Performance of Kampong Chicken Fed Rations With Suplementing Dry Carboxylate Salt Mixture (DCM) or Coconut Oil Hydrolisate (COH)

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ABSTRACT

The experiment aimed to know effect of supplementing dry carboxylate salt mixture (DCM) or coconut oil hydrolisate (COH) on kampong chicken performance. The experiment used DOC which is divided to is 75 units henhouse with 3 treatments and 5 replications. Each unit consist of 5 DOC and fed treatments during 8 weeks. The treatments were T_1 (commercial ration = BP-1), T_2 (T_1 + 3% DCM), and T_3 (T_1 + 3% COH). The variables were daily feed intake, weekly gain, feed conversion, carcass weight, gizzard weight, liver weight, and heart weight. The data analysis used ANOVA and orthogonal contrast test. The results showed that daily feed intake (g/d), T_1 = 53.52 ± 3.00^a, T_2 = 38.86 ± 5.12^b, T_3 = 50.72 ± 6.41^a, weekly gain (g/week) T_1 = 17.41 ± 4.80, T_2 = 18.89 ± 2.77, T_3 = 16.22 ± 1.22, T_3 = 10.72 ± 6.41, feed conversion T_1 = 6.11 ± 1.24, T_2 = 3.92 ± 1.06, T_3 = 5.71 ± 1.09, carcass weight (kg) T_1 = 75 ± 19.33^c, T_2 = 345.50 ± 19.33^b, T_3 = 377.0 ± 10.55^a, gizzard weight (g) T_1 = 10.75 ± 0.5, T_2 = 12.13 ± 0.25, T_3 = 13.13 ± 0.25, liver weight T_1 = 10.6 ± 0.81, T_2 = 13.1 ± 0.05, T_3 = 16.63 ± 0.48, heart weight T_1 = 2.4 ± 0.25, T_2 = 3.3 ± 0.29, T_3 = 4.0 ± 0.41. It can be concluded that (1) supplementing 3% dry carboxylate salt mixture (DCM in the ration improve weekly gain and feed conversion ; (2) supplementing 3% coconut oil hydrolisate (COH) in the ration improve carcass weight, gizzard weight, liver weight, and heart weight.

Key Words: Dry Carboxylate Salt Mixture (DCM), Coconut Oil Hydrolisate (COH), Kampoeng Chicken, Performance

INTRODUCTION

The population and demand of kampoeng chicken meat increased each years. From 2001 to 2005 meat consumption from kampoeng chicken increased 1.49 million to 1.52 million ton in Indonesia (Aman, 2011). These phenomena need feed supply that support to increased kampoeng chicken productivity.

The increasing animal productivity could increased via improving feed quality as protected fatty acids supplementing. And then, supplementing dry carboxylate salt mixture (DCM) or dry methyl ester mixture (DMM) as results of fish oil processing in ration for dairy cattle lactating could improved fatty acids profile and cattle milk yield (Tasse, 2010). These phenomena was supported by Yurleni *et al*., (2013) that supplementing DCM in ration improved meat quality and body weight gain (BWG) swamp buffaloes.

Feed quality improving via introducing feed supplement was one of way that many working by researchers. But, introducing protected fatty acids in ration for chicken especially kampoeng chicken have not many publish in the journal. Based on these arguments, the experiment has been conducted to see effect of dry carboxylate salt mixed (DCM) and coconut oil hydrolysate (COH) on kampoeng chicken performances.

MATERIAL AND METHOD

The experiment has been conducted during 3 months at Laboratory of Nutrition and Feed Technology, Faculty of Animal Science, University Halu Oleo, Kendari.

Materials

Seventy five DOC kampoeng chicken divided into litter cages 1 m x 1 m x 0.6 m with feed and water drink plates. Each unit consist of 5 DOC and fed treatments during 8 weeks. The treatment were T_1 (commercial ration),
T_2 (T_1 + 3 % DCM), and T_3 (T_1 + 3 % COH).

Making Dry Carboxylate Salt Mixed (DCM)

Making DCM

Method of making DCM was result of modificate Tasse (2010). Principles of DCM was hydrolysis of fish oil with acid (HCl) and base (NaOH). Fish oil from fish waste (head, tail, viscera, pin, bone). After cooking, fish oil was mixed with *Spondicus sp* leaf solution and sagoo meal. This mixture was dried in the oven with temperature 60 °C.

Making Coconut Oil Hydrolisate (COH)

Method of COH was modificate Tasse (2010). Principle of DCM was hydrolysis fish oil with sodium hydroxide and calcium chloride. This mixture was added sagoo meal. Then was dried in the oven with temperature 60 °C.

Ration

Commercial Ration was used control Ration was used to experiment consist of,
T_1 = Control (commercial ration)
T_2 = T_1 + 3 % DCM
T_3 = T_1 + 3 % COH

Table 1. Chemical Composition of Experimental Rations

Nutrient Contests	T_1	T_2	T_3
Moisture (%)	6.01	8.05	10.04
Crude Protein (%)	14.89	16.34	15.90
Ether extract (%)	1.60	2.11	2.20
Crude fiber (%)	1.80	1.12	1.00
Ca	0.8	1.0	1.0
P	0.3	0.4	0.5

Experimental Design and Data Analysis

Experimental design in this experiment used a completely randomized design 3 x 5, 3 treatment with 5 replications. The experimental variables were daily feed intake (g), weekly gain (g), feed conversion, carcass weight (g), gizzard weight (g), liver weight (g), heart weight (g).

The data obtained were analyzed using analysis of the range. If there was significant difference ($P < 0.05$), followed by Contrast Orthogonal (Steel Torrie, 1991).

RESULT AND DISCUSSION

Kampoeng Chicken Performance

The initial live weight indicated that DOC were distributed well within the experimental treatments. There was no difference on daily gain, but there were difference on daily, feed intake, feed conversion, carcass weight, gizzard weight, liver weight, and heart weight.

Table 2. Performance and Viscera Weight

Observed variable	Treatment		
	T_1	T_2	T_3
Performance			
Daily feed intake (g)	53.52 ± 3.0[a]	38.86 ± 5.12[b]	50.72 ± 6.41[a]
Weekly gain (g)	17.41 ± 4.80	18.84 ± 2.77	16.12 ± 1.22
Feed conversion	6.11 ± 1.34[a]	3.93 ± 1.06[c]	5.71 ± 1.09[b]
Carcass weight (g)	266.75 ± 19.33[b]	345.50 ± 19.33[a]	377.0 ± 10.5[a]
Viscera			
Gizzard weight (g)	10.75 ± 0.5[c]	12.13 ± 0.25[b]	13.12 ± 0.25[a]
Liver weight (g)	10.6 ± 0.81[c]	13.15 ± 0.05[b]	16.69 ± 0.48[a]
Heart weight (g)	3.4 ± 0.25[b]	3.3 ± 0.29[c]	4.0 ± 0.41[a]

Means in the same raw with different superscript differ significantly ($P < 0.05$)

Daily feed intake (DFI) of T_2 was lower then T_1 and T_3, but T_1 same as T_3 (Table 2). It indicated that T_2 consist of energy higher then T_1 and T_3. And then level of energy in the T_2 enough energy requirement kampoeng chicken feed conversion of T_2 lower than T_1 and T_3. It indicated that the decreasing feed intake was not follow by increasing body weight gain, would result efficiently feed conversion ratio (FER). And then the phenomena indicated that T_2 content energy higher than T_1 and T_3. Although, T_2 is lowest on feed in take but it is highest on feed conversion.

Daily gain (DG) of T_2 and T_3 were higher then T_1. It indicated T_2 and T_3 content that enough requirement of energy so could supported muscle cells mitosis the increasing of numbers of cells was indicated by daily gain.

Supplementing DCM and COH resulted DFI mean in the range about 38.86 – 50.72 g. The result of this experiment higher than Aziana (2005) that range of DMI about 37.93 – 39.53 g on kampoeng chicken starter phase, but it is more lower than Gunawan and Sulandari (2003) that 64.42 g.

Supplementing DCM and COH resulted gain mean in the range about 16.22 – 18.89 g. The results of this experiment higher than Aziana (2005) that range of gain about 9.17 – 12.94 g.

Carcass weight of T_2 and T_3 higher than T_1 (Table 2), the effect of T_2 and T_3 was same on daily gain and carcass weight. There indicated taht increasing of was followed by cats weight on kampoeng chicken. Range of carcass weight was about 266.75 – 377.00 g during 6 weeks fed DCM and COH. Nashahon et al., (2005) reported that carcass weight was depended with live body weight (LBW). Sumarna (2000) also reported that body weight of kampoeng chicken at markets about 0.7 – 1.0 kg.

Range of heart weight (HW) was about 2.4 – 4.0 g or HW percentage was about 0.51 – 0.62 %. Lathivah (2012) reported that HW percentage was about 0.50 – 1.42 % from live body weight.

Range of liver weight (LW) was 10.56 – 16.69 g LW percentage about 2.26 – 2.57 %. Arief (2005) reported that LW percentage normally about 2.10 – 2.54 %. Range of GW about 10.75 -13.33 g or GW was percentage about 2.03 – 2.30 %. Putnam (1991) reported that GW percentage normally about 1.6 – 2.3 %.

Gizzard weight (GW), liver weight (LW), and heart weight (HW) included in viscera. GW and LW of T_3 was higher than T_1 and T_2, and T_2 was higher than T1 contrasly, T1 higher than T_2 on HW kampoeng chicken. These indicated that digestion processing activities on kampoeng chicken with feed T_3 (COH) higher than T_1 and T_2, and also detoxification process activiticies of T_3 higher than T_1 and T_2.

CONCLUSION

Supplementing 3% dry carboxylate salt mixture (DCM) in the ration improved feed conversion, carcass weight and liver weight. Supplementing 3 % coconut oil hydrolisate (COH) improved carcass weight, gizzard weight, and liver weight.

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