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Use of Antioxidant Carrot and Alma in Therapeutic Management of Thyroid Patients

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Abstract

The main purpose of study was to find out the anti-oxidant and therapeutic properties of Alma and carrot in treating thyroid patients. This both vegetables are rich in the antioxidant that gives the energy, protein, vitamins that gives the energy to the thyroid people because they need as much energy for the compare with the normal people. It is rich in vitamins that rich in the diets. The carrot and Alma good for the thyroid patients because it having the good amount of the vitamins that take for the thyroid patients. It is good for another disease also. In these both carrot and Alma present the antioxidant that treats the thyroid patient. They also help their immune system because they are having not so good the immunity so this antioxidant is help to increase the immune system and also treat them. The powder is made by the traditional method by the help of sun drying and use of dehydrator also for the drying. There are 2 dishes with two variants were prepared hence total two variants were prepared; T1 and T2.

Keywords: Carrot powder; Alma powder; Antioxidant; Thyroid

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Introduction

The thyroid is a butterfly- shaped endocrine gland located in the lower front of the neck below the larynx (voice box). The thyroid is make thyroid hormones, which secreted into the blood and carried the every tissue in the body. Thyroid hormones help the body use energy, stay warm and keep the brain, heart, muscles and other organ is working as well as they should be doing. The main hormones made by the help of the thyroxine and they also called T4 because it contain 4 iodine atoms. Small amount of another and more potent thyroid hormones containing 3 iodine atoms, triiodothyronine also called T3 are also made by thyroid gland. However, most of the T3 in the blood made from T4, via the removal of iodine atoms, in other body tissues. Thyroid hormones control the way every tissue in their body should uses the energy. They are essential help for each cell in the body tissues, and there organs work as a proper way. For example thyroid hormones control the body's temperature, heart rate, blood pressure and the rate at which food is turned into the energy i.e. metabolism.

Hypothyroidism is the one of the common thyroid disease. It affects people all over the world- of every age, sex, race and level of wealth and education. And most important more than half of populations don't know that they having this thyroid disease.

The role of thyroid in the regulation of the antioxidant systems having the context of the reproductive endocrinology. It is very well known that the thyroid function influences the ovarian activity. Reactive Oxygen Species (ROS) play physiology roles in the ovary and hypothyroidism, or low T3 syndrome that can induce ovarian dysfunction by interfering with the antioxidant systems. Oxidative Stress (OS) has been associated with both hyperthyroidism and hypothyroidism. However, the mechanisms by the help of the OS is generated these 2 clinical condition i.e. increased ROS production in hyperthyroidism and low availability of antioxidants in hypothyroidism.

Carrot is an important vegetable, which is having high nutritional value and utility, Carrot belong to the family Umbrella fear, genus Deuces, species carrot, and it is one of the important root crops cultivated throughout the world for its fleshy edible roots that in the winter season root vegetable grown extensively in various countries particularly during winter season in the tropical regions. It finds a wide application in the day to day using for making carrot juice, powder, terminated carrot sweetmeat, soup. Carrot is known for the nutrient content viz., carotene and carotenoids, besides appreciable amount of vitamins B1, B2, B6 and B12 vitamins and minerals. Hence, carrot occupy an important place in root vegetables for their multifaceted application, which turn, results in the development of various processing operations for making different products and /or extend their shelf life. Fresh carrot can't be stored for more than 3- 4 days under the room temperature, but if the shelf life extended to 7-8 months if stored

in crates covered with the perforated plastic film at 0℃ and (93% -96%) relative humidity.

Amla and also known as Indian gooseberry. Alma is highly acidic and astringent in taste due to which they are unpalatable and unsuitable for direct consumption. The excellent nutritive value and therapeutic value of the amla fruit offers an untapped potential for processing into several quality products. Hence, they are consumed mainly in the processed forms. Alma fruit is processed into marimbas, candy, dried chips, jelly, squash and syrups. To make alma a fruit of mass, products need to be a development which are attractive, tasty that should be can be consumed as a food items, but as a same time retain its nutritive and therapeutic values.

Today's health conscious consumer demand products that are convent and promote health. There is a demand for high quality, convenient , shelf life or shelf stable and RTU (ready to use) processed food products. Instant soups fall in the category of key dried foods. Soup powder is convent food items and comprised of ingredients such as corn starch, spices, and salt, flavour and flavour enhancers. Instant soup mixes gained popularity among all dehydrated products as they are very practical in the preparation and available in various packages. Soups are consumed for their nutritional benefits and by patients whose intakes of solids is reduced due to various physiological conditions. Soup formulation can be made nutritionally balanced by incorporating amla, carrot, flour- corn etc. Instant soups mixes can be used to as an alternative food for breakfast as is fulfil the adequacy of energy and nutrients required by the body.

Materials and Methods

The raw ingredients for soup and soup stick product development were brought from the local market of South city near Babashaheb bhimrao ambedkar university gate number 2 and preparation were done in the Research Laboratory of Food science and technology, School of Home Science, Babashaheb Bhimrao Ambedkar University , Lucknow, Uttar Pradesh.

Preparation carrot powder

Carrots were collected from local market fresh carrots are taking at winter seasons. And preserved in the formation of powder for later use **(Table 1)**.

Composition	% wb	% db
Moisture (%)	85.6	720.66
Ash (%)	0.62	4.99
Protein (%)	1.9	11.4
Fat (%)	3.3	2.4
Vitamin C (mg/100g)	2.5	-
Carbohydrate (%)	9.9	81.3

Table 1: Proximate composition of fresh carrot.

Preservation was done by washing the carrot and then peeling off of outer cover of carrot grind the carrots into tray than put for sun drying and for more drying put that carrot tray into dehydrator for reducing moisture content. After removal of moisture content that carrot put onto the electric mixer grinder and sieved in order to obtain fine powder and were packed into air tight plastic bags and stored in refrigerator.

Alma powder

Alma were collected from the local market fresh Alma from market. And preserved in the formation of powder for later use. Preservation was done by washing the alma and take out the seed from the alma than grind the alma into tray than put for the sun drying and for more drying put that alma tray put into dehydrator for reducing moisture content. After removal of moisture content that Alma put onto the electric mixer grinder and sieved in order to order to obtain fine powder and were packed into air tight plastic bags and stored into refrigerator **(Table 2)**.

Soup powder	Soup powder
Moisture	79
Protein	0.1
Fat	0.8
Mineral	1.5
Fibre	4.6
Carbohydrates	16.2
Calcium	0.5
Phosphorus	0.1
Iron	2.8 mg/100 g
Vitamin C	800 mg/100 g
Ash (%)	Ash (%)

Table 2: Proximate composition of amla.

Preparation of product

There were a 2 products that prepared one was 'carry am soup' and other one is 'carry am soup stick' and these both food products were incorporated with carrot and alma powder **(Tables 3-5)**.

Members	Appearance (P1)		Colour(P2)		Taste(P3)	
	T1	T2	T1	T2	T1	T2
Member1	8	7	8	8	7	8
Member 2	6	8	7	6	7	7
Member 3	5	8	8	8	5	6
Member 4	8	6	7	5	8	7
Member 5	6	5	8	5	6	8
Member 6	8	6	7	8	5	8
Member 7	7	7	8	5	8	6
Total	48	47	53	45	46	50
Average	4.8	4.7	5.3	4.5	4.6	5
Iron	Iron	Iron	Iron	Iron	Iron	Iron

Table 3: Scoring parameters : Appearance, colour, taste.

Members	Texture (P4)		Overall acceptability (P5)	
			T1	T2
	T1	T2		
Member 1	8	8	8	6
Member 2	7	8	6	6
Member 3	7	8	7	8
Member 3	8	7	8	6
Member 4	8	8	6	6
Member 5	7	8	6	5

Member 6	8	8	5	8
Member 7	7	7	6	8
Total	60	62	53	54
Average	6	6.2	5.3	5.4
Total	Total	Total	Total	Total

Table 4: Scores for parameter – Texture and overall acceptability.

Paramters	T1	T2
P1	48	47
P2	53	45
P3	46	50
P4	60	62
P5	53	54
Total	260	268
Average	52	53.6
Standard deviation	0.45	0.46

Table 5: Represents overall calculation.

After the product develop it was necessary to find out its acceptability among people hence, the products were evaluated and tested by 7 members who evaluate it 9 point in hedonic scale from dislike extremely to like extremely for 5 different parameter namely appearance, colour, texture, taste and overall acceptability **(Figures 1-5)**.

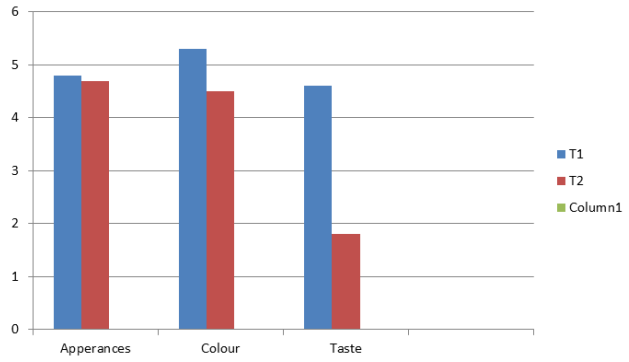

Figure 1: Graphical representation of parameters – Appearance, color and taste.

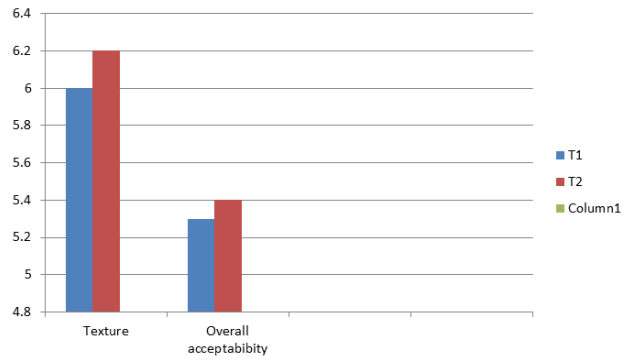

Figure 2: Graphical representation of parameters – Texture and overall acceptability.

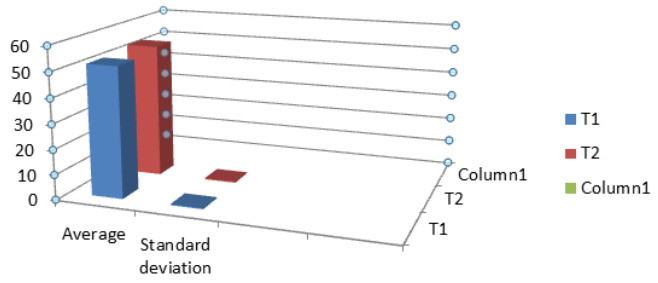

Figure 3: Graphically presenting the average and standard deviation.

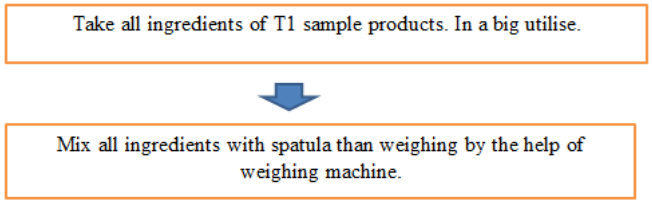

Figure 4: Showing the steps for preparation of soup powder.

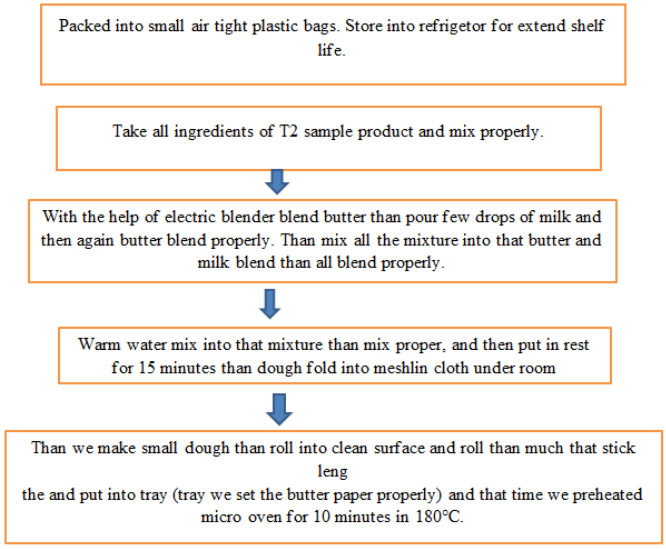

Figure 5: Showing the steps for preparation of soup powder.

Ingredients used in the product (100 gm) are as follows:-

T1 sample – carrot powder (50 gm), alma powder (15 gm), corn flour (25 gm), salt, black pepper, chilli powder, citric acid, jeera powder, chat masala (in rest 10 gm).

T2 sample – carrot powder (40 gm.), Alma powder (5 gm.), multigrain flour (40 gm.) salt, jeer powder, black pepper, chat masala (15 gm rest), butter (100 gm), milk (5 gm).

Results

Statistical analysis

Overall acceptability was evaluated by the use of the method that includes the formula for average and standard deviation based on the scores that are provide by the help of members for the deciding better on the basis of sensory quality. The formula follows:-

$S = (V \sum (xi-x)2)/n-1$

Where s = standard deviation

Xi=value in data set, x=means

N=number of values in data set.

Discussion and Conclusion

In experiment for preparation of soup powder and soup sticks with the help of the incorporation of carrot and Alma powder in different % of both powder for different food products. In below the all result and conclusion are given in details with the help of graph and tables.

This experiment was based on incorporating the food preparation with carrot and Alma powder so that that helps with these the making products could be consumed regularly as darning for thyroid patients. This dish was prepared as in traditional manner because the powder is rich in dietary fibres and vitamins, energy etc. The preparation of soup and sticks was god for the diet because it is very quickly made for those who having the busy schedule that they having no time for making proper meal so that this is very quick and healthy for them. The dish variants were scored on hedonic scale and 2 between product T1 and T2 was acceptability.

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