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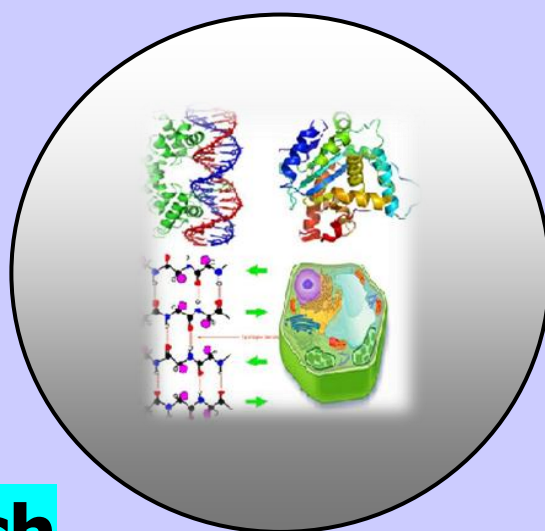
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The Effect of Acid Lactic Bacteria Ast 6 *Streptococcus thermophilus* to Broiler's Abdominal Fat

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ABSTRACT

This study aims to know the effect of acid lactic bacteria ast 6 Streptococcus thermophilus to broiler's abdominal fat. this research used 40 broliers strain Lohmann age a week and grouping into 4 probiotic treatments are R-0 (without BAL), R-1 (BAL 10⁶ CFU/ml), R-2 (BAL 10⁷ CFU/ml), R-3 (BAL 10⁸ CFU/ml) each treatment with 10 replications, and each replication included one broiler. Feed and water were given twice a day in adlibitum. This study lasted for 28 days. Data was taken from abdominal fat level. Data were analyzed by variance analysis using randomized complete design in one direction, if there are differences then continued by Duncan's Multiple Range Test (DMRT). The result showed there is no difference in abdominal fat level. The average abdominal fat contents are 1,93; 1,78; 2,07 and 1,61. From the results of this study concluded that probiotic BAL is not significant with abdominal fat level. However, probioic acid lactic bacteria can reduce level of abdominal fat as much as 1.61 on the treatment of R-3 (BAL 108 CFU / ml).

Keywords: Broiler, Probiotic BAL and Abdominal Fat.

INTRODUCTION

Nowadays there is a tendency that people in developed countries prefer the food which is free from contamination by synthetic chemicals and antibiotic residues. Besides toxic, these materials can cause cancer, so do not be surprised in broiler export case Indonesia rejected by the destination country, for their antibiotic residues in carcasses. In addition, the high carcasses content also to be one of the concerned by consumer. Seeing the many effect of the antibiotic using that are now beginning to develop the use of antibiotic and one of them is the lactic acid bacteria (BAL).

The rapid growth in broiler is often followed by high fatty especially for the final broiler. It's a problem for consumers who want a good quality meat (low fat) because of the high fat

content is synonymous with abdominal fat content. This can lead to coronary heart disease and clogged arteries. To improve the quality of the meat is ideal broiler chicken fat should have to be reduced to a minimum. Lactic acid bacteria has ability to balance microbial population in the gastrointestinal tract and able to inhibit the growth of pathogenic bacteria, thereby granting the lactic acid bacteria as probiotic capable abdominal fat level cattle. In addition, lactic acid bacteria is also able to produce bile salt hydrolase enzyme that serves bile salt which has role in fat emulsifying to be absorbed by the body so hopefully with probiotic lactic acid bacteria in broiler can reduce content of abdominal fat

The aim of research

This research has purpose to know the effect probiotic in broiler to broiler's form of broiler's abdominal fat.

The purpose of research

The result of the research are expected to be useful to provide information related to the effect of probiotic in broiler to reduce broiler's abdominal fat.

MATERIAL AND METHODS

Location and time of research

This research was conducted in the cage of nutritional biochemistry laboratory, Department Animal Nutrition and Feed, faculty of animal husbandry. universitas Gadjah Mada, yogyakarta from October to December 2005. analysis of fat was carried in Department Animal Nutrition and Feed, faculty of animal husbandry. universitas Gadjah Mada

Material

Chicken : the chicken using is male broiler strain *Lohmann* produced by PT Multi Breeder by forty chickens a week years old.

Cage

the cage used is in dividual battery cage with size 30 x 50 x 25 cm by 40 units. eah cage is equipped with feed and drink placed in plactic. the other equipments are heating light, place for mixing feed, scales with Daema brand and has capacity 5 kg with sensitivity 20 gram, and airlux bran has capacity 3kg with 10 gram sensitivity.

Treatment of probiotic

Lactic acid bacteria used in this study is *Streptococcus thermophilus* in freezing drying form which is derived from nutrional biochemistry laboratory, faculty of animal husbandry, UGM. treatment of fees are R-0 (without BAL), R-1 (BAL 10^6 CFU/ml), R-2 (BAL 10^7 CFU/ml), R-3 (BAL 10^8 CFU/ml).

Feed research

Feed research used is grits, rice bran, soybean, fish flour and salt.

Table 1. The nutrient content of the material.

Material	BK %	PK %	ME kcal/kg	Ca %	P av %	Met %	Lys %
Grits	88,70	8,74	3.350	0,04	0,26	0,21	0,34
Rice bran	90,59	11,44	3.020	0,05	1,48	0,22	0,58
Soybean	90,00	49,83	2.230	0,28	0,20	0,60	2,67
Fish flour	89,34	61,73	2.219	2,32	1,89	2,67	6,45
Salt	100,00	0,00	0,000	0,00	0,00	0,00	0,00

1) NRC (1994)

BK = Dry material

PK = Protein rough

ME = Metabolizable energy

Ca = Calcium

P av = Phospor available

Met = Methionine

Lys = Lysine

Table 2. The nutrient content of the treatment

Material (%)	R-0	R-1	R-2	R-3
Grits	60,75	60,75	60,75	60,75
Rice bran	12,00	12,00	12,00	12,00
Soybean	18,00	18,00	18,00	18,00
Fish Flour	9,00	9,00	9,00	9,00
NaCl	0,25	0,25	0,25	0,25
BAL(CFU)	0	10^6	10^7	10^8
Amount	100,00	100,00	100,00	100,00
Hard Protein	21,08	21,08	21,08	21,08
Metabolizable energy (kcal/kg)	3.000,64	3.000,64	3.000,64	3.000,64
Calcium	0,28	0,28	0,28	0,28
Phospor available	0,55	0,55	0,55	0,55
Methionine	0,50	0,50	0,50	0,50
Lysine	1,32	1,32	1,32	1,32

Calculation based on the feed composition table NRC (1994)

Research Methods

Implementation of maintenance

before cages and equipment is used to advance research disinfected using biochid first. Vaccination is done twice. They are ND-1 vaccination at 3 days old and ND-2 at 20 days old. Feed is based on calculation of feed composition table according to NRC (1994), we can see at Table 1. feed and water is given twice a day at 07.00 am and 03.30pm. probiotic is given every afternoon through water used spet with amount 1.5 ml / oral

Research Design

the design in this study is completely randomized with a direction. 40 broilers id divided into four treatment groups., an d every treatment was repeated 10 times then each repition used a broiler.

Data collected

Recording data for perfoermance every week is broiler's abdominal fat level

Abdominal fat sample.

The sample analysis was obtained by blending abdominal fat, then take snippet 1 g for eter extract analysis by Soxhlet Extraction methods (Sudarmaji *et al.*, 1989)

Abdominal fat percentage

The percentage of abdominal was obtained by dividing the weight of abdominal fat carcass with live weight before deductions multiplied by 100%.

Determination of abdominal soxhlet extraction.

Abdominal fat sample is measured with weight about 1 gram and wrapped fat free dry paper, then grilled 105 °C for 12 hours. The dried sample was weighed in hot condition. Included soxhlet extraction and added methanol and cloroform in the ratio 1:2. Extraction is conducted for 8 hours till solution of methanol chloroform in clear color. after that the material has been extracted , dried in the oven for 12 hours at the temperature 105 °C. the sample were dired weighed in still hot.

% fat level = $X \times 100\%$

X = weight of sample

Y = weight of samplw after oven

Z = weight of the sample after extraction and oven

Data analysis

Data were analyzed by using variance completely randmized design with a direction and when there is difference between the average followed Duncan's Multiple Range Test (DMRT) test. (Gomez dan Gomez, 1984).

RESULT AND DISCUSSION**Abdominal fat**

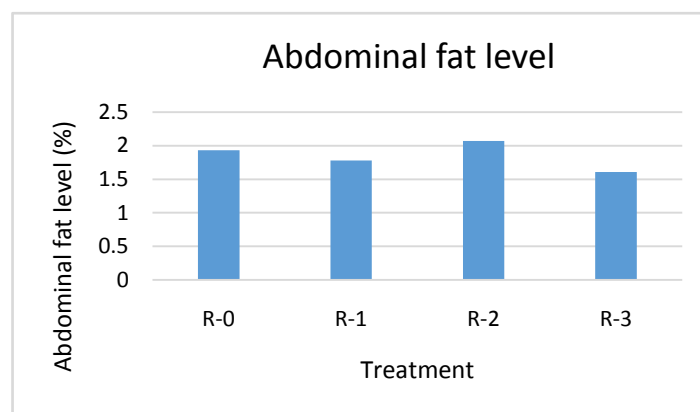
In this study, data is abdominal fat. after 28 days the whole broiler were slaughtered to be taken abdominal fat and subcutaneous sample also meat fat. the result of the statistical analysis has been known lactic acid bacteria probiotic with the content of abdominal fat. it can be seen in table 3.

Abdominal Fat

Tabel 3. the average of broiler's abdominal fat level (%).

Ulangan	R-0	R-1	R-2	R-3
1	2.16	1.45	2.48	1.61
2	2.02	1.69	1.97	1.99
3	1.92	2.42	1.94	1.80
4	1.71	1.55	1.71	1.78
5	1.65	2.07	2.25	1.98
6	1.62	1.66	2.43	1.91
7	2.17	1.88	1.40	1.31
8	2.21	2.19	2.60	1.38
9	1.94	1.39	1.72	0.72
10	1.90	1.52	2.18	1.66
Rerata	1.93 ^{ab}	1.78 ^{ab}	2.07 ^b	1.61 ^a

^{ab} this script show there is no significant difference ($P \leq 0,05$)



Gambar 1. Abdominal fat level graphic.

From table 3 can be seen that lactic acid bacteria probiotic did not significant differences with broiler's abdominal fat which caused decreasing of abdominal fat level compared control except at R-2 (10^7 CFU/ml). It is showed lactic acid bacteria had been able to conjugated bile salt so intestinal fat absorption can be inhibited its also causing abdominal fat decreasing. More the number of lactic acid bacteria can reduce abdominal fat and R-3 proved that the most number content of lactic acid bacteria (10^8 CFU/ml) also had low fat content (1,61 %). R-2 ensue increasing of abdominal fat content, it might be caused lactic acid bacteria in hygienic conditions so that grow like pH and temperature of broiler's digestive tract. In R-2 is not achieved so that lactic acid bacteria was not able to work optimally to inhibit the absorption fat so that abdominal fat has high content. This is according to Safalaoh's research (2006) stated that lactic acid bacteria probiotic with 0.1% level which is equivalent to 10^8 CFU/ml in water by *adlibitum* give significant effect to abdominal fat.

CONCLUSION AND SUGGESTION

Conclusion

From the result of this study, we can concluded that:

1. Lactic acid bacteria probiotic is not significant effect on fat level of broiler carcasses.
2. Decreased level of abdominal fat happens at the best lactic acid bacteria in 10^8 CFU/ml level (R-3) that is equal to 1, 61.

Suggestion

Need to continue to broiler's lactic acid bacteria research as probiotic in decreasing of cholesterol level, LDL cholesterol, and HDL with different level and using method more practical and efficient.

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