

## CS 8.

### FIBER COMPOSITION AND DIETARY EFFECT OF SELECTED VEGETABLES ON THE SERUM CHOLESTEROL LEVELS OF RATS

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Ischaemic heart disease is a major cause of mortality among the middle aged population in Sri Lanka, and hyperlipidaemia has been identified as a common risk factor. Since cholesterol is reported to have the greatest atherogenic potential, dietary intervention in lowering serum cholesterol is of importance. The role of dietary fiber in lowering serum cholesterol is also recognized.

An investigation was carried out to determine the fiber composition of locally available vegetables and the effect of five selected vegetables on the serum cholesterol levels of rats was studied. Two grams of oven dried (70° C) edible portions of fifteen selected vegetables, in triplicate, were analyzed using Helleboom's enzymatic and gravimetric procedure and the fiber composition was calculated as a soluble dietary fiber (SDF) insoluble dietary fiber (IDF) and total dietary fiber (TDF) per non pectin fiber, as g per 100 g dry weight.

Three months old, male, Sprague-Dawley rats of weight 169-195 g, in groups of three, were fed with prima broiler feed, with and without oven dried vegetables (25%w/w), supplemented with cholesterol (1%w/w) and cholic acid (0.2% w/w). After 3 weeks the rats were bled after a 14h fast and their serum total cholesterol and HDL-cholesterol, were estimated enzymatically using the Randox kits. The results were analyzed for any significant cholesterol lowering effect using Duncan's multiple range tests.

Leafy vegetables had the highest mean TDF (69.3 to 55.0) with pulses having intermediate values (51.6 to 24.6) and pumpkin and garlic having the lowest values (18.9 and 12.2). SDF was highest in carrot, brinjal, snake gourd, bitter gourd and radish and these ranged from 24.9 to 14.3. These five vegetables when tested with the rats, didn't cause an appreciable change in either total cholesterol or HDL-cholesterol, except with bitter gourd which was found to be significantly different from the group, for total cholesterol at  $\alpha = 0.05$ , and for non HDL-cholesterol at  $\alpha = 0.10$ .

Bitter gourd had a marked cholesterol lowering potential when compared to other vegetables tested. Further investigation is necessary to determine other dietary factors that may affect cholesterol metabolism, in addition to dietary fiber.