EFEK PENAMBAHAN PROBIOTIK TEPUNG DALAM PAKAN TERHADAP KECERNAAN DAN RETENSI NITROGEN KELINCI PERANAKAN NEW ZEALAND WHITE

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Abstrak
Penelitian bertujuan untuk mengetahui dan mengevaluasi pengaruh penambahan probiotik bentuk tepung terhadap kecernaan bahan kering (KcBK), kecernaan bahan organik (KcBO), kecernaan protein (KcPK) dan retensi nitrogen pada kelinci peranakan New Zealand White periode lepas sapih. Materi yang digunakan yaitu 40 ekor kelinci jantan lepas sapih berumur 28 hari dengan rataan bobot badan yaitu 523,15 ± 97,49 g/ekor. Metode yang digunakan adalah metode percobaan dengan Rancangan Acak Kelompok (RAK) terdiri dari lima perlakuan dan empat kelompok sebagai ulangan. Perlakuan tersebut adalah P0= pakan basal (tanpa penambahan probiotik), P_1= pakan basal + 0,25% probiotik, P_2= pakan basal + 0,50% probiotik, P_3= pakan basal + 0,75% probiotik dan P_4= pakan basal + 1% probiotik. Pakan yang digunakan yaitu pakan lengkap dalam bentuk pellet sebagai pakan basal dan probiotik tepung. Variabel yang diukur meliputi kecernaan bahan kering, kecernaan bahan organik, kecernaan protein dan retensi nitrogen. Data dianalisis menggunakan sidik ragam dan apabila terdapat perbedaan maka dilanjutkan dengan Uji Jarak Berganda Duncan's. Hasil penelitian menunjukkan bahwa kelompok dan perlakuan penambahan probiotik tepung memberikan pengaruh tidak nyata (P>0,05) terhadap KcBK, KcBO, KcPK dan retensi nitrogen. Berdasarkan hasil penelitian dapat disimpulkan bahwa dengan penambahan probiotik sebesar 1% menunjukkan hasil terbaik dari KcBK, KcBO, KcPK dan retensi nitrogen.
Kata Kunci : *kecernaan, new zealand white, probiotik, retensi nitrogen*

ISSN 2654-4792

PROBIOTIC POWDER EFFECT ON FEED TO DIGESTIBILITY AND NITROGEN RETENTION NEW ZEALAND WHITE CROSSBREED ON WEANING PERIOD

Abstract

The research purpose was to determining probiotic powder effect on dry matter digestibility (DMD), organic matter digestibility (OMD), crude protein digestibility (CPD),and nitrogen retention (NR) of New Zealand White crossbred weaning period. The materials used were 40 males New Zealand White Crossbred weaning period (28 days) and body weight (523.15 ± 97.49 g/head). The research method was used in the research using a Randomized Block Design (RBD) with five treatments and four groups as replicates. The treatments used for research were P0= base feed without probiotic, P_1= base feed + 0.25% probiotic, P_2= base feed + 0.5% probiotic, P_3= base feed + 0.75% probiotic and P_4= base feed + 1% probiotic. The complete feed form was corn grain, MBM, pollard, rice bran, soybean meal, peanut, skim milk and premix as base feed and probiotic powder. The data analysis was analyzed by ANOVA and continued by Duncan's Multiple Range Test (DMRT). The results showed that the groups and treatments of probiotic powder gave no significantly different effect (P>0.05) on DMD, OMD, CPD and nitrogen retention. The conclusion are the effect 1% probiotic powder gave the best result on DMD, OMD, CPD and nitrogen retention.

Key words : *digestibility, new zealand white, nitrogen retention, probiotic*

BACKGROUND

Rabbit are one alternative sector for the protein needed for meat. The rabbit meat potential can increase production. The rabbit meat can be as alternative protein supply. Nowadays, the increase of needed protein can develop the rabbit production. The used feed additive in the form antibiotic is one alternative to increasing the production. The antibiotics purposes are for growth promoters (AGP). The used probiotics can improve feed efficiency, productivity, and decrease

mortality. The used probiotic cause negative effects e.g. raise the residues number.

The used antibiotics in the feedstuff are forbidden due to negative effect. The alternative method is used natural materials e.g. microbes as the feed additive. The probiotics function are for feed additives due to negative effect in antibiotics. The probiotic improve feed quality, productivity, and stimulate mucosa to absorb nutrient.

The probiotics are a living organism that gives positive impact to the host. The microbes improve function natural organism inside the body. The probiotics functions improve the digestibility in rabbit (Sirajuddin, Rita, Hendronoto dan Andi, 2012). The *Lactobacillus* sp. and *Bacillus* sp. are lactic acid bacteria that used in the probiotics. The lactic acid bacteria utilize carbohydrate into lactic acid. The *Lactobacillus* sp. use to improve nutrient absorb and decrease negative bacteria (Suherman, Sjofjan dan Natsir, 2014). Based on the descriptive used of probiotics are important to determine. The used probiotics as feed additive used lactic acid bacteria to digestibility and nitrogenous retention on New Zealand Crossbreed weaning periods.

MATERIAL AND METHODS

Materials

The materials used were 40 males New Zealand White Crossbred on weaning period (28 days) and body weight (523.15 ± 97.49 g/head). The coefficient variations were 18.6%. The *Lactobacillus* sp.probiotics powder contains 5.4 $x10^7$ CFU/mg and *Bacillus* sp. contains 2.3 $x10^8$ CFU/mg, the complete feed, formalin, H_2SO_4 10%, housing 50cm x 50cm x 50 cm, feces and urine bag, and measuring cup.

The research method was used in the research using a Randomized Block Design (RBD) with five treatments and four groups as replicates. The treatments used were 8 heads with 2 heads groups. The treatments given were:

a. P_0 : base feed without probiotic
b. P_1 : base feed + 0.25% probiotic
c. P_2 : base feed + 0.5% probiotic
d. P_3 : base feed + 0.75% probiotic
e. P_4 : base feed + 1% probiotic

There are 4 groups divided based on body weight:

K_1 (group 1)= 391-422 g

K_2 (group 2)= 431-510 g

K_3 (group 3)= 510-550 g

K_4 (group 4)= 611-704 g

The feeding based on body weight every week. The feeding is given 10% from body weight. The base feed was pellet with water adlibitum. The feces and urine collecting sample do in the end research periods.

The variables are:

a. Dry matter digestibility (DMD)(%):

$$\frac{(\text{DM in feed} - \text{DM in feces})}{\text{DM in Feed}} x\ 100\%$$

b. Organic matter digestibility (OMD)(%):

$$\frac{(\text{OM in Feed} - \text{OM in feces})}{\text{OM in Feed}} x\ 100\%$$

c. Crude protein digestibility (CPD) (%):

$$\frac{(\text{CP in DMI} - \text{CP in feces})}{\text{CP in DMI}} x\ 100\%$$

d. Nitrogen retention (NR) (%):

$$\frac{(\text{N in feed} - [\text{N feces} + \text{N urine}]}{\text{N in feed}} \text{x } 100\%$$

The data analysis was analyzed by ANOVA and continued by Duncan's Multiple Range Test (DMRT) if ($P<0.05$) significant and ($P<0.01$) very significant.

RESULT AND DISCUSSION

Result

The Treatments Effect to DMD, OMD, CPD, and NR

The probiotics effect on feed in DMD, OMD, CPD, and NR New Zealand crossbred weaning periods showed in table 1.

Table 1. The Treatments Effect to DMD, OMD, CPD, and NR on New Zealand White Crossbreed on weaning period

Treatments	DMD (%)	OMD (%)	CPD (%)	NR (%)
P0	58,80±5,62	64,67±5,13	65,81±5,72	45,66±7,05
P1	58,87±3,14	65,16±2,76	68,58±1,90	46,08±1,91
P2	60,18±2,70	67,06±2,10	66,32±3,26	47,01±8,41
P3	63,96±4,39	70,21±3,44	69,99±4,06	46,21±6,89
P4	64,92±8,01	71,06±6,41	71,62±7,16	49,19±11,96

a. The Treatment Effect to Dry Matter Digestibility (DMD)

The result analysis of variance showed that the probiotic addition in complete feed has no significance difference (P>0.05) to DMD. The result has no significance difference because the levels were given and there are changes in crude protein and crude fiber levels in the base feed.The crude fiber treatment for each group is same. The high level of crude fiber given effect to the degradability level. The crude fiber contains cellulose, hemicellulose that has a correlation with lignin. The lignin is harder to degradability because of digestibility enzyme inhibitor in feeding. McDonald *et al.* (2002) showed that factor given effect to the digestibility are feed composition, feed treatment, feeding level, and genetic.The second factors are the feed has same palatability, caused dry matter digestibility has not significance difference. Paramita, Waluyo, and Yulianto (2008) stated palatability are the main factors cause differences dry matter consumption between livestock and feed. The palatability also has a correlation with feed digestibility. The result analysis of variance showed that the probiotic

addition in complete has no significance difference but there is increase DMD level from $P_0$to P_4. The treatment $P_1$are the highest DMD levels.

b. The Treatment Effect to Organic Matter Digestibility (OMD)

The result analysis of variance showed that the probiotic addition in complete feed has no significance difference (P>0.05) to OMD. The result showed that the DMD has no correlation to OMD. The most content is organic matter, the DMD should same with OMD content. Fathul and Wajizah (2010) stated organic matter is a part of the dry matter. The dry matter increases so, the level organic matter increase.The dry matter digestibility increase organic matter also increase. The OMD on the treatment has a positive correlation with DMD. The OMD levels higher than DMD on the feed treatment. The condition happen because the dry matter has ash content. The organic matter doesn't have ash content so, easier to digest.

The result analysis of variance showed that the probiotic addition in complete has no significance difference (P>0.05) to OMD. The result showed that the OMD has no correlation to DMD. The probiotic addition has no significance difference and doesn't change basal feed nutrition content. The treatment feed has same level palatability. The levels given to the feed are lower that microbes can't synthesize well the enzyme in the small intestine. The digestibility levels are have significance increase.

c. The Treatment Effect to Crude Protein Digestibility (CPD)

The result analysis of variance showed that the probiotic addition in complete feed has no significance difference (P>0.05) to CPD. The P_4 is the higher 1% probiotic on the feed. The result showed that probiotics with 1% treatment increase feed efficiency. Primacitra *et al*. (2014) stated that probiotic in the feed increase feed efficiency in the term to absorb protein content. The result analysis of variance showed that the probiotic addition in each treatment has no significance difference. The factors affected are CPD level has a correlation to feed

protein that's same content. Anggordi (1994) stated protein digestibility has a correlation to feed protein. The low protein in the feedstuff has a positive correlation with protein digestibility in otherwise, protein digestibility can be increased with crude fiber content.

d. The Treatment Effect to Nitrogen Retention (NR)

The result analysis of variance showed that the probiotic addition in complete feed has no significance difference (P>0.05) to NR. The research showed that nitrogen expression levels for each treatment are lower than nitrogen consumption. The condition happens from the rabbit organ that'contains nitrogen. The conditions showed the positive retention.

Maulana (2008) stated the if nitrogen consumed higher than exertion, the nitrogen retention is on the positive levels. In otherwise, nitrogen retention levels negative happen when nitrogen consumed low. Positive retention nitrogen happens when body weight and muscled increased. The result analysis of variance showed that the probiotic addition in each treatment has no significance difference. In otherwise, the probiotic addition in each treatment that 1% (P4) levels are better.

CONCLUSION

The probiotic addition in complete feed 1% levels has no significance difference on DMD, OMD, CPD, and NR New Zealand crossbred on weaning periods. The probiotic addition in a complete feed with powder size 1% levels on DMD, OMD, CPD, and NR are better.

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