

Amino Acid and Mineral Supplementation in Fermentation Process of Concentrate Protein of Jatropha Seed Cake (*Jatropha curcas* L.)

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Abstract	<p>The purpose of this study is to assess the optimization of fermentation process by adding a minerals and amino acids so that the potential of protein of Concentrate Protein-Jatropha seed cake (CP-JSC) can be optimally used as a substitute for soybean meal. The method used was completely randomized design. The treatment consisted of F1: Fermentation CP-BBJ + methionine-lysine (0.25%: 0.25%), F2: Fermentation CP-JSC + methionine-lysine (0.5%: 0.5%), F3: F1 + 0.45% Dicalcium Phosphate, F4: F2 + 0.45% Dicalcium Phosphate. Each treatment was repeated four times, When treatment significantly continued by Least Significant Difference (LSD), variables observed are the levels of antinutrients (phorbol ester, antitrypsin), the levels of nutrients (fat, protein, crude fiber, Ca, P and gross energy) and amino acid. Results of analysis of variance showed that the addition of amino acids and minerals Ca, P in the fermentation process was highly significant effect on the levels of crude fiber and phosphorus ($P < 0.01$) and significantly affected the gross energy content of CP-JSC post-fermentation ($P < 0.05$). Dry matter, crude protein, crude lipid and calcium are not affected by supplementation of methionine and lysine as well as calcium and phosphorus. Supplementation of methionine and lysine in the fermentation substrate showed good levels of essential amino acids and non essential higher than previous studies although not statistically significant ($P > 0.05$). While the levels obtained phorbol ester range of 0.055% - 0.08%. It was concluded that the optimization of fermentation can be done without adding the amino acid supplementation of minerals calcium and phosphorus. Supplementation significantly affect a significant increase or decrease in some nutrients (crude fiber, gross energy, phosphor) and capable of suppressing a decrease in amino acids. Supplementation of amino acids Lysine and Methionin 0.05% is the best treatment.</p>
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