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Coconut galactomannans stimulate favorable gut microbes and lowers serum total and LDL cholesterol in broiler chickens

Jaanaki Gooneratne[1*], K Samarasinghe[2] and J Vidanarachchi[2]

[1] *Food Technology Division, Industrial Technology Institute, Colombo*

[2] *Department of Animal Science, Faculty of Agriculture, University of Peradeniya*

A feeding trial of 5 weeks duration was conducted to investigate the prebiotic effect of a galactomannan (galactose : mannose ratio: 1:5) isolated from coconut meal polysaccharides on gut microbes and serum lipid profile of broiler chickens.

One hundred and twenty chicks (Hubard, 15 days old) were housed in 12 cages (10 per cage). An on-farm prepared control diet and two test diets containing galactomannans added at 750 and 1500 ppm were randomly assigned to the 12 groups of chicks with 4 replicates. Feeds and water were offered *ad libitum* for five weeks. Group feed intake and body weights were recorded weekly. At the termination, birds were slaughtered and ileal and caecal contents were aseptically transferred to pre-prepared McCartney bottles. Lactic acid bacteria were enumerated on de Man, Rogosa, and Sharp agar-MRS, after anaerobic incubation at 37˚C, 48 h. Coliform bacteria were counted on MacConkey

agar after aerobic incubation at 35˚C for 24 h. The weights of liver and the skinned carcass were recorded for each bird. Blood samples collected at slaughter were subjected to lipid profile analysis. Colony Forming Units (log CFU/ g content) of lactic acid bacteria in ileal (9.73) and caecal (10.41) contents were significantly increased (P> 0.05) to 10.65 and 10.69, respectively, when the diet was supplemented with 1500 ppm galactomannan. A general reduction in coliform bacteria was also observed. Feed intake and weight gain were not affected by treatments. A significant decrease (P< 0.05) in the total cholesterol (from 190.25 mg/dl to 120.3 mg/dl) and LDL -cholesterol (from 126.1g/dl to 63.6 g/dl) were demonstrated with 1500 ppm galactomannan supplemented diet while the changes in the HDL cholesterol were not significant. Galactomannan from coconut meal polysaccharides has prebiotic effect on the growth of lactic acid bacteria in chicken intestine and reduces the total serum cholesterol and LDL cholesterol levels in broiler chickens.

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jaanaki@iti.lk Tel: 011-2518194