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STUDY ON HYPOGLYCEMIC ACTIVITY OF FUNCTIONAL FOOD

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ABSTRACT

The study was designed to develop a functional food with hypoglycemic qualities and investigate its effect on diabetic patients. Three food ingredients namely a millet – sorghum, a legume – soybean and a medicinal green leaf – *Ocimum Sanctum* were selected based on their known qualities of promoting hypoglycemia. The functional food product, a biscuit, was developed with the above ingredients, subjected to sensory evaluation and found highly acceptable. The nutrient composition of the biscuit was also analyzed and it was found to contain 4.5g % of protein, 12.5g% of fat, 0.34 mg% of vitamin C, 153.1 mcg % of total carotenes, 0.03 mg % of iron, 0.05 mg % of calcium and 0.18 mg % of zinc. The glycemic response to experimental product namely biscuit was studied on six non-insulin dependent diabetic male subjects. A glucose load of 75g was administered and the individual's response to it recorded. The glycemic index of the developed functional food, the biscuit containing an equivalent amount of carbohydrate was tested. The area under the two-hour glucose stimulation curve (AUC) was calculated from each subject. The blood samples collected were analyzed for plasma glucose by the Glucose-oxidase peroxidase method. Results obtained indicated that the mean peak rise over fasting levels was significantly lower ($P<0.05$) after biscuit consumption when compared to glucose intake. The mean AUC was significantly lower ($P<0.05$) compared to glucose. The mean glycemic response of biscuit was low being 0.88.Besides glycemic response, a three-day supplementation study with the developed product was carried out on fifteen NIDDM subjects. Fasting and postprandial blood samples were estimated before and after supplementation for three days. Results showed that the mean serum glucose level before supplementation was 173.9 $\pm$ 86.1 mg % whereas after supplementation it was 142.3 $\pm$ 32.5 mg %.Thus the differences observed in glycemic response to test product may have been brought about by the functional food product, which was developed by using sorghum, soy and Ocimum leaf powder. The biscuit had a comparatively lower glycemic response and was found to be suitable snack for diabetic patients.

KEYWORDS: Functional Food, Glycemic Index, Serum Glucose Levels, Glucose Stimulation Curve (AUC), Non-Insulin Dependent Diabetic Male (NIDDM) Subjects, Hypoglycemic Activity