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International Journal of ChemTech Research CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555 Vol.10 No.2, pp 56-61, 2017 The Effect of Mannanolytic Fungi and Humic Acid Dosage to Improve the Nutrient Content and Quality of FermentedPalm Kernel Cake Mirnawati*,G. Ciptaan, Ferawati Department of Animal Feed and Nutrition, Faculty of Animal Science, Andalas University, Padang 25163, Indonesia Abstract: An experiment was conducted to understand the effect of mannanolytic fungi and dosage of humic acid to improve the nutrient content and quality of fermented palm kernel cake (PKC). The experiment used completely randomized design (CRD) with 2 x 3 factorial and 3 replications. The first factor wastwo kinds of mannanolytic fungi: (1) Sclerotium rolfsii (2) Eupennicillium javanicum. The second factor was dosage of humic acid: (1) 100 ppm (2) 200 ppm (3) 300 ppm. The parameters were Crude Protein, Nitrogen Retention, Crude Fiber and Digestibility of Crude Fiber of fermented palm kernel cake. The result of study showed hat there was highly significant interaction between manannolytic fungi and dosage of humic acid (P<0.01), also types of fungi and dosage of humic acid had significant (P<0.01) effect to crude protein, nitrogen retention, crude fiber and digestibility of crude fiber of fermented palm kernel cake. The conclusion was fermented palm kernel cake by Sclerotium rolfsii and dosage of humic acid 200 ppm had better nutrient content and quality than other treatments. This condition can be seen in crude protein (27,43%), nitrogen retention(59.17%), crude fiber (11,53%) and digestibility of crude fiber (55,40%) of fermented palm kernel cake. Key words : Mannanolytic Fungi, Humic acid, Nutrient, Fermented, Palm kernel cake. Introduction Palm Kernel Cake (PKC) is one of by-products of palm oil processing. Currently, Indonesia is the largest palm oil producer in the world and 70% of palm oil production came from the island of Sumatera. Furthermore, West Sumatera province is the fourth largest oil producer with CPO production up to 30.948.931 tons/year. The continued development of palm oil processing is certainly going to generate a high volume of waste product in the form of palm kernel cake (PKC), which is found about 45-46% of PKC as by-product of palm oil processing. Nutrient contents of the PKC were as follows: 16.07% crude protein, 21.30% crude fiber, 8.23% crude fat, 0.27% Ca, 0.94% P and 48.4 ppm Cu, it can be concluded that PKC can be used as animal feed1. Although PKC contains a relatively high crude protein, its usage in poultry ration is still limited2and the research conducted by Rizal (2000) discovered that in broiler rations, the amount of PKC can be up to 10% or PKC may become a substitute for 40% of soybean meal. The limited usage of PKC in poultry rations was due to a low nutritional quality which is caused by a high crude fiber content, low of amino acid content4, high Cu content1and a high β-manan / mannose polymer content as much as 56.4% of crude fiber. Crude fiber ofPKC contains β-manan5-7. Furthermore, poultry has a limited ability in digesting crude fiber. In order to increase the utilization of PKC in poultry rations, it is necessary to improve the quality of PKC through biotechnological fermentation using cellulolytic and mananolytic fungiwhich can reduce the crude fiber and β-manan content7. The reduced crude fiber and β-manan content will increase the quality of PKC and may become a substitute for soybean meal in poultry rations. Mananolytic and Cellulolytic fungus that can be used for the fermentation of PKC are Aspergillus niger, Eupenicillium javanicum and Sclerotium rolfsii. Research conducted by Mirnawati et al., (2014) stated that the enzyme activity of the Sclerotium rolfsii provides activity for cellulose enzyme (21.89 U/ml), and mannanase enzyme (24.58U/ml) higher than Eupenicillium javanicum and Aspergillus niger8.According to Purwadaria and Sari(2004),Eupenicillium javanicumcan produce β-mannanase in 1% of locust bean gum with the highest activity at 49 U/ml and β- mannanase with a much higher activity, if the fungi are grown in coconut cake9. In reference to the research conducted by Razak (2006),mannanase enzyme activities in Sclerotium rolfsii are much higher than in Aspergillus niger10. On the other hand, palm kernel cake (PKC) also has a highheavy metal content such as Cu and Zn, where heavy metal is an obstacle in the utilization of PKC in poultry rations. This is due to the high heavy metals such as Cu after fermentation or showed