

SPECIMEN FORMAT FOR THESIS OF MONTH

Faculty : Home Science

Department : Food Service Management and Dietetics

Branch/ Area: : Clinical Nutrition

Sub Subject Heading: : Clinical Nutrition

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Title of the thesis : Efficacy of Prebiotic Food in the Management of
Hyperlipidemia

(i) In Roman Script -

(ii) In roman Script -

Nomenclature of Degree: :

Month & Year of Enrolment: : February, 2012

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Name of Supervisor : Dr. S. Uma Mageshwari

Designation of Supervisor : Associate Professor

Centre/department/school in which research was conducted : Food Service Management and Dietetics

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Abstract: The study was conducted with the primary objectives to study the consumption pattern of prebiotic foods, to develop a prebiotic food and find out its effect on hyperlipidemic subjects. Assessment of knowledge, awareness and practice of prebiotic food consumption pattern was studied among 1400 subjects using a standard questionnaire. The area selected for the study was urban areas of Coimbatore city. Adolescents in the age group of 10-19 years, adults in the age group of 20-60 years and elderly in the age of 60-70 years were included in the study. Background details such as education, occupation and income status was elicited. A 24 hr recall method and food frequency was used to obtain information on prebiotic food consumption pattern among the subjects. Prebiotic biscuits were developed and standardized through test and trial method for all the variations to get consistent final products. A standard biscuit and three variations namely P1, P2 and P3 was formulated. Inulin was added replacing fat in the standard-0%, P1-100% P2-62% and P3-37%. The biscuits were evaluated for sensory attributes such as appearance, color, flavor, taste, texture, and overall acceptability. Nutrients such as energy, protein, carbohydrate, fat, fibre, free fatty acid and total antioxidant activity were analysed for P1, P2 and P3 using standard procedures. Nutrient content in inulin powder was analysed for carbohydrate, fat, fibre and total antioxidant activity. A government sector namely Bharat Sanchar Nigam Limited in Saibaba colony, Coimbatore was selected to identify the target groups i.e. hyperlipidemics through purposive sampling technique. Two hundred and four subjects were screened for their lipid profile. The Inclusion criteria included both gender in the age group of 30-60 years with no known disease. Thirty hyperlipidemic subjects were selected and grouped into two groups namely experiment group and control group with 15 subjects each. Experimental group was supplemented two prebiotic biscuits with (11gm of inulin) for 60 days as a snack. Anthropometric details of the selected subjects were assessed using standard procedure. The dietary intake was monitored and recorded using a daily food chart. The diet pattern and consumption pattern of fats/oil, consumption of coffee and prebiotic foods were elicited from the subjects. An informed consent was taken from all the subjects and the serum lipid profile was assessed for pre intervention (0 day), mid intervention period (30th day) and post intervention (60th day) and the results were inferred. Twenty five percent of the population were found to be aware of prebiotics. Awareness of prebiotics and its health benefits among the consumers was found to be dependent on gender, educational and occupational status of the consumers. Evaluation of snacking pattern among the adults in the pilot study showed that fried snacks were consumed daily. Addition of inulin can give rise to products with different rheological behavior and sensory characteristics. P2 was acceptable with a high score for overall acceptability (7.45±0.39) among the three. The attributes for appearance, taste and texture was comparatively high. Hence P2 (Fat replaced and sugar removed) presented similar results to the standard. Among the biscuits P1, P2 and P3, fat content was found to be highest in P3 (25.88gm) which can be attributed to the fat added in the formulation. The inulin content in P1, P2 and P3 was 25.7gm, 34.5gm and 19.1 gm respectively. Antioxidant activity was also observed in all the biscuits and activity was highest in P2 (229.54µg). Mean body mass index of the subjects showed that

all the subjects were overweight however no significant changes on the BMI values of the experiment subjects. Prebiotic supplementation was positively associated with decrease in TC, TGL, LDL-c and increased HDL-c. VLDL-c levels did not show any significant changes. Control subjects showed no significant changes in their lipid profile post intervention. The results indicate that diet rich in inulin has beneficial effects on total cholesterol, triglycerides and LDL-C, as well as HDL-c concentration in the hyperlipidemic subjects. Hence Regular intake of fermentable fibres such as inulin may play an important role in determining the health benefits associated with prebiotic intake.

Major objectives:

The present study was formulated with the following objectives:

- To study the consumption pattern of prebiotic foods and develop a prebiotic food
- Find out its effect on hyperlipidemic subjects

Findings:

Hyperlipidemia is a major risk factor contributing to mortality burden of cardiovascular diseases. Prebiotics are known for their nutraceutical effects and can influence the blood lipid levels. The approach of using prebiotics in diet to modulate serum lipid level is a promising method to mitigate the attenuated effect in hyperlipidemics and the present study focus in the line of using this approach by developing efficacious prebiotic food using inulin giving the product a novel function. The results indicate that diet rich in inulin has beneficial effects on total cholesterol, triglycerides and LDL-C, as well as HDL-c concentration in the hyperlipidemic subjects. Hence Regular intake of fermentable fibres such as inulin may play an important role in determining the health benefits associated with prebiotic intake.

Examiners

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