

The substitution effects of fermented wheat bran through solid-state fermentation by exogenous *beta*-glucanase for part of yellow corn on growth performance and blood traits of grower pigs ⁽¹⁾

Fang-Chueh Liu ⁽²⁾⁽⁴⁾ and Yu-Chun Lin ⁽³⁾

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Abstract

This study was to apply DNA recombination technology to construct and screen yeast transformants and to secrete exogenous *beta*-glucanase for solid-state fermentation of wheat bran. After that, assessment of the impact on growth performance and blood traits through part of the yellow corn in diet replaced with fermented wheat bran or wheat bran for grower pig. In the exogenous *beta*-glucanase of test results showed that yeast transformants No.9 and 10, respectively possessed 18 and 22 U/mL of hydrolysis of cellulose activity and the hydrolysis of wheat bran to produce reducing glucose content would increase 4.9 - fold compared to wheat bran (22.0 mg vs. 4.5 mg). Experimental animals weighing 30 kg LYD hybrid hogs adopted 30 heads half-male and half-female, and housed in individual pen. Dietary arrangement had five groups, corn- soybean meal as based diet was the control group (0% wheat bran) and 5% or 10% with and without fermentation process of wheat bran to substitute 5% or 10% of the same amount of corn in 4 kinds of experimental diets group during the four weeks of trial period. Animal feeding trials, 5% and 10% yellow corn in diet replaced with the equal amount of wheat bran or fermented wheat bran to raise grower pigs were no significant difference in growth performance, but in the blood traits, fed with containing fermented wheat bran group had a higher level of plasma urea nitrogen and a lower level of total protein content, but both of them were still in the normal physiological value. Thus, the previous results revealed that both of fermented wheat bran through solid-state fermentation process by exogenous *beta*-glucanase and wheat bran could replace 5-10% of the yellow corn didn't impact growth performance and blood traits of grower pigs.

Key words: Wheat bran, Solid-state fermentation, Beta-glucanase.

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(2) Nutrition Division, COA-LRI, Hsinhua 712, Tainan, Taiwan, R.O.C.

(3) Animal Products Processing Division, COA-LRI, Hsinhua 712, Tainan, Taiwan, R.O.C.

(4) Corresponding author, E-mail: fcliu@mail.tlri.gov.tw.