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DRY FRUIT CHUTNEY

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ABSTRACT

Chutney is may be lunch time staple for many but; overall chutney are failing to capture attention of many, so the focus is on making innovative and modified dry fruit chutney. This product can be preserved meaning its nutritious content remains intact and they are also low on saturated fats and high in unsaturated fats i.e. monounsaturated fatty acids and polyunsaturated fatty acids and served alongside with Indian meals. It is made especially for obesity and it can be consumed everyday without any hesitation of its high calorie intake. Hence it can be in eaten with any kind of Indian bread, snacks, salads etc. To accompany this dry fruit chutney a 7 grain khakhra (Indian roasted bread) is created which is apt combination for having along with breakfast and snacks. The long shelf life of this product is major benefit as consumers tend to eat such product little and often.

Keywords: dry fruit, chutney, side dish.

INTRODUCTION

Chutney is a term applied to a variety of spicy relishes and condiments in Indian cookery. The term itself is an anglicized form of the Hindi word *chatni*. In India, there is an implied understanding that these preparations are also freshly made from fresh ingredients. For example, chutneys using nutmeg are prepared only when nutmeg is in season, although chutneys can be composed of a wide variety of ingredients and thus represent many types of flavours and textures. In general, chutneys fall into two distinct categories: freshly-made preparations for immediate consumption and cooked preparations intended to keep as long as a year, which can be grouped further according to their saltiness, sweetness, sourness, or spiciness (Achaya, 1994).

Some of the most common chutneys in India are those made with mangoes, coconut, sesame, peanuts, or the ground leaves of herbs, especially mint or coriander. Chutneys are served as condiments (side dishes) at Indian meals; Traditional cooked chutneys made for home consumption were generally infused or slowly cooked in the hot Indian sun over a period of several days until they attained the right flavour and consistency. This method is still employed in modern India in homes which do not own stoves (Reejhsinghani, 1977).

Chutney originated in India and is prepared widely. It is one of the main accompaniments of curry. The word Chutney comes from Hindi "catni" (Indianfoodforever.com).

Chutney is essentially an Indian preparation that complements as a side dish to the main course. Chutney can be prepared with spices, vegetables, fruits and herbs. It may be sweet, sour, bitter or a combination of

both. Some varieties of Chutney have a hot and spicy flavour, while others have sweet and tangy taste. Chutney can be wet or dry, having a coarse to fine texture. Now days, Chutney has become quite popular in Western cuisine as well. Many countries have also developed their own variations to suit their taste buds to this versatile dish. Chutney has similar consistency to jelly and salsa (Enotes.com) Chutney prepared with vegetables largely depend on season and what is grown locally in a particular region (www.innovateus.net).

AIM

Aim of the study is to modify the food product and to make it more amendable every time for treating obesity condition.

OBJECTIVES

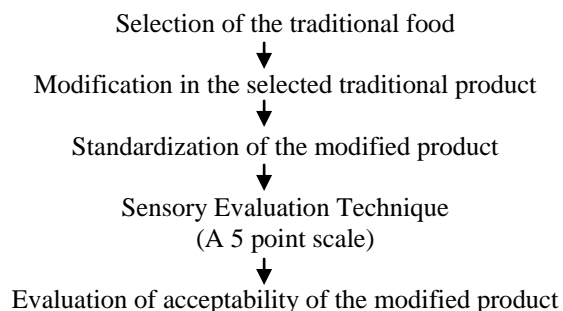
- To formulate an innovative and healthy food product.
- To do the sensory evaluation of modified food.
- To compare the traditional and the modified food.

MATERIALS & METHODS

This product was innovated in the year 2013-2014 in MSc. Clinical Nutrition and Dietetics class at Dr. B.M.N College of Home Science, SNDT University under the guidance of Dr Rupali Sengupta.

The products underwent a sensory analysis by trained panel members on the basis of appearance, colour, texture, taste, and after taste on a 5 point scale. At every sensory evaluation analysis product was modified as per the recommendations from the trained panel.

METHOD FOLLOWED IS GIVEN BELOW



STANDARDISED PRODUCT

Ingredients	Amount
Walnut	10 g
Almond	10 g
Pistachio	10 g
Garlic (fresh)	2 g
Coriander leaves	4 g
Mint leaves	2 g
Curry leaves	2 g
flaxseeds	2 g
Salt	0.5 g
Chilli flakes	½ tsp

INGREDIENTS FOR CHUTNEY

Traditional recipe		Modified recipe	
Coconut (dry)	25 g	Walnut	10 g
Garlic (fresh)	3 g	Almond	10 g
Dry red chilli	3 g	Pistachio	10 g
Chana dal	3 g	Garlic	2 g
Urad dal	3 g	Coriander leaves	4 g
		Mint leaves	2 g
		Curry leaves	2g
		Salt	0.5g
		Flaxseeds	2 g
Total	42.05g	Total	42.05 g

Table 1 - Nutrient composition of traditional chutney

Ingredients	Amt (g)	Energy (g)	CHO (g)	Protein (g)	Fat (g)	Na+ (mg)	K+ (mg)	Fiber (g)	omega-3 (g)	omega-6 (g)
Coconut (dry)	25 g	165.5	4.6	1.7	15.5	0	0	1.65	0	0.15
Garlic	3 g	3.15	0.67	0.141	0.00225	0	0	0.024	0	0.006
Dry red chilli	3 g	5.53	0.711	0.35	0.13	0.33	0.6	0.63	0	0
Chana dal	3 g	8.37	1.3	0.4	0.12	2.1	21.6	0.036	0.111	0.006
Urad dal	3 g	7.8	1.3	0.5	0.126	1.1	24	0.027	0.024	0.021
Oil	4 g	36	0	0	0	4	0	0	0	0.08
Salt	1.5 g	0	0	0	0	0.66	0.000	0	0	0
Total	42.05	226	13.181	3.091	15.878	8.19	46.2	2.3	0.135	0.263

NUTRITIONAL ANALYSIS

The nutritional evaluation of supplementary foods i.e. moisture content, fat content, protein content, ash content, crude fiber, fatty acid was carried out by A.O.A.C method.

SENSORY EVALUATION OF PRODUCTS

Prepared *chutney* were subjected to sensory analysis based on 9-point hedonic scale for color, taste, texture, flavour and overall acceptability using a panel of 10 members who are familiar with the product since childhood. Panel members were advised to use verbal descriptions and convert them into scores. The scores were based on the following criteria: Like extremely: 9; Like moderately: 7-8; like slightly: 5-6; dislike slightly: 3-4; and dislike extremely: 0-2. The scores were averaged and rounded to the nearest whole number.

EVALUATION OF THE PRODUCT

Sensory evaluation was done to find the acceptability of the product on the basis of ranking scale with the characteristics of color, texture & aroma, concept, taste and after taste. This test was done by 14 naive panel members and 4 expert panel members. The ranks were categorized as 1 – poor, 2 – fair, 3 – good, 4 – very good and 5 – excellent.

STATISTICAL ANALYSIS

The data includes mean scores for each sample as tested by both un-trained and semi- trained panelists. The results of sensory evaluation were split by panelist type and each group was individually subjected to one way analysis of variance (ANOVA) test was used to determine the differences of the mean scores for appearance, smell, taste, consistency, and general acceptability at P <0.05.

RESULTS AND DISCUSSION

Compositions of the formulated traditional chutney and modified chutney were given in Table 1 and 2. The amounts of various staples (cereals) and supplements (legumes) were calculated to provide 292 kcal and raise the protein level to 8% NPE as one third infants energy and protein requirement per day (Dewey and Brown, 2003). A comparison with the traditional

Table -2 - Nutrient composition of modified chutney

Ingredient	Amt (g)	Energy (k.cal)	CHO (g)	Protein (g)	Fat (g)	Na+ (mg)	K+ (mg)	Fiber (g)	omega-3 (g)	omega-6 (g)
Walnut	10 g	68.7	1.1	1.56	6.45	0	0	0.26	0.27	3.6
Almond	10 g	65.5	1.05	2.08	5.89	0	0	0.17	0.6	1.3
Pistachio	10 g	6.26	1.62	1.98	5.35	0	0	0.21	0.026	1.4
Garlic	2 g	2.9	0.59	0.126	0.002	0	0	0.016	0	0.08
Coriander	4 g	1.76	0.252	0.132	0.024	2.2	10.24	0.048	0	0
Mint	2g	0.96	0.116	0.096	0.012	0	0	0.04	0	0
Curry leaves	2 g	3.6	0.374	0.122	0.02	0	0	1.28	0	0
Salt	0.5 g	0	0	0	0	0.02	0.03	0	0	0
Flaxseeds	2 g	10.6	0.518	0.406	0.742	0	0	0.96	2.3	0.64
Total	42.5 grams	161 kcal	5.68 grams	6.502 grams	18.49 grams	2.2 grams	10.27 grams	2.12 grams	3.196 grams	7.02 grams

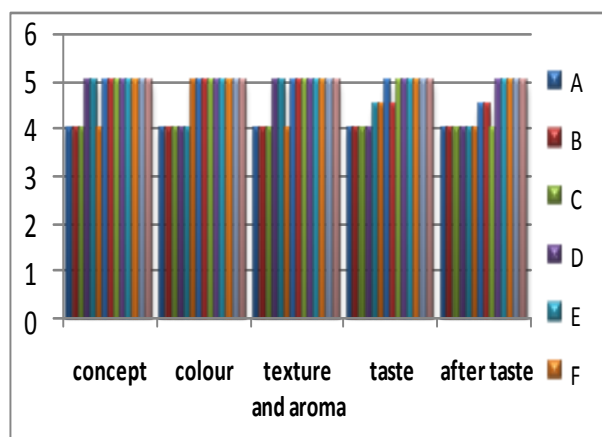
Table 3 - Comparison between traditional and modified product

Traditional recipe		Modified recipe	
Energy	266 kcal	Energy	161 kcal
Carbohydrate	13.181 g	Carbohydrate	5.68g
Protein	3.091g	protein	6.502g
Fat	15.878 g	Fat	18.49 g
Sodium	8.19g	sodium	2.2g
Potassium	46.2 g	Potassium	10.27 g
Dietary fibre	2.3 g	Dietary fibre	2.12g
n-3 (omega 3)	0.135 g	n-3	3.196 g
n-6 (omega 6)	0.263g	n-6	7.02g

RECIPE PREPARATION

Dry roast walnut, almond and pistachio until brown
 ↓
 Grind coarsely walnut, almond and pistachio
 ↓
 Keep the coarse powder separate in a bowl
 (In a blender)
 ↓
 Dry roast garlic until brown then add coriander, mint and
 curry Leaves
 ↓
 In a mixture add above ingredients and add little salt, chili
 flakes, and flaxseeds
 ↓
 Grind them coarsely
 ↓
 Add nuts powder onto garlic and coriander mixture
 (Mix with hand properly)
 ↓
 Add a pinch of powdered sugar to bring out all the flavors.

SENSORY ANALYSIS



1- Poor 2- Better 3- Good 4- Very Good 5- Excellent, A, B, C, D..... is the panel of judges who rated the product

DISCUSSIONS

The product was modified was a dry fruit chutney. The product was evaluated by sensory analysis and tasting the product. The product rated amongst was very good and excellent by the experienced and trained panel of judges. The nutritional content was much higher in modified then in traditional product, which was seen by doing comparison studies for carbohydrate, protein, fat, sodium, fiber, potassium, omega 3 and omega 6. All the ingredients in the modified product have seen to have several benefits for obesity condition.

As seen in graphical representation the macro and micro nutrients such as carbohydrates is less in modified than traditional. The protein was also high in modified, however the fat content is a little higher in modified product due to high MUFA & PUFA content of walnut, pistachio and almond and which also has potential health benefits like its shown that daily ingestion of 56 g of walnuts improves endothelial function in overweight adults with visceral adiposity. The addition of walnuts to the diet does not lead to weight gain. Further study of the

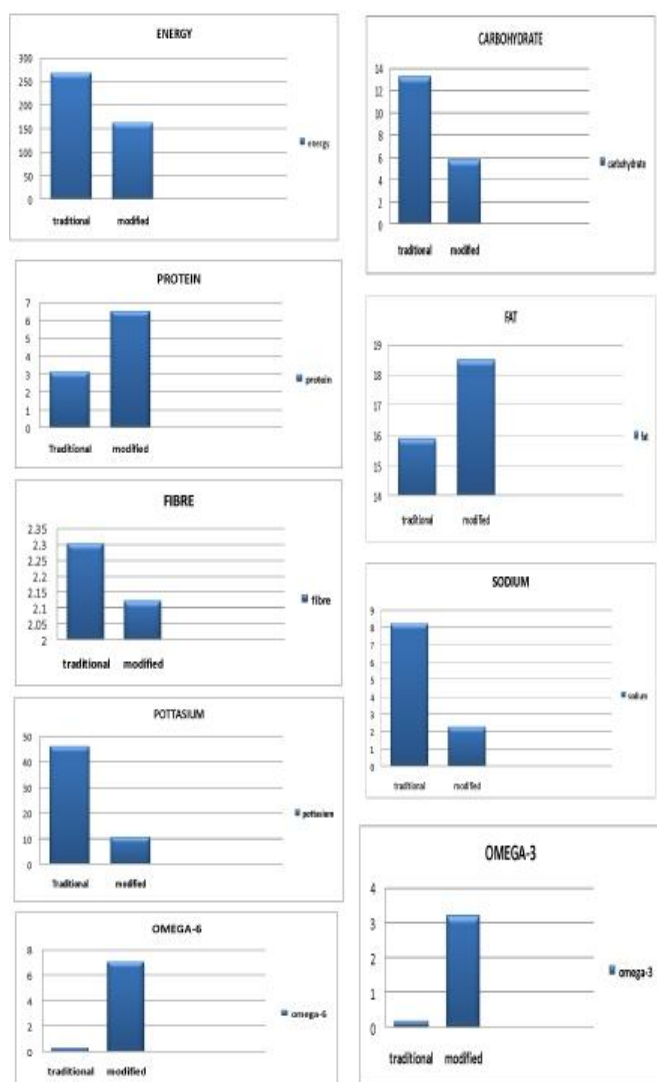


Figure 1 – nutrients present in chutney

potential role of walnut intake in diabetes and CVD prevention is warranted (Katz, 2012).

It is also observed that the presence of proteins in almonds also greatly contributes to an overall feeling of satiety, higher levels of a particular hormone called cholecystokinin, released only when eating fat-containing foods. This hormone immediately triggers a feeling of fullness and satisfaction (www.naturalnews.com).

Very little known about pistachios that they are cholesterol-free and useful in lowering cholesterol levels. They have several other cardio-protective properties and also help in reduction of blood pressure and weight. Owing to their fatty acid profile, nutritional properties and bioactive constituents, pistachios have been found to be useful in the prevention and treatment of several disorders and maintaining good health. There is also substantial evidence that pistachios help in preventing cancer, delaying ageing, maintaining good vision. The fat in pistachios is 90 per cent unsaturated. Mono-unsaturated fatty acids (MUFA). HDL cholesterol levels in women

increased when 90g pistachios were added to their diet every day (Ishi, 2013).

The health benefits of flaxseeds are remarkable because they can help improve your digestive health and lower your cholesterol.

Most people are unaware that garlic has anti-obesity and anti-inflammatory effects in the body. Garlic can reduce the amount of cytokines and macrophages released by fat tissue, which affect fat tissue and distant areas in the body (www.getprograde.com).

There is increasing evidence that consumption of unsaturated fatty acids is more beneficial rather than consuming saturated fatty acids, especially people with obesity or heart diseases.

The idea behind creating this particular product was to make it suitable for daily consumption as it is an staple during lunch time in every Indian household, also keeping in mind the vegetarian population as their diet is inadequate in protein as well as essential fatty acids, as the protein rich and essential fatty acids rich food stuff are mainly animal based which is not suitable for the vegetarians. It can be consumed by all age groups from kids to adults and can be eaten as side dish along with any food stuff.

This chutney also provides satiety and keeps full for long period of time.

The advantage of this chutney is that it's very easy to make and has a good shelf life for about 10-15 days if kept in air tight container in refrigerator.

Hence due to its benefits and advantages this product was modified for a much healthier life.

CONCLUSION

As chutneys are staple to Indian cuisine, it has been made healthier for everyday use, and is apt with any kind of Indian dish or any snack. Due to its high polyunsaturated and monounsaturated fatty acid content it helps in maintaining weight. Due to its high unsaturated fatty acid content and other health benefits “dry fruit chutney” was highly accepted.

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