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Effect of *Bacillus subtilis* var. *natto* Fermented Soybean on Growth Performance, Microbial Activity in the Caeca and Cytokine Gene Expression of Domestic Meat Type Chickens

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Experiments were conducted to investigate the effect of the *Bacillus subtilis* var. *natto* fermented soybean (FS) on growth performance, microbial activity in the caeca and cytokine gene expression in spleen of domestic meat type chickens. Chicks were fed commercial diets supplemented with 0 (control), 1 or 2% FS for 80 days from 0 to 80 days of age, and a fourth group of chicks were fed control diet from 0 to 27 days of age, and then fed a 2% FS diet from 28 to 80 days of age. Supplementation with FS did not decrease feed intake compared to chicks fed the control diet, and there were no significant differences in body weight gain and feed efficiency due to dietary treatment. FS supplementation had no effect on carcass weight, breast and thigh meat composition, or abdominal fat deposition. There were no significant differences in pH, NH₃-N concentration, or number of microorganisms in the cecum content in each group; however, total acetic acid concentration increased ($P<0.05$) in chicks fed the 2% FS supplemented diet from 0 to 80 days of age. Supplementation with FS did not affect IFN- γ , IL-4 and IL-13 gene expression in spleens.

It can be concluded from this study that supplementing FS to meat type chicken diets has no deleterious effect on the growth performance, and has beneficial effects on intestinal

microbial activity, as observed by increases in VFA concentration.

Keywords: [Bacillus subtilis](#), [cecum microbiota](#), [fermented soybean](#), [meat type chicken](#), [probiotics](#)

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