CARCASS YIELD OF NATIVECHICKENS FED ARACHON OF SKIPJACK TUNA (*Katsuwonus pelamis* L.) IN DIET

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ABSTRACT

In the prospect of skipjack tuna *(Katsuwonus pelamis L)* fish that abundant in Sulawesi Ocean, a study was carried out to determine the effect of arachon of skipjack tuna in diet on carcass yield out to determine the effect of arachon of skipjack tuna in diet on carcass yield of native chickens. The experiment was designed in completely randomized design (CRD) with 5 treatments and 5 replications. A total of one hundred 29 weeks old native chickens were randomly allocated to five dietary treatments, consisting of five replications in each treatments using four birds in each cell. Dietary treatments were basal diet = BD (R0), 94 % BD + 6 % Arachon (R1), 91 % BD + 9 % arachon (R2), 88% BD + 12 % arachon (R3), and 85 % BD + 15 % arachon (R4). Feed and water were provided *ad li bitum.* All experimental data were subjected to the analysis of variance test (ANOVA) followed by Duncan's multi range test. Result showed that dietary arachon of skipjack tuna in diet up to 15 % exert no significant difference ($P > 0,05$) compared to control on final weight, carcass weight, and carcass percentage. It can be concluded that the arachon of skipjack tuna in diet can be substituted to basal diet up to 15 %.

Keywords : Carcass, Native chickens, Skipjack Tuna.

INTRODUCTION

Feed is one of basic components of poultry farm industry that play an important role to produce animal protein. About two-third production cost is feed. The increase price of feed stuffs often becomes a problem. There is an alternative methods to solve that problem by using the local feedstuffs in that area (Hafsah et al. 2015).

Nichindo company is a company engaged in the export of wood skipjack fish, located in south Minahasa regenscy of North Sulawesi Province. Fishery waste generated in large quantities can be bad impact for the environment because it causes a foul odor resulting from the

decomposition of protein materials at a high temperature and humidity and potentially harmful to human health(Margaret et al., 2007).

In the prospect of skipjack tuna (*Katsuwonus pelamis* L.) fish that abundant in Sulawesi Ocean, a study was carried out to determine the effect of arachon of skipjack tuna in diet on carcass yield of native chickens.

MATERIALS AND METHODS

A total of one hundred 29 weeks old native chickens were randomly allocated to five dietary treatments, consisting of five replications in each treatmentusing four birds in each cell.Dietary treatments were basal diet = BD (R0), 94% BD + 6% ASTM(R1), 91% BD + 9% ASTM (R2), 88% BD + 12% ASTM (R3), and 85% BD + 15% ASTM (R4). Feed and water were provided *ad libitum*. All rations were made in 16 % - 21 % of protein and metabolizable energy of 2740 – 3084 Kcal/kg accrording to NRC (1994). The nutrients of Skijack gill (Arachon) meal and the composition of feedstuffs and nutrients in diet were shown in the Table 1.

The experiment was designed to completely randomized design (CRD) with 5 treatments and 5 replications. Data obtained was analyzed using analysis of variance (Steel and Torrie, 1993). All experimental data were subjected to the analysis of variance test (ANOVA) followed by Duncan's multi range test.

Table 1. Nutrients in Arachon Skipjact Tuna Meal (ASTM)

Nutrients	PO	P1	P2	P3	P4
ME (Kcal/kg)	2740.74	2905.54	2946.84	3015.53	3084.23
Protein (%)	16.26	18.19	19.16	20.33	21.09
Crude Fiber (%)	7.10	6.71	6.52	6.32	6.13
Fat (%)	4.50	5.24	5.61	4.09	6.35
Calcium (%)	0.79	0.86	0.90	0.94	0.98
Phosphorus (%)	0.87	0.97	1.01	1.06	1.11
Lysine (%)	0.97	1.04	1.07	1.11	1.14
Methionine(%)	0.37	0.39	0.39	0.40	0.41

Notes : P0 = Control Diet, P1=94% BD + 6% ASTM , 91% BD + 9% ASTM (R2), 88% BD + 12% ASTM(R3), and 85% BD + 15% ASTM (R4).

At the end of the experiment, two chicken for each plot were weight individualy prior to slaughter. After slaughter, feather were removed by dipping the chicken in to the warm water (app.60 – 70 ^{0} C). Carcass yield was weight of dead chickens without feathers, head, neck, legs, and digestive organs. The chickens were cut in to the parts according to the standard procedure of dissection (Jensen, 1989)

RESULTS AND DISCUSSION

The effects variables were subjected to analyzed value growth performance i.e, final weight, carcass weight, carcass percentage as shown in Table 3.

Table 2. Carcass Yield Of Native Chickens Fed Arachon of Skipjack Tuna (*Katsuwonus pelamis* L.) in diet on Final Weight, Carcass Weight, Carcass Percentage.

Variabel	Treatments				
	P0	P1	P2	P3	P4
Final Weight (g)	718.98 ±18.72	733.90 ± 15.23	734.60 ± 16.91	729.99 ±16.30	730.91 ±8.85
Carcass Weight (g)	406.57 ± 8.31	414.16 ± 8.63	417.36 ± 12.52	414.25 ± 13.36	421.25 ±9.94
Carcass Percentage (%)	68.94 ± 0.83	69.74 ± 1.31	69.22 ± 1.29	69.26 ± 0.84	70.17 ±1.43

Results of t-test value shown no significant effects (P >0,05) on final weight, carcass weight, carcass percentage. The real final weight results from the experiment with 718 – 730 g. North and Bell (1990) found that increase in body weight gain influenced by feed consumption, if consumption of both the body weight gain would also be good. Rombe (2012) states that be factors that influence weight gain is feed consumption.

However in carcass weight were results in no significant effects. This gives an indicatin that the production of carcass resulting from of ASTM in native chickens has relatively the same quality with nutrients in Arachon Skipjact Tuna Meal (ASTM) . The carcass characterisctics of 4 breeds of local chickens whitemini broler (31d) 592 g ,Hanhyup 3-ho (37d) 576 (g),Woorimatdag (36 d) 571 (g), Silky fowl (59 d) 394 (g). (Choo et al.,2014).Carcass weight and carcass yield in the present study was relatively lower than those of other breeds such as Padovana (De Marchi et al., 2005) and Tunisian local chickens (Moujahed and Haddad, 2013). Carcass yield is affected by a number of factors including genetic. Feed,slaughtering conditions,live weight and sex (Young et al., 2001;Havenstein et al., 2003;Brickett et al., 2007).

The percentage of carcass based on the administration treatment of Skipjack gill (Arachon) meal in experiment as 68,94 – 70, 17 %. This results to Sarjuni (2011) that found 68.28 – 71.42 %.

CONCLUSION

It can be concluded that the arachon of skipjack tunain diet can be substituted to based diet up to 15%.

REFERENCES

Brickett KE, Dahiya Jp, Classen HL, Gomis S. 2007. Influence of dietary nutriet density, feed form, and lighting on growth and meat yield of broiler chickens.Poult Sci.2007;86;2172-2181.

Direktorat Jendaral Peternakan. 2007. Buku Statistika Peternakan. Departemen Pertanian Republik Indonesia. Jakarta.

Dewi, G.A.M. K.,I.G. Mahardika,I.K. Sumadi,I.M Suasta dan I.M. Wirapartha. 2009. Peningkatan Produktivitas Ayam Kampung Melalui Kebutuhan Energi dan Protein Pakan. Laporan Penelitian Hibah Bersaing. Fapet- Universitas Udayana. Denpasar.

De Marchi M, Cassandro M, Lunardi E., Baldan G, Siegel PB.2005. Carcass characteristics and qualitative meat traits of he Padovana breed of chicken.Int. J. Poultry Sci. 2005;4;233-238.

Dewi, G.A.M.K. 2010b. Effect of balance energi protein ration for performance of native chickens. Proced. Bioscience and Biotechnology Conference.

Donald D, Weaver Jr. William. D. 2002. *Commercial Chicken Meat and Egg Production*. 5 th Ed. Kluwer Academic Publisher.

Choo Y.K, H.J Kwon, S.T,Oh.J.S.Um,B.G Kim, C.W.Kang,S.K.Lee,B.K.An. Comparison of Growth Performance, Carcass Characteristics and Meat Quality of Korean Local Chickens and Silky Fowl. Asian –Australian Jounal of Animal Sciens (AJAS) 2014;27(3);398 – 405. DOI:http://doi.org/10.5713/ajas.2013.13638.

Hafsah, Hidayat,Fatmawati,M.Sagaf,Mappiratu, and T. Sapan. 2015. Evaluation of Local Feed in Broiler Diets in Small Scale Farm in Palu Central Sulawesi. Prociding .The 6 th International Seminar on Tropical Animal Production Integrated Approach In Developing Sustainable Tropical Animal Production. Yogyakarta. Indonesia. Page 94-99.

Jensen,J.F. 1989. Methods of Dissection of Broiler Carcass and Description of Parts. Department of Research in Poultry and Rabbits , Royal Veterinery and Agricultural. University Copenhagen. Denmark.

Leeson ,S and J.D. Summers. 1980. Producton and carcass characteristic of the broiler chicken. Poult. Sci, 49 ; 428.

Margaret Atikpo, Oghenekome Ono Abazinge, Michael Clifford Louime Dzomeku. 2008. *Sustainable Mushroom Production In Africa : A case study in Ghana. Environmental sciences Institute.* Florida University. Department of Animal Science. University of Ghana Legon. Ghana. *(58388 – 103714 – 1 PB – pdf. Adobe Reader)* .

Moujahed A, Haddad B. 2013. Performance ,Livability, Carcass yield and meat quality of Tunisian local poultry and fast growing genetype (Arbor Acres) fed standard diet and raised outdoor access.J. Anim.Prod Adv. 2013;3:75-85.

NRC, Nutrient Requimeents of Poultry. 1994. Ninth Revised Edition, National Academy Press. Washington D.C.

North , M.O and D.D. Bell. 1990. Commercial Chicken Production Manual . 4 th Edition.Van Nonstand. Rienhold .New York.

Havenstein GB, Ferker PR, Qureshi MA.2003. Carcass Composition and yield of 1957 versus 2001 broiler when fed representative 1957 and 2001 broiler diets.Poult Sci.2003. ;82:1509-1518.

Hasyim Asyari, Nurhaedah , Rahmawati Sema. 2014. Kualitas Karkas dan Bobot Karkas Ayam Kampung Unggul Balitnak (KUB) Pada Pemberian Fitibiotik Dengan Konsentrasi Yang Berbeda. Jurnal Galung Tropika. Vol 3 no.1. issn 2407 – 6279 /issn 2302 - 4178

Rusmana . D., D. Natawihardja, dan I, Irfana. 2010. Performans Karkas Ayam Kampung Super CP 808 Periode Pertumbuhan Yang Diberi Ransum Yang Mengandung Minyak Ikan Lemuru. Fakultas Peternakan Universitas Padjadjaran. Prosiding. Seminar Nasional Tentang Unggas Lokal Ke –IV. Semarang.

Rombe, M.B. 2012. Study of income everfeed and chick cost efficiency of broiler fed on sea grass. JITP Vol.2(2); 138-143.

Sarjuni ,S. 2011. The Effects of carica papaya meal in diets on carcass quality of broiler. Journal Agrisains 12 (2);109-114.

Sartika,T. 2006. Studi keragaman fenotik dan genetik ayam kampung (*Gallus gallus domesticus*) pada populasi dasar seleksi. http//balitnak.litbang.deptan.go.id. diakses. 15 juni 205.

Steel, R.G.D. dan J.H. Torrie. 1993. Prinsip dan Prosedur Statistik. Suatu Pendekatan Biometrik. Penerbit PT Gramedia, Jakarta. (Diterjemahkan oleh : B. Sumantri).

Suprijatna, E.W. Sarengat dan S. Kismiati. 2005. Pertumbuhan Organ Reproduksi Ayam Buras dan Dampaknya Terhadap Produksi Telur pada Pemberian Ransum dengan taraf protein berbeda saat periode pertumbuha. Prosiding Seminar Nasional Revitalisasi Bidang Kesehatan Hewan dan Manajemen Peternakan Menuju Ekonomi Global. Fakultas Kedokteran Hewan. Universitas Airlangga.

Upon, M. 2004. The Role Of Livestock in Economic Development and Poverty Reduction (online. Rome (Italy).FAO. http://www.fao.org/ag/againfo/projects/en.pplpi/docarc/wp10.pdf. Accessed 10 juni 2015.

Young LL., Northcutt JK,Buhr RJ, Lyon CE, Ware GO. 2001. Effect of age , sex, and duration of postmortem aging on percentage yield of parts from broiler chicken carcasses. Poult Sci ; 2001;80;376-379.