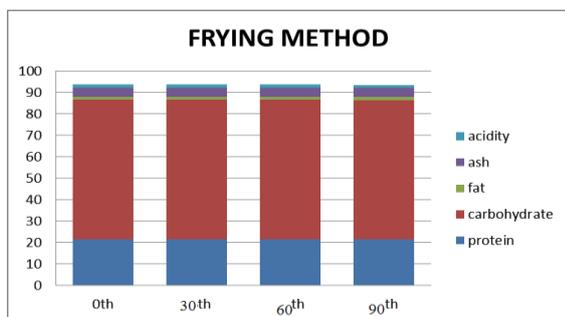


Figure 2. physical and chemical analysis (frying method)

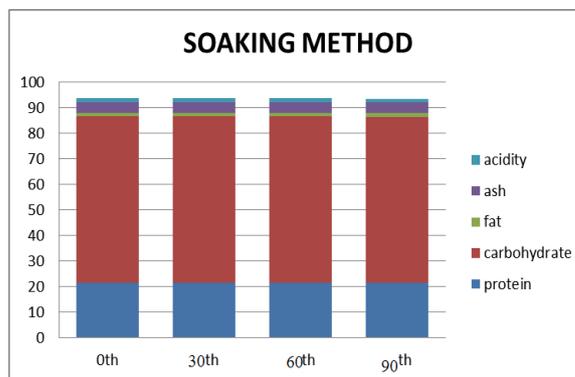


Figure 3. physical and chemical analysis (soaking method)

Sam- ples/day	0 th	30 th	60 th	90 th	105 th
Protein	21.69	21.63	21.59	21.55	21.53
Carbo- hydrate	65.93	65.91	65.91	65.89	65.88
Fat	1.33	1.33	1.34	1.34	1.38
Ash	4.97	4.96	4.95	4.94	4.92
Acidity	1.56	1.54	1.53	1.52	1.55

Table1. Nutritional value (Frying method)

Sam- ples/day	0 th	30 th	60 th	90 th	105 th
Protein	21.59	21.58	21.57	21.55	21.55
carbo- hydrate	65	64.99	64.99	64.95	64.93
Fat	1.43	1.43	1.45	1.45	1.42
Ash	4.16	4.15	4.12	4.11	4.10
Acidity	1.59	1.58	1.56	1.53	1.55

Table2. Nutritional value (Soaking method)

3.4. Microbial studies

There was no bacterial and fungal growth even after 105 days. Due to low moisture content bacterial and fungal growth will be delayed and product will be stored for longer time (upto 6 months).

CONCLUSION

In this study, vegetable omelette mix was prepared by soaking and frying method. The methods of preparation and the parameters were optimized. The proportion of moong

dal and gram dal that gave better results was 90gram of moong dal and 10 gram of gram dal. The frying method sample was found to have high protein content of 21.69 gram than that of the sample prepared using soaking method, which had 21.56 gram of protein. Also, the physical and chemical properties of the samples were tested. The results shown for the total carbohydrate, fat, moisture and ash content were 65.93gram, 1.33gram, 6.08gram and 4.97gram respectively. Based on the sensory analysis frying method was proved to have better taste, appearance, texture and flavour than that of soaking method. The anti-microbial activity tested using total plate count method shows that the samples obtained using both frying and soaking method were found to have no bacterial and fungal growth even after a long period of time proving it to have to 105 days shows that there is only a slight variation in the nutritional value, thus proving it to have a high shelf life time. This also accounts for the result of the anti-microbial tests conducted showing no growth of bacteria and fungi. Hence, due to the low moisture content of the sample, it does not allow the growth of microbes, thus suitable for having a long shelf life.

Compared to egg product, this has a slightly less content of protein. But the fat content in the sample is very low when compared to the egg. Thus, proves it to be better than the egg product.

Hence, it is evident from all the above mentioned results that frying method is better than soaking method for the preparation of vegetable omelette mix at all levels.

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