

Rabbit Growth, carcass characteristic, digestion, caecal fermentation, microflora, and some blood biochemical components affected by oral administration of anaerobic probiotic (ZAD[®]).

Abstract

The current research designed to study the influences of diverse doses of oral administration of anaerobic probiotic (ZAD[®]) on growth performance, carcass characteristic, digestibility coefficient, caecal activity, microflora and some blood biochemical components of growing rabbits. At 6 weeks (average body weight 539.87 ± 13.35 g), one hundred and eighty weaned male rabbits from New Zealand White (NZW) were randomly distributed to four groups. The control group received orally 0.0 ZAD[®]; the experimental groups administrated orally with 0.25, 0.5 and 1.0 ml ZAD[®]/rabbit/day, respectively. The experimental period lasted for 8 weeks. Groups 0.25 ZAD[®] and 0.5 ZAD[®] had improved feed conversion ratio and body weight gain and the lowest mortality rate. In comparison with the control and 1.0 ZAD[®] groups, the groups 0.25 ZAD[®] and 0.5 ZAD[®] caused a significant increase ($P \leq 0.05$) in nitrogen utilization, nutritive value and digestibility coefficients. The different doses of ZAD[®] had improved dressing percentage and percentage of edible parts, although parts of total non-edible were decreased ($P \leq 0.001$) compared to the group of control. As well as, cecum activity (caecum pH, total volatile fatty acids, acetic, propionic and butyric acid) were improved significantly by administrated orally different doses of probiotic ZAD[®] 0.25, 0.5 and 1.0 ml/rabbit/day compared with the control group. The opposite trend was observed in ammonia concentration which had been reduced significantly by administrated all doses of ZAD[®]. In addition, a total number of anaerobic bacteria were less than those of total microbial count and coliform group but, they have the same trend of decreasing the number as the amount of anaerobic probiotic ZAD[®] increased. Also, fermentation of lactobacilli take the opposite trend as the amount of probiotic ZAD[®] increased the lactobacilli number increased. As streptococci isolated was lower than lactobacilli group. As the concentration of probiotic ZAD[®] increased isolates numbers decreased, also lactobacilli enumeration increased. The serum total protein, albumin,

globulin, and albumin: globulin concentration of rabbits received probiotic ZAD[®] groups were significantly augmented compared with the group of control. On the contrary, levels of creatinine and urea in rabbit serum were not significantly affected by probiotic oral administration ZAD[®]. Alanine aminotransferase and aspartate aminotransferase enzymes of serum were significantly decreased with augmenting levels of ZAD[®]. Serum levels of total cholesterol (TC), lipoproteins of low density (LDL), very low-density lipoproteins, triglycerides, total lipids, and LDL: lipoproteins of high density (HDL) ratio were significantly decreased with augmenting levels of ZAD[®]. But, the HDL: TC and HDL: LDL ratio augmented significantly with probiotic oral administration ZAD[®] levels.

Keywords: ZAD[®], growth performance, digestible coefficient, caecum activity, nitrogen balance, rabbit.