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Original Paper

Modified dessert recipe NUTRI DESSERT (Carrot Oatmeal Muffins) for Diabetes Mellitus

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Abstract
Consuming desserts has always been a constraint for diabetic patients as it leads to elevation in blood glucose levels. While carrots and oats are essential for visual function and high fibre content respectively, they have a potential role in preventing diabetic complications. Thus, NUTRI-DESSERT (Carrot Oatmeal Muffins) was a modification of traditional cupcakes which werenot suitable for consumption especially for diabetics.
NUTRI-DESSERT is a special treat for diabetics in respect of its high nutritive value and low glucose contentas oats contains high soluble fibre which delays glucose absorption. Whole wheat flour being rich in fibre enriches the cake with B -Complex vitamins compared to white flour. Carrot acts as an anti-inflammatory agent to reduce risk of diabetic complications. Replacing sugar with natural sweetener ashoney makes it diabetic friendly. PUFA is known to be anti-atherogenicthus usage of vegetable oil over butter (saturated fat) adds special value to it.
This modified NUDRI-DESSERT with low glycemic impact wasan ideal dessert for diabetic subjects who usually have sugar cravings. This modification showed that substitution of sugar with honey and dates did not alter its palatability. Above facts also enhances uniqueness and should be promoted for consumption by discarding the misconception that they cannot have desserts.

Introduction

Diabetes mellitus remains an incurable disorder which is associated with poor quality of life, cardiovascular complications, increased mortality and morbidity. The recent statistics shows that the global prevalence of this disorder continues to rise unabated and thus becoming an epidemic. This is of public health concern due to its social and economic burdens. Even though diabetes has no known cause, complex interplay of several factors including genetic, social and environmental factors is implicated in its etiology. At the moment, the management of this disorder entails increased physical activity, healthy diet and administration of anti-diabetic drugs and/or insulin. However, the currently available anti-diabetic drugs are far from being satisfactory. This may partly be attributed to the fact that diabetes is a disorder with multifactorial and heterogeneous etiologies. Besides, these agents are costly and in some cases, not readily available. *(Omotayo Erejuwa, 2014)*

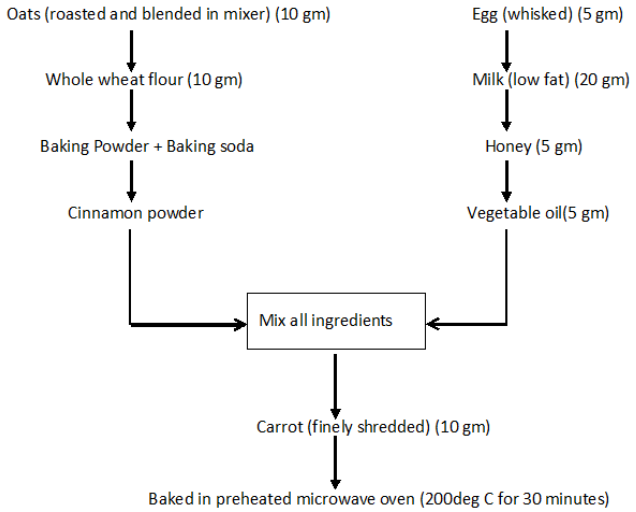
Statistics showed that the prevalence of diabetes mellitus, estimated as 285 million people in 2010, is predicted to increase to 439 million people by the year 2030. Majority of this diabetic population

will emerge from developing countries. Despite the availability of various classes of antidiabetic agents, diabetes mellitus remains a major cause of mortality and morbidity globally. As a result, there has been a considerable effort to search for more effective drugs. This has resulted in a renewed interest in research that investigates the health benefits of herbs and natural products including honey in the management of diabetes mellitus. (Omotayo Erejuwa, et al, 2012)

Honey is a natural substance produced by bees from nectar. It is considered one of the least untreated natural food substances. The composition of honey is influenced by a number of factors such as geographical origin, botanical sources of nectar, environmental and climatic conditions as well as processing techniques. The various varieties of honey may be grouped into monofloral or multifloral. The classification basically depends on whether a dominating pollen grain originated from only one particular plant (monofloral honey) or no dominant pollen type in the sample (multifloral honey) (Omotayo Erejuwa, et al , 2012)

Methodology

Flow chart for NUTRI-DESSERT preparation



Traditionally, cupcakes are prepared by using white flour, eggs, sugar, brown sugar, milk, baking powder, baking soda, nutmeg, artificial colours and flavours, vanilla essence. These cupcakes do not make a suitable dessert for diabetics due to direct usage of sugar, white flour and artificial ingredients which can produce harmful effects to patients if consumed in large quantity.

Results and Discussion

Nutritive value comparison of traditional and modified recipes:

MODIFIED RECIPE (NUTRI-DESSERT)				
Ingredient	Amount (gm)	Energy (kcal)	Protein (gm)	Fat (gm)
Oats	10	37	1.36	0.76
Whole wheat flour	10	34	1.21	
Egg	5	9	0.60	0.60
Carrot	10	5		
Honey	5	20		
Dates	2	7		
Vegetable oil	5	45		5.00
Milk	20	14	0.64	0.82
Total		171	3.81	7.18

TRADITIONAL RECIPE (CUP CAKE)				
Ingredient	Amount (gm)	Energy (kcal)	Protein (gm)	Fat (gm)
Refined flour	30	100	3.00	0.50
Egg	10	18	1.20	1.20
Sugar	15	60		
Butter	10.5	95		10.20
Dry fruits	5	32	1.00	3.00
Milk	20	14	0.64	0.82
Total		279	5.84	15.72

Based on above nutritional facts the overall acceptability of NUTRI-DESSERT in terms of its nutritive value, glycemic index, appeal, texture, palatability was found to be significantly better than the traditionally made cupcakes.

Conclusion

Desserts have always received maximum attention. However diabetics have to keep themselves always from this feast. Traditional cakes laden with saturated fats, sugar and processed carbohydrates and additives lead to

substantial increase in blood glucose level. Consumption leads to rapid fluctuations in glucose levels and further diabetic complications. The NUTRI-DESSERT (carrot oatmeal muffins) with its high fibre content, low glycemic index, natural sweeteners, antioxidant and poly unsaturated fatty acid makes it a perfect dessert treat for diabetics. The cost analysis indicated cost effectiveness of NUTRI Dessert over traditional cake.

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