

Histological intestinal recovery in chickens refed dietary sugar cane extract.

Yamauchi K, Buwjoom T, Koge K, Ebashi T.

Laboratory of Animal Science, Faculty of Agriculture, Kagawa University, Miki-cho, Kagawa-ken 761-0795, Japan. yamauchi@ag.kagawa-u.ac.jp

Sugar cane extract (SCE), the residue after removing glucose, fructose, and sucrose from sugar cane juice, has growth-promoting, antistress, and immunostimulation effects. The objective of this study was to investigate the effects of refeeding dietary SCE on recovery of BW and intestinal histology after withdrawing feed from chickens. Forty-eight male Sanuki Cochin chickens were assigned randomly to 6 treatments and 8 replicates in a completely randomized design. The 6 treatments were intact control chickens fed ad libitum a basal commercial grower mash diet; 3 d of feed withdrawal; feed withdrawal followed by 1 d of ad libitum access to the same commercial mash diet (AFC); and free access to the commercial mash diet with 0.05, 1, or 3% SCE for 1 d. All SCE groups gained more weight in 1 d of refeeding than the AFC group ($P < 0.05$). Compared with the AFC group, the SCE groups increased cell mitosis ($P < 0.05$). On the villus apical surface, flat epithelial cells of the feed withdrawal group developed more protuberated cells than those of the intact control group in all refeeding groups. Compared with the AFC group, the SCE groups showed more protuberated cells. In addition, in the 0.05% SCE group, cell clusters aggregated by many cells were observed on the villus apical surface. The present histological intestinal alterations in chickens refed a SCE-containing diet demonstrate that the villi and epithelial cells might be hypertrophied because of some component in the SCE, resulting in quicker BW recovery in SCE-fed birds compared with those in the AFC group.

PMID: 16615348 [PubMed - indexed for MEDLINE]