

# Effects of fermentation products of *Bacillus coagulans* on growth performance, fecal bacterial amount and diarrhea incidence of weaning piglets <sup>(1)</sup>

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## Abstract

The study investigated the effects of fermentation products of *Bacillus coagulans* from adding different culture medium on the growth performance, fecal bacterial amounts and diarrhea incidence of weaning piglets. The fermentation products were produced by using Man Rogosa Sharp (MRS) culture media and plant-based Soy Peptone (No. 19685 STBIO medium, inc., Taiwan) in the same amount of 20 g/L in replacement of animal-based Proteose Peptone (10 g/L) and Beef Extract (10 g/L). Comparison of the inhibitory activities of these two fermentation supernatants against *Micrococcus luteus* (BCRC No. 80243) showed that both of them had similar inhibitory activities. In the feeding experiment of weaning piglets, a total of 48 LD crossbred piglets consisting half male and half female at 26-28 days of age were selected. There were 4 piglets (half male and half female) per pen were selected by sex and body weight, and the CFP and MFP fermentation products were respectively produced in the modified MRS and MRS medium by *bacillus coagulans* which were added to the control diet (CP) to serve as 2 kind of experimental diets and their inhibitory activity in the diets were fixed at 10 IU/kg. The results of feeding experiment showed that the average daily weight gain in the second week, fed with CFP feed, was higher than the CP group, but there was no significant difference between CFP and MFP groups. The diarrhea incidence in piglets of the CFP group was the lowest and only 9.5% during the second week, while the highest incidence was the 25.0% of the control diet. The diarrhea incidence in MFP group was 14.2%. In the fecal bacterial amount, the addition of CFP fermentation products showed the effect of reducing the number of pathogenic *E. coli* compared to control group on the ending day. In addition, there were no significant differences between the dietary groups in terms of blood traits, blood cell counts and white blood cell differentiation, except for the relatively lower triglyceride and total cholesterol concentrations at the end of the experiment. In conclusion, the foregoing results suggested that the addition of the CFP fermentation products increased the daily weight gain of weaning piglets in the second week after weaning, and decreased the diarrhea incidence and the number of pathogenic *E. coli* in the feces.

Key words: *Bacillus coagulans*, Anti-bacterial activity, Diarrhea.

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