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CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

EFFECT OF GREEN PROPOLIS ON INTESTINAL MUCOSA OF GROWING RABBITS

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Green propolis extract (GPE) has antioxidants properties and may prevent atrophy of the intestinal villi. This study was carried out to evaluate characteristics of intestinal mucosa of growing rabbits supplemented with GPE. One hundred rabbits, 50 males and 50 females, were used in a completely randomized design with five treatments and five replicates of four animals each. Treatments consisted of GPE supplied at 0, 50, 100, 150, and 200 mg/kg body weight (BW), blended in the pelletized commercial ration. Rations and animals were weighed at the beginning of the experimental period, when the animals were 35 days old. The rabbits continued to be weighed weekly to determine the appropriate quantity of GPE to be added to the rations. On the 85th day, 10 rabbits from each treatment were fasted for 12 h and then were slaughtered and fragments of small intestine were obtained. The data were analyzed using analysis of variance in SISVAR® software by F test at $\alpha = 0.05$. Supplementation with GPE influenced ($P < 0.05$) the villus height (VH) and the VH: crypt depth (CD) ratio in the duodenum and ileum, the villus perimeter in duodenum, and the absorptive surface area in the ileum. The greatest values of VH and VH: CD in duodenum (2530 µm and 22.32) and ileum (1529 µm and 17.21) were observed in rabbits supplemented with 100 and 150 GPE/kg BW, respectively. It is possible that above these values, intestinal absorption was increased, and cellular renovation was lowered owing to the GPE, thus reducing the needs of the increased villus height and absorptive surface area. Villus height and the VH: CD ratio are indicative parameters of intestinal health; a healthy intestine must show high VH: CD ratio values, with higher villus height and lower crypt depth. The increased ratio indicates higher intestinal capacity to absorb nutrients. Lower crypt depth results from the reduced requirement of cellular renovation. There is also a high energy and nutrient cost to keep the high activity level associated with deep crypts. The GPE is rich in antioxidant substances, particularly in flavonoids and caffeic acid. Antioxidants minimize the negative effects of free radicals on the cell membranes of intestinal mucosa maintaining its integrity. Propolis stimulates macrophage and phagocyte activities in the intestinal mucosa, which helps in the control of pathogenic bacteria that damage the intestinal mucosa, reducing the absorptive surface area for nutrients. Supplementation of the pelletized commercial ration for rabbits with green propolis extract improved intestinal morphology of the rabbits.

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