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DEVELOPMENT OF FIBER RICH CUTLET USING CORN

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ABSTRACT

Kids are hungry, tired and exhausted after coming back home from the school. Children seem to have the biggest appetites at this time. They need some good heavy snacks that contain some amount of protein along with carbohydrates to refuel their body. After school, snacks also contribute to the daily nutritional needs. Cutlets are popular among children and they prefer it over traditional snacks. The present study was carried out to prepare fiber rich cutlet which could counter balance the affect potato cutlet. Fiber rich cutlet was prepared by replacing potato (standard recipe) different proportions *i.e.,* 5gm, 10gm, and 15gm of corn. The grains were soaked in water for 12 hrs at ambient condition and ground to fine paste and mixed with boiled and mashed potatoes to prepare the cutlet. Organolaptic and nutrients evaluation concluded that the most acceptable levels of corn incorporation were 3rd ratio *i.e.,* 15 percent. Nutrition composition of corn cutlet showed the analyzed value of moisture (51.80), protein (1.37), fat (13.95), ash (1.8), fiber (2.65), carbohydrate (28.43) and energy (244.75) per 100gm respectively. Corn cutlet was found to have maximum amount of protein, least amount of fat, calories but with good amount of fiber and can be claimed for functional health benefits.

Key Words: Health benefits, Dietary fiber, Corn and Sensory characteristics.

INTRODUCTION

Epidemiological research has demonstrated a relational ship between energy rich diet and chronic diseases (Best, 1991; Kaeferstein and Clugston, 1995) and thus diet with high fiber has been recommended (Johnson and Southgate, 1994). Dietary fibers are incorporated in the products for their functional and technological properties (Thebaudin *et al.,* 1997). Various types of fibers have been used in the products to increase the cooking yield due to their water and fat binding properties (Cofrades *et al.,* 2000). Effect of varies fibers on food differs according to quantity and nature of dietary fiber (Thebaudin *et al.,* 1997). Hence this study was carried out to assess the utility of corn in formulation of cutlets, to standardize potato cutlet using corn and to evaluate the quality attributes.

MATERIAL & METHODS

Corns were locally collected and cleaned of material and soaked in water for 12hrs at ambient condition. Cutlets were prepared with different (5, 10, 15gm) of corn besides other additives, like onion, ginger garlic paste, chilies and coriander leaves used for flavouring the product. The corns were grounded to a fine paste and mixed with potatoes to prepare the cutlets by standardize procedure.

PREPARATION OF CUTLET

Table 1 - Ingredients

Potatoes medium sized	2
Breadcrumbs	115 gm
Coriander seeds	5 gm
Ginger paste	10 gm
Green chilies	4
Red chilies powder	5 gm
Refined oil	10 ml (for deep-frying)
Salt	According to taste

Boiled potatoes in salt water peeled and then mashed. Cleaned, washed and chopped green chilies and coriander leaves. Heated oil and added coriander seeds. When it crackled, added ginger paste, garlic paste, green chilies and stirred for a movement. Added red chili powder, coriander powder and turmeric powder while stirring continuously. Added different portions of corn and cooked and shallow fried. Added potato, adjusted salt and continued cooking till masala completely dried up. Removed and cooled it, now mixed well with breadcrumbs. Divided into small equal portions; gave each portion a cutlet shape. Deep-fried in moderate hot oil until it became crisp. Served hot. Organolaptic evaluation was carried out at 9-point hedonic scale by a panel of 10 judges. From this the most acceptable product in each

treatment was selected for further studies. Best selected product from each treatment was replicated thrice and sensory evaluation and chemical evaluation was carried out.

NUTRIENT ANALYSIS

Analyzing the nutrient composition of developed product is essential so the product developed was analyzed for proximate composition as moisture, fat, protein, fiber and ash content (AOAC, 1980). Carbohydrate and calorie content were determined by calculation method. The fiber content was estimated by acid alkali digestion method as suggested by Chopra and Kanwar (1978).

RESULT AND DISCUSSION

SENSORY EVALUATIONS

Sensory evaluations have always been recognized to be deciding factors in the acceptance and enjoyment of food by masses and have an edge over other equally important nutritional and safety aspects. Organoleptic scores for flavour, texture, taste has been presented in table 2.

Table 2-Mean Sensory Scores

Treatments	Control	Corn		
	C1	R1	R2	R3
Appearance	9	8	9	9
Colors	9	7	7	9
Flavour	9	6	5	8
Texture	8	7	8	9
Taste	9	6	5	8
Total	44	34	34	43

C1-control   R1-ratio (5%)   R2-ratio (10%)
R3-ratio (15%)

It was found that cutlet with 15 per cent of corn highly acceptable ranging between 8-9.

Plate 1- Control

Plate 2-Cutlet fortified with Corn

Proximate composition of the cutlets
The nutrient analysis of food is an important part of quality assurance. Various types of samples may require analysis as a part of research programme, as new food products are developed or as part of quality assurance for existing products. Cutlets were analyzed for moisture, protein, fat, fiber, carbohydrate and energy content and the results were presented per 100gm cooked wt basis.
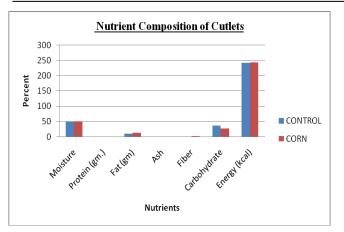
NUTRIENT CONTENT OF CONTROL

Data regarding the proximate composition of non fortified cutlets that is Control has been presented in Table 3. The moisture content of the cutlets was found to 50.16 percent. The protein and fat content was estimated to be 1.04 & 10.35 percent respectively. The ash and fiber content was found to be 1.3 and 0.78. The energy and carbohydrate was estimated to be 242.79 & 36.37 respectively.

NUTRIFICATION WITH CORN

Data regarding the proximate composition of corn-fortified cutlets has been presented in Table 3. The moisture content of the corn nutrified cutlets was found to 51.80 per cent which was less than that reported by Talukder and Sherma (2009) in meat fortified patties with 15 percent of corn. The protein and fat content was estimated to be 1.37 and 13.95 percent respectively. The protein content was higher when compared to control. The ash and fiber content was found to be 1.8gm and 2.65gm, which was high when compared to control. The energy and carbohydrate was estimated to be 244.75kcal and 28.43gm respectively.

Table 3-Nutrient Composition of Cutlets

Name of the nutrient	Control	Corn
Moisture	50.16	51.80
Protein (gm.)	1.04	1.37
Fat (gm)	10.35	13.95
Ash	1.3	1.8
Fiber	0.78	2.65
Carbohydrate	36.37	28.43
Energy (kcal)	242.79	244.75
Cooked weight	139 gm	138 gm

Nutrient Composition of Cutlets

CONCLUSION

After conducting the sensory and nutrient analysis it can be concluded that in corn the most acceptable levels of fortification was corn *i.e.,* 15 per cent. According to the nutrient composition corn cutlet was found to have maximum amount of protein, least amount of fat, calories but with good amount of fiber. This can be a nutritional and low cost food supplement for children.

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