

黄芪多糖对罗非鱼肠绒毛形态结构及肠道免疫细胞的影响

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Effects of Astragalus Polysaccharide on Structure of Intestinal Villus and Intestinal Immunocytes of Tilapia

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摘要
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摘要 本试验旨在探讨黄芪多糖对罗非鱼肠绒毛形态及肠道黏液细胞和上皮内淋巴细胞的分布和数量的影响。选用平均体重为47 g的罗非鱼共150尾, 随机分为5组, 每组3个重复, 每个重复10尾鱼。对照组饲喂基础日粮, 试验组分别饲喂在基础日粮中添加500、1 000、1 500、2 000 mg/kg黄芪多糖的试验日粮。试验40 d后, 从各组中随机抽取5尾罗非鱼进行解剖, 取出肠管, 固定、包埋并做成切片, 并应用组织化学染色方法对各组肠管切片进行染色, 观察肠绒毛形态结构、黏液细胞及上皮内淋巴细胞的分布和数量。结果表明: 各组肠绒毛的结构都较为完整; 各试验组肠绒毛长度、隐窝深度和肌层厚度以及肠道黏液细胞和上皮内淋巴细胞的数量与对照组相比均有所提高, 其中除前肠肌层厚度和前肠上皮内淋巴细胞数量外, 1 000和1 500mg/kg组均较对照组有显著或极显著升高(P<0.05或P<0.01)。由此得出, 日粮中添加黄芪多糖可提高罗非鱼肠绒毛长度、隐窝深度和肌层厚度, 增加肠道黏液细胞和上皮内淋巴细胞的数目, 且以1 000和1 500 mg/kg两个添加量效果较好。

关键词: 罗非鱼; 黄芪多糖; 肠绒毛; 黏液细胞; 上皮内淋巴细胞

Abstract: This experiment was conducted to discuss the effects of astragalus polysaccharide on the structure of intestinal villus and distribution and quantity of intestinal mucous cells and intraepithelial lymphocytes of tilapia. One hundred and fifty tilapia with average body weight of 47 g were randomly divided into 5 groups with 3 replicates each and 10 fish in each replicate. Five groups were fed basal diet supplemented with 0, 500, 1 000, 1 500 and 2 000 mg/kg astragalus polysaccharide, respectively. After 40 days, 5 tilapia in per group were randomly selected, anatomized, taken out intestine, fixed, embedded and sliced. Then the structure of intestinal villus and the distribution and quantity of mucous cells and intraepithelial lymphocytes were observed by histochemical staining method. Results were as follows: the structure of intestinal villus in all groups were rather integrally. The length of intestinal villus, depth of crypt, thickness of muscular and quantity of intestinal mucous cells and intraepithelial lymphocytes in four experimental groups were larger than those in control group, and that in 1 000 and 1 500 mg/kg groups had significantly improved except thickness of muscular and quantity of intraepithelial lymphocytes in foregut (P<0.05 or P<0.01). In conclusion, supplementing astragalus polysaccharide to the diet could improve the length of intestinal villus, depth of crypt, thickness of muscular and quantity of intestinal mucous cells and intraepithelial lymphocytes of tilapia, and the appropriate addition levels were 1 000 and 1 500 mg/kg. [Chinese Journal of Animal Nutrition, 2010, 22 (1) :108-116]

Keywords: Tilapia; Astragalus polysaccharide; Intestinal villus; Mucous cells; Intraepithelial lymphocytes

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