

Effects of liquid metabolite combinations produced by *Lactobacillus plantarum* on growth performance, faeces characteristics, intestinal morphology and diarrhoea incidence in postweaning piglets

Abstract

study was carried out to investigate the effects of feeding liquid metabolite combinations produced by *Lactobacillus plantarum* strains on growth performance, diarrhoea incidence, faecal pH, microfloral counts, short-chain fatty acids (SCFA) and intestinal villus height and crypt depth of postweaning piglets. A total of 120 piglets (26 days old) were randomly assigned evenly into five treatment groups treated with same basal diet: (1) –ve control (free antibiotic); (2) + ve control (0.03% of chlortetracycline); (3) Com 1 (0.3% metabolite of TL1, RG11 and RI11 strains); (4) Com 2 (0.3% metabolite of TL1, RG14 and RS5 strains); (5) Com 3 (0.3% metabolite of RG11, RG14 and RI11 strains). After 5 weeks, the average daily feed intake was not significantly different ($P > 0.05$) among the treatments and feed conversion ratio was the highest ($P < 0.05$) in the –ve control group. In addition, diarrhoea incidence was reduced when piglets were fed with metabolite combinations. Faecal lactic acid bacteria (LAB) counts were significantly higher ($P < 0.05$) in metabolite treatment groups than in the groups without metabolites. However, the treatment of Com 2 metabolite resulted lower ($P < 0.05$) faecal pH and Enterobacteriaceae (ENT) than the –ve control group. In contrast, total faecal SCFA of Com 2 were significantly higher ($P < 0.05$) than the –ve control group. The villus height of duodenum was higher ($P < 0.05$) in the + ve control and Com 2 groups as compared to –ve control group. The results obtained in this study showed that feeding metabolite combinations could improve growth performance, and increase the population of gut LAB and faecal SCFA of postweaning piglets.

Keyword: Metabolite combination, Faecal microflora, Short-chain fatty acids, Diarrhoea incidence, Postweaning piglets