

**EFFECT OF COWPEA (*Vigna unguiculata* L. Walp.)  
INCORPORATED DIETS ON SERUM LIPIDS, CAECAL  
BACTERIAL POPULATION AND LIVER ANTIOXIDANT  
CAPACITY IN WISTAR RATS (*Rattus norvegicus*)**

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Hypercholesterolemia is considered as an important factor in the development of atherosclerosis, which may lead to coronary heart diseases (CHD). This study was carried out to investigate the *in vivo* hypocholesterolaemic effect of commonly consumed cowpea cultivars in Sri Lanka. Seven weeks old 36 Wistar rats were fed with four cultivars of cowpea powder (Dawala, Waruni, Bombay and MI 35) incorporated high fat diets (HFD) for six weeks. Rats were divided into six groups and assigned to six treatments randomly (DAF, WAF, BBF and MIF; with 20% cowpea powder + 30% fat; and CNN and CNF; two controls with 20% casein, 20% casein + 30% fat, respectively). The serum Total Cholesterol (TC), High Density Lipoprotein Cholesterol (HDL-C), Low Density Lipoprotein Cholesterol (LDL-C) and Triacylglycerol (TAG) concentrations were measured at the beginning and at the end of experiment. Total anaerobes, *Lactobacilli* and *Coliform* counts in caecal contents were enumerated and cecum weight, abdominal fat mass, kidney fat mass, liver weight and liver 2-thiobarbituric acid reactive substance (TBARS) values were measured at the end of the experimental period. Data were analyzed using ANOVA procedure in completely randomized design and Duncan's multiple range test. Serum TC, LDL-C and TAG concentration were lower ( $p < 0.05$ ) in BBF and MIF than CNF control. Higher ( $p < 0.05$ ) *Lactobacilli* and total anaerobe counts were observed in MIF than CNF control. DAF, WAF and BBF fed groups had higher ( $p < 0.05$ ) faecal weight than CNF control. Liver TBARS values were lower in cowpea incorporated diet fed rats than the controls. Antioxidants and dietary fiber present in cowpea may be at least partially responsible for lower ( $p < 0.05$ ) TAG concentration in WAF, BBF and MIF than CNF control. These results indicate that, cowpea incorporated diets modulated liver antioxidative capacity, caecal fermentation and serum lipids in rats.

**Key words:** Caecal bacteria, Cowpea, Hypercholesterolemia, Liver TBARS, Serum lipid