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Modified Snack Recipe Varagu Tikki for Diabetes Mellitus

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Abstract: *Varagu (bhagar) is a well-known millet in India which is generally consumed only during traditional fasting. VARAGU TIKKI (cutlet) is a modification of traditional Aloo Tikki in respect of its nutritional aspect specially for people suffering from diabetes mellitus. The main ingredient used to lower its glycemic index and increase fiber content is Varagu. The additional nutritional benefits are provided by carrot, bengal gram whole and functional foods like flax seeds, curd, coriander leaves.*

It is a perfect diabetes-friendly snack in which varagu provides high fiber that is known to lower blood glucose level. Carrot provides a good amount of antioxidants. Flax seeds are a good source of omega 3 fatty acid and soluble fiber that help to prevent fluctuation in blood glucose level. Curd acts as a good binding agent as well as probiotic. These dietary changes were replaced with varagurice, bengal gram flour and carrot hence could be associated with a lower risk of diabetes and might be an appropriate component of recommendations for an overall healthy diet.

Based on these facts we could conclude that this modified VARAGU TIKKI is nutrient dense, low calorie, low glycemic index, handy, palatable and attractive. The additional benefit of this snack is its cost effectiveness and could be consumed by all classes of the population and all age groups.

Keywords: *Varagu, Diabetes Mellitus, Low Glycemic Index,*

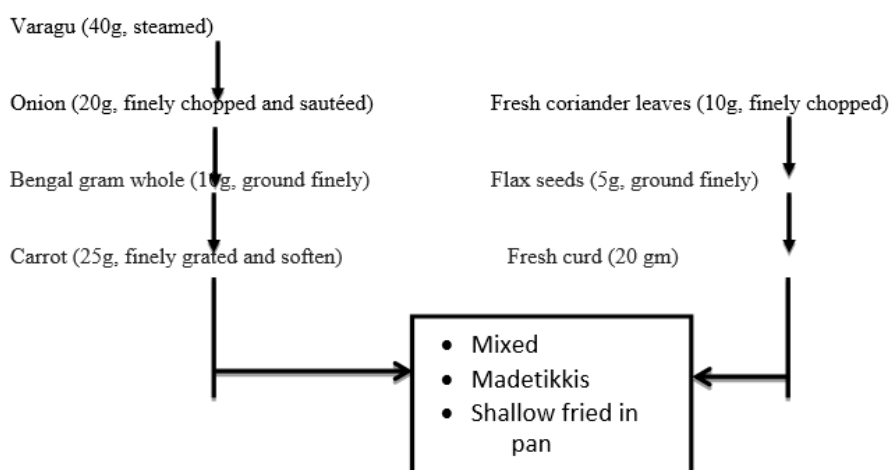
INTRODUCTION

Diabetes is among most popular disorder in India today for the very obvious reason that every fifth person who suffered from diabetes in the world today is an Indian. Out of the total number of persons suffering from diabetes in the world, which is around 150 million, roughly 35 million are Indians. (Prabha, 2015)

Diabetes mellitus is a metabolic disorder characterized by a lack of the hormone insulin in the blood, which leads to abnormalities in the assimilation of carbohydrates by the body. The old terms of 'juvenile onset' and 'maturity onset' diabetes have been replaced by 'Type I and Type II' because the age of onset is not the initial determinant of the form of diabetes. The most common causes of diabetes are heredity, improper dietary habits, lack of exercise, side effects of drugs and toxins, the effect of hormones, psychological factors, as a sequel to other diseases like pancreatitis and heart attacks. The main symptom of diabetes mellitus includes polydipsia, polyuria, polyphagia. Other symptoms are blurred vision, skin irritation, general weakness and loss of strength. Finally, it leads to water and electrolyte imbalance, ketoacidosis and coma. Chronic complications include retinopathy, nephropathy, neuropathy, and recurrent myocardial infarction with an increase in the incidence of congestive heart failure, ulceration, sepsis of feet and even gangrene. A high complex carbohydrate and low-fat diet, which contains a variety of fruits and vegetables, would be an ideal diet for diabetics. The WHO report suggests that over the 19 percent of the world' diabetes population currently resides in India and it will increase 80 million in the year of 2030. (Prabha, 2015)

METHODOLOGY

Flow chart for NUTRI TIKKI preparation



Traditional tikki is made by using potato, bread crumbs, green peas, corn flour. The tikkis are then deep fried. These ingredients are not at all suitable for diabetic patients due to their high starch and high-calorie content.

RESULTS AND DISCUSSION

Nutritive value comparison of traditional and modified recipes:

MODIFIED RECIPE (NUTRI TIKKI)				
Ingredient	Amount (gm)	Energy (kcal)	Protein (gm)	Fat (gm)
Varagu	40	123	3.32	0.47
Carrot	25	12		
Bengal gram whole	10	36	1.71	0.53
Coriander leaves	10	4		
Flax seeds powder	5			
Oil	5	45		5.00
Onion	20	10		
Curd	20	13	0.62	0.80
Total		243	5.65	6.80

TRADITIONAL RECIPE (ALOO TIKKI)				
Ingredient	Amount (gm)	Energy (kcal)	Protein (gm)	Fat (gm)
Potato	100	100		
Bread crumbs	10	25	0.88	
Green peas	25	23	1.70	
Corn flour	10	33		
Oil	15	135		15
Total		316	2.58	15

The overall acceptability with respect to the nutritive value of NUTRI TIKKI is significantly higher in comparison with traditional tikki prepared.

CONCLUSION

Diabetes is a disease where many food items are restricted as they increase blood glucose level. Traditional Aloo Tikki is one of such food items which cannot be consumed by diabetics due to its high glycemic index and high caloric value. Therefore this modification of traditional recipe into modified **NUTRI TIKKI** was done for the prevailing lifestyle disorder such as diabetes mellitus. The nutritive value of this modified recipe was significantly higher than the traditional recipe. Its low glycemic index and high fiber content make it a perfect snack for diabetic population. The cost analysis showed it to be highly cost effective and hence affordable to all classes of society. The preparation method is also easy.

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