

## Preparation and standardization of instant vegetable *Dalia* mix

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■ **ABSTRACT** : An instant vegetable *dalia* based was developed using blends of cracked wheat, onion, carrots, peas and cumin. Cracked wheat was added with the objective of making instant vegetable *dalia* nutritionally balanced for supplementing carbohydrates and proteins. Study revealed that incorporation of cracked wheat, onions, carrots, peas and cumin affected the properties of developed product. Physico-chemical characters of instant vegetable *dalia* were evaluated by moisture content and total ash content being 6.0 per cent and 1.6 per cent, respectively. The result of sensory evaluation conducted by semi-trained judges showed that the incorporation of instant vegetable *dalia* into blend increases the taste and overall acceptability. The sensory analysis of the samples of instant vegetable *dalia* was found to be most acceptable with respect to all the attributes like appearance, taste, consistency and overall acceptability.

■ **KEY WORDS** : Vegetable *Dalia*, Score, Extruded product, Moisture, Total ash content

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The nutritionally balanced products obtained by bending the by-products of milling industry can be extrusion cooked into a variety of food products including ready to eat snacks quick cooking, porridge and pudding, beverage base, high protein and high dietary fibre foods. However, the products available are too expensive for the target groups. It is therefore, desirable to study ways and means of developing less costly but equally nutritious foods that may be within the reach of the wider population. Instant foods are fully or partially prepared foods for which significant preparation time, culinary skills or energy use have been transferred from homemaker's kitchen to the food processor. Most of the foods in a modern supermarket have had some preparation treatment and thus in a sense are instant foods. Many different processes are used by the food industry in the food to variable moisture levels by freeze drying and other methods, comprising the food to decrease bulk, pre-cooking and freezing and using various flexible packaging materials. Dehydrated instant foods are also plentiful. Instant foods offer storage and transportation saving to industry as to the home maker. The standardization of products and suitable packaging are also factors in the retention of desirable qualities in the stored foods. The process or technology for production of such

type of products should not be sophisticated and should be highly adaptable. Wheat and rice constitute the staple food of majority of Indian population forming about 90 per cent of the total diet (Singh, 1993). The popular methods of eating these grains are based on the convenience of preparations, palatability and storage quality of the cooked product. Mixture of cereals in various population and blends of cereals grains with other by-products in various ratios have been used for a number of tasty products. The instant foods are economical, convenient foods suitable for daily consumption by all age groups. Some recipes have been developed based on the combination of cereals, seasonal vegetables and oilseeds. The preparations are a good source of energy, protein of good quality along with minerals. Instant vegetable *Dalia* is one of them. It has goodness of both cereals and vegetables. It is a good source of essentially vitamins like vitamin B<sub>1</sub>, vitamin B<sub>2</sub>, vitamin<sub>4</sub>, vitamin A and essential minerals like calcium, potassium, iron. When vegetables *Dalia* is made with salt, it becomes more valuable as it can be easily consumed by diabetic patients or liked by children as well. Keeping in view of the above facts, the present investigation was undertaken to assess and to standardize the instant vegetable *dalia* by using different vegetables that are nutritious and the results

presented in this communication.

### RESEARCH METHODS

Raw materials like, cracked wheat, onions, carrots, peas and cumin for the preparation of extruded products were procured from local market of Jammu, Jammu and Kashmir, India and were kept in air tight containers for further study. The manufacture method of instant vegetable *dalia* has been shown in flow diagram (Fig. 1).

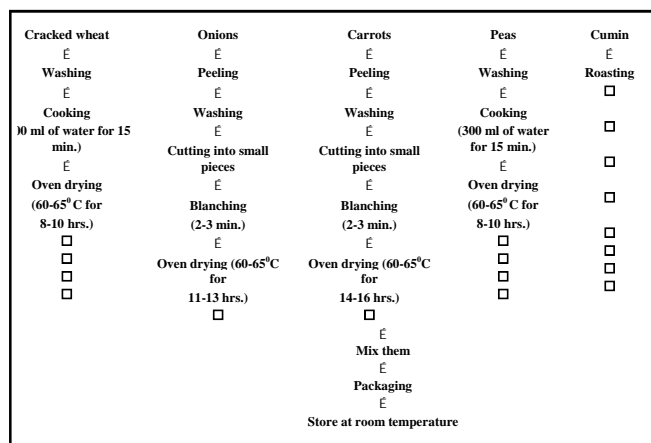


Fig. 1 :Flow diagram of manufacture of instant vegetable *Dalia*

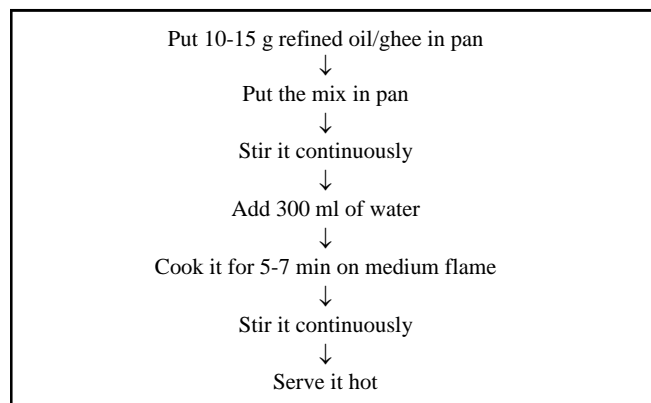


Fig. 2 : Flow diagram for the method of preparation of instant vegetable *Dalia*

Cracked wheat, peas were washed before cooking and onions and carrot were peeled before washing and cut into small pieces. Cumin was roasted at 110°C for 10 min before grinding in laboratory milling machine with sieve size from 1 mm to 0.5 mm. The extruded product was added and mixed thoroughly manually as per method described by Kumar and Upreti (2000). Put 10 to 15g of ghee or refined vegetable oil in a pan and added 100g of whole mix and salt according to taste and stirred it continuously. Put 300 ml of water in pan and then continuously stirred it. Cooked it for 5 to 7 minutes on medium flame and stirred it properly and then served it hot

(Fig. 2). The prepared instant vegetable *Dalia* was further analysed for sensory evaluation of appearance, taste, consistency and overall acceptability by panel of judges (Anonymous, 1971).

### RESEARCH FINDINGS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been presented under following heads:

#### The sensory evaluation of instant vegetables *Dalia*:

Experimental data on developed product are reported in Table 1 which show that the sensory score of appearance, taste, consistency and overall acceptability made from the blends of instant vegetables *Dalia*. The mean score of appearance varied from 60 to 100 score. Appearance highest score was obtained in judges 4, 5, and 7 (100 score) and the lowest score judge was 1 and 2 (60 score). The sample of instant vegetable *Dalia* got an average score of 80.22 which stands in the range of very good. The mean score of taste varied from 80 to 100. The sensory and numerical analysis of taste was obtained the highest score value judge as 2, 3,4,6,8 and 9 (100 score) and lowest in 1, 5 and 7 (80 score). It is concluded that the sample of instant vegetables *Dalia* got an average score of 90.33 which stands in the range of excellent. The mean score of consistency varied from 80 to 100. The sensory and numerical analysis of consistency was obtained the highest score value in judge 7 and 8 (100 score) and lowest in 1, 2, 3, 4, 5, 6 and 9 (80 score). Instant of vegetables *Dalia* gets an average score of 80.44 which stands in the range of very good. The overall acceptability of sensory analysis (mean score) varied from 80 to 100. The highest sensory analysis of overall acceptability was obtained of judges 2, 4 and 5 (100 score) and lowest in judges 1, 3, 6, 7, 8 and 9 (80 score). The sample of the instant vegetables got an average score of 80.66 in the range of very good. Hence, the sensory evaluation was

Table 1 : Effect of vegetable *Dalia* on appearance, taste, consistency and overall acceptability (quality basis)

Judges	Appearance	Taste	Consistency	Overall acceptability
1	60	80	80	80
2	60	100	80	100
3	80	100	80	80
4	100	100	80	100
5	100	80	80	100
6	80	100	80	80
7	100	80	100	80
8	80	100	100	80
9	80	100	80	80
Total	740	840	760	780
Average	80.22	90.33	80.44	80.66

attributed by the incorporation of semi-trained 9 person judges drawn from faculty and students of department. The product was evaluated for appearance, taste, consistency and overall acceptability. The sensory evaluation was carried out by numerical scory test. The result of sensory evaluation that some instany vegetables is well accepted amongst the panellists and showed that the incorporation of instant vegetables *Dalia* into blends increase the taste as well as overall acceptability in accordance to Chand *et al.* (2012).

**Table 2 : Physico-chemical analysis of instant vegetable *Dalia***

Parameters	Percentage
Moisture content	6.0
Total ash content	1.6

Table 2 Physico-chemical tests were conducted for determining the moisture and ash content. Moisture content was determined using oven drying method at 130°C ± 10°C for 1.30 to 2 hrs. and was calculated to be 6.0 per cent. The total ash content was determined using muffle furnace at 550°C ± 10°C for 4.30 to 5 hrs. and was calculated to be 1.6 per cent.

Table 3 shows the nutrient contents of Indian cracked wheat, onions, carrots, peas and cumin.

**Wheat (cracked) (*Triticum aestivum*) :**

Cracked wheat is the whole grain which is broken into coarse medium or fine fragments. The particle size is greater than 750 µm as the losses during milling are little. It is a very nutritious food. Good quality is indicated by sweet taste and absence of sour moldy odour and fragments. It has goodness of whole wheat in all major constituents such as carbohydrates,

proteins, vitamins and minerals. The carbohydrates of cracked wheat are in the form starch, sugar, cellulose and hemicellulose. Cracked wheat proteins are rich in glutamic acid and low in tryptophan. Glutamic acid and aspartic acid are present in the amide form as glutamine and asparagines. The high concentration of amide is important in determining the characteristics of gluten. Cracked wheat is also rich in various vitamins such as thiamine, riboflavin, niacin, pyridoxine and pantothenic acid.

**Carrots (*Daucus carota*):**

Carrot belongs to the Umbelliferae family and in roots group of vegetables. Carrot is mainly rich in β-carotene. β-carotene is the precursor of vitamin A. β-carotene is mainly responsible for improving vision acts as an anti-oxidant which prevents free radicals responsible for cancer and heart attacks.

**Pea (*Pisum sativum*):**

Pea belongs to Leguminosae family and ‘legume’ group of vegetables. Pea is the good source of proteins and B-vitamins such a thiamine, folic acid and pantothenic acid.

**Onion (*Allium cepa*):**

Onion belongs to Amaryllidacea family and ‘bulb’ group of vegetables. Onion is known for its nutritional value. It has high moisture content which is 86.6 per cent for 100gm of the edible portion. It is used as flavouring agent in food preparation. It contains an essential oil the active principle of which is responsible for the characteristic cooked flavour is allyl propyl disulphide. It is used in cookery to increase the thickness of gravies. Consumption of raw/ cooked onion is

**Table 3 : Nutrient value of Indian cracked wheat, onions, carrots, peas and cumin (content per 100 g of edible protion)**

Nutrients	Content ( per 100g of edible portion)				
	Cracked wheat	Onions	Carrots	Peas	Cumin
Moisture (%)	8.87	86.6	86.6	72.1	11.9
Energy (K. cal)		50.0	48.0	93.0	356.0
Protein (g)	10.70	1.2	0.9	7.2	18.7
Fat (g)	2.21	0.1	0.2	0.1	15.0
Carbohydrates	-	11.1	10.6	15.9	36.6
Fibre (%)	1.72	0.6	1.2	4.0	12.0
Ash (%)	1.57				
Calcium (mg)	41.0	46.9	80.0	20.0	1080
Iron (mg)	4.9	0.7	2.2	1.5	31.0
-carotene (µg)	64.0	0.0	1890	83.0	522.0
Vit B <sub>1</sub> (mg)	0.45	0.08	0.04	0.25	0.55
Vit B <sub>2</sub> (mg)	0.17	0.01	0.02	0.01	0.36
Vit B <sub>4</sub> (mg)	-	-	-	-	2.6
Niacin (mg)	-	0.4	0.6	0.8	-
Nicotinic acid (mg)	5.5	-	-	-	-
Choline (mg)	206.0	-	-	-	-
Ascorbic acid (mg)	-	11.0	3.0	9.0	3

believed to aid in maintenance of normal glucose levels. Onion has antibacterial properties. The sulphur containing compounds from these plants are strongly against both gram (+ve) and gram (-ve) bacteria. Onion can lower blood cholesterol and lipid levels and is useful in preventing heart diseases.

#### **Cumin- roasted (*Cuminum cyminum*):**

It is pungent, sharp and astringent. Roasted cumin is used for the development of desired flavour profile and completes the colour change. It contains 2-4 per cent essential oils. Its main constituent and important aroma compound is cuminaldehyde. It acts as a stimulant and carminative agent. Cumin seeds contain bioactive substance called phthalides which increase the levels of anti-cancer protective enzymes in the body. Cumin is a very good source of iron which is a vital component of haemoglobin. The results of present investigation are supported by the findings of Kumar and Srivastava(1998), Lal *et al.* (1998), Srilakshmi (1990).

#### **Conclusion:**

The instant vegetable *Dalia* was subjected to sensory evaluation by semi-trained judges. The product was evaluated for appearance, taste, consistency and overall acceptability by numerical scoring test. The appearance, consistency and overall acceptability of instant vegetables *dalia* was considered to be very good. The taste of instant vegetable *dalia* was excellent.

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