

**A-06: Effects of cholesterol-enriched diets on blood cholesterol levels in Wistar rats**

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Epidemiological studies show that high blood cholesterol (hypercholesterolaemia) is a potent risk factor for cardiovascular diseases. Studies indicate that enrichment of the diet with cholesterol and fat increases the blood cholesterol levels in animals as well as humans. To study the cholesterol lowering effects of Sri Lankan medicinal plant extracts a hypercholesterolaemic animal model is needed. Most investigators have used diets enriched with a high percentage of cholesterol (2%) together with fat and bile salts etc. to induce hypercholesterolaemia in animals. This study was carried out using male Wistar rats to investigate whether enrichment of diets with cholesterol alone at concentrations as low as 0.25% or 0.5% has any significant effects on the blood cholesterol levels. In this study, 36 rats (12 weeks old, male) were divided randomly into 3 groups (groups I, II and III). Group I was fed with a control diet (standard lab chow prepared at the Medical Research Institute, Colombo), group II was fed with a 0.25% cholesterol-enriched diet, and group III was fed with a diet enriched with 0.50% cholesterol, for 2 weeks. The total serum cholesterol level of the rats were determined by an enzymatic, colorimetric assay using a diagnostic kit obtained from Sigma Chemical Co., U.S.A. After one week of feeding, the total serum cholesterol level of rats in groups II and III were higher ( $50\pm 18\%$  and  $80\pm 15\%$  respectively) than group I. Enrichment of the diet with 0.25% cholesterol for 2 weeks increased the serum cholesterol by  $68\pm 19\%$  while enrichment with 0.5% cholesterol resulted in an increase of  $80\pm 14\%$  which is the same as that at one week.

This investigation indicates that enrichment of the diet with cholesterol levels as low as 0.25% is sufficient to induce hypercholesterolaemia in Wistar rats.

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