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Effect of cereal bran (millet bran and corn bran) on the plasma lipids of hypercholesterolemic human subjects

J Gooneratne[1*], L W S Munasinghe[1], W R M J Senevirathne[1] and G Wijesuriya[2]
[1] *Industrial Technology Institute, Colombo 07*
[2] *Teaching Hospital, Ragama*

The study evaluated the blood cholesterol lowering effects of composite flour containing rice flour blended with millet bran and corn bran.

Composite flours were prepared by blending millet/corn bran with rice flour to contain a total dietary fiber content of 16.5 g per 100 g. 28 hypercholesterolemic subjects (17 men and 11 women) age 35 to 64, with hypercholesterolemia (mean plasma total cholesterol = 6.64 mmol/ L, LDL-cholesterol = 4.41 mmol/ L) who were not treated with lipid lowering drugs participated in the crossover design study. (Hypercholesterolemia was defined as plasma cholesterol level of 6.18 mmol/ L to 7.72 mmol/ L). All subjects were randomly allocated to the corn bran or millet bran composite flour diet. After a three-week baseline diet, all subjects had consumed 8-week test diet, a four-week period of millet bran or corn bran diet and then crossed over to the alternate bran for a further period of four weeks. A daily record of their food intake was maintained throughout the study.

During the test periods, the average dietary intake of energy, protein and fat were 2344 Kcal, 89.9 g and 39.9 g respectively. The main source of fat is from coconut. Millet bran & corn bran blended flour diets contained an insoluble to soluble fibre ratio of 14.1:2.4 and 14.8:1.7 respectively. Both diets reduced significantly ($P < 05$, two-tailed) plasma total cholesterol (5.81 $\pm$ 0.07 mmol/ L, 5.74 $\pm$ 0.08 mmol/ L) and LDL-cholesterol concentrations (3.90 $\pm$ 0.07 mmol/ L and 3.74 $\pm$ 0.08 mmol/ L) at the end of the study. Both corn and millet have lowered the plasma total cholesterol by 12 % and 13 % and LDL-cholesterol by 11 % and 15 % respectively when compared with baseline. No significant differences were observed in the plasma HDL-cholesterol and plasma triglycerides levels.

Our results indicate that, a diet high in insoluble fiber can significantly lower plasma total cholesterol and LDL-cholesterol in hypercholesterolemic subjects.

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