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Growth Performances and Carcass of KUB Chicken Fed on A Diet Containing Different Levels of Fermented Mixture of Rice Bran and Protein from Slaughtered House

Ade Akmaludin[1], Asnawi[1], Vebera Maslami[1], I Ketut Gede Wiryawan[1*]

[1]Program Magister Manajemen Sumberdaya Peternakan, Faculty of Animal Science, University of Mataram, Jl. Majapahit 62 Mataram, Nusa Tenggara Barat, Indonesia;

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*Corresponding Author: **I Ketut Gede Wiryawan,** Program Magister Manajemen Sumberdaya Peternakan, Faculty of Animal Science, University of Mataram, Jl. Majapahit 62 Mataram, Nusa Tenggara Barat, Indonesia;

Email: K_wiryawans@unram.ac.id

Abstract: Rice bran is a common poultry feed ingredients. However, its use is limited due to its high fiber content and low phosphorus content. This study aimed to evaluate the effects of feeding a fermented mixture of rice bran and PSW (RPSW) on the growth performances and carcass of KUB chicken. A mixture of two parts of rice bran and one part of PSH was fermented using rumen liquor for 5 days. Two hundred two-week-old KUB chickens were randomly allocated into four dietary treatments with different levels of fermented RPSW i.e.; 0, 10, 20, and 30% for treatments 1, 2, 3, and 4 respectively. Feed was provided ad libitum for ten-week observation period, and drinking water was always available. At the end of the feeding trial, chickens were slaughtered to measure carcasses and their components. The results showed that there were no significant differences in feed consumption and carcass percentage between treatments, but the final body weight, body weight gain, carcass weight, and organ weight of chickens fed rations containing 20 and 30% fermented RPSH were lower than those fed rations containing 20 and 30% fermented RPSH. 30% fermented RPSH. The control or ration was fed a ration containing 10% fermented RPSH. The results indicate that a fermented blend of rice bran and protein from slaughtered house waste incubated with rumen liquor for 5 days can be included in the KUB chicken diet up to 10%.

Keywords: Carcass, fermented rice brand and blood, KUB chicken, weight gain.

Introduction

KUB chicken is a type of chicken as a result of research by the Agricultural Research and Development Agency (Balitbangtan) which has many advantages over other types. The meat is similar to native chicken meat (Hidayah et al., 2019); (Pratomo, 2022). Laying hens can produce up to 66% hand day. (Dameanti et al., 2020), The development of KUB chicken farming continues to increase following the development of demand for meat and eggs. However, it is constrained by the continued increase in feed prices, even though feed costs can reach 60-70% of the capital that must be spent by farmers during the production process (Mashur, 2021). Therefore, it is necessary to continue to innovate to make feed more affordable for farmers.

There are some feed ingredients need to be evaluated for their potency for KUB chicken. Rice bran is a feed ingredient that has been widely used by most poultry farmers, however, rice bran has several disadvantages such as low protein and high crude fiber. Fermentation technology has succeeded in improving the quality of bran (Ananto et al., 2016; Munira et al., 2016; Sufi et al., 2014). Similar to rice bran, cow blood, which in this article is named Protein from Slaughtered House (PSH), is a local feed ingredient whose availability is abundant but has not been widely studied for its potency.

A review by (Ramadhan et al., 2015) showed that blood meal produced by drying can

only be used in poultry feed as much as 3-6%, but after processing with the absorption method its use can reach 20%. For broiler chicken Khawaja et al., (2007) suggests that blood meal should not used more tha 3%. In addition, the quality of blood meal absorbing palm fronds was improved by incorporating Lactobacillus plantarum with an incubation time of 120 days (Imsya et al., 2022). This study aimed to evaluate how different levels of fermentation mixtures of cow blood and rice bran (RPSH) impact the production performance of KUB chickens.

Materials and Methods

Research Materials

This research was conducted at Gopala Farm, Kranji Town, Labuapi Region, West Lombok. While the chemical composition of the rolling test was examined at the Nutrition and Rolling Science Laboratory, Faculty of Animal Husbandry, Mataram. Abiotic KUB chickens aged 202 weeks were used in this study. Rice bran was obtained from a local poultry shop, and fresh blood and cow rumen fluid, known as slaughterhouse waste protein (SHP), were collected from a nearby abattoir. Other ingredients in the cake included rice bran, yellow corn, and soybean meal.

Research methods

The study was conducted in two stages: feed preparation and feeding trials. The first task to prepare the feed was to collect rumen juice from the slaughterhouse. A thermos was filled with warm water (+40oC) to maintain an internal temperature equivalent to rumen temperature, but the water was removed before filling the thermos with fresh rumen liquor, then sealed to minimize air contact to rumen microbial. The next step was mixing 2:1 rice bran and fresh PSH. Then, the mixture was mixed with rumen liqid so that the water content was about 60%. Anaerobic aging was carried out in 100 kilogram plastic bottles and stored for five days. At that time, the aged fabrics were sun-dried and their chemical composition analyzed using a standard strategy (Association of Official Analytical Chemists, 1999).

In the rolling test, 200 two-week-old KUB chickens were randomly divided into four rations with different RPSH: T0 (control), T1 (10%), T2 (20%), and T3 (30%). Table 1 shows the reinforcing materials and dietary chemicals. There was always drinking water available and all feed was given ad libitum. For ten weeks, roll collection was recorded daily, and chickens were weighed weekly. Then the chickens were slaughterd by cervical dislocations for measuring their carcass components.

Table 1. Composition of dietary treatments

Bahan pakan	Treatment			
	T0	**T1**	**T2**	**T3**
Rice bran(%)	20	20	17	14
Yellow corn (%)	55	50	45	40
Soybean meal (%)	25	20	18	16
RPSH(%)*	-	10	20	30
Total	100	100	100	100
Chemical composition				
Metabolizable Energy (Kcal/kg)	2832	2743	2673	2603
Crude Protein (%)	17,27	16,49	16,80	17,22
Crude Fat (%)	3,22	4,04	4,73	5,42
Crude Fiber (%)	5,33	5,94	6,16	6,38
Calcium (%)	0,07	0,08	0,10	0,11
Phosfor (%)	0,19	0,17	0,15	0,13

RPSH = fermented mixture of rice bran and protein from slaughtered house waste

Analysis data

The information gotten within the consider were analyzed utilizing PROC ANOVA (Der & Everitt, 2001), and the noteworthy distinction between treatment implies was tried utilizing Duncan's test.

Results dnd Discussion

Growth performances

Feed intake, body weight gain and feed processing rate in KUB chickens fed less feed with different levels of adult BPSW are presented in Table 2. The management of different levels of adult BPSW had no significant effect on feed consumption (p=0.420). The average feed consumption was 2556.75 + 11.79 or equivalent to about 45.83 + 0.21 g/head/day, almost the same as that propagated (Munira et al., 2016).

Table 2. Production performances of KUB at ten weeks old

Variable	Treatments				p-value
	T0	T1	T2	T3	
Feed intake (g)	2,550[a]	2,567[a]	2,575[a]	2,575[a]	0,4200
Weight gain (g)	813,90[a]	824,22[a]	760,02[b]	693,78[c]	0,0001
Feed Conversion	3,138[c]	3,114[c]	3,388[b]	3,716[a]	0,0001
Carcass (%)	63,8[a]	65,4[a]	58,4[a]	61,0[a]	0,1990
Wings (g)	100,6[a]	108,0[ab]	91,0b[c]	82,8[c]	0,0018
Leg (g)	234,6[a]	246,6[a]	175,0[b]	170,4[b]	0,0001
Breast (g)	171,4[a]	163,2[ab]	137,0[b]	135,6[b]	0,0287
Back (g)	154,4[a]	150,2[a]	101,8[b]	93,2[b]	0,0001

Different superscripts on the same integer indicate significant differences ($p < 0.05$).

They appeared that nourish utilization of kampung chicken encouraged on a count calories containing matured rice bran was between 42.43 to 44.29 g/bird/d. In any case, expanding the utilize of aged RPSW within the KUB chicken count calories past 10% come about in lower weight pick up and the next nourish transformation proportion (FCR). On the other hand, the body weight pick up and bolster transformation of the chicken given a slim down with 20 and 30% matured RPSW was more regrettable than those given a control or slim down with 10% RPSW. This may be related to the increased fiber concentration (Table 1). Sutrisna (2011) and Widowati et al. (2022) detail that a high crude fiber ratio significantly increases feed utilization and decreases FCR. As FCR is the extent to which winged organisms convert food consumed into live weight, small changes in FCR for a given food price will have a significant impact on the budget. (Beshara et al., 2017). A study on feeding fermented blood meal to fish (Tiger grouper) shows similar trends with this study. Production The performance of fish fed 22.5% to 30.5% fermented blood meal was significantly lower ($p < 0.05$) than fish fed the control diet (Palinggi et al., 2016).

Carcass weight

The carcass of KUB chickens fed on a diet containing different levels of fermented RPSW varied from 58.4 to 65.4% (p=1990). Although different levels of fermented RPSW in this study did not significantly affect the percentage of the carcass, there was a trend that carcass of KUB chickens were fed a diet containing 10% fermented RPSW higher than other treatments. It seems that the nutrients of the diet with 10% fermented RPSW complemented those of the control diet, and those with 20 and 30% fermented RPSW did not fully meet the requirements of growing KUB chicken. The carcass observed in this study is in a range of carcasses of kampung chicken reported by others. Putranto et al., (2021) showed that the carcass of kampong chicken fed on a diet with different levels of Katuk leaf was around 60%.

Similar patterns were observed for the weight of the wing, breast, leg, and back. The weight of these parts of the carcass of KUB chicken given a diet with 10% RPSW was not significantly different from those received a control diet, but higher ($p<0.05$) than those received a diet with 20 or 30% RPSW. It is recognized that the main factors that led to the realization of the second level of KUB chicken development in this case were the high fiber content provided by rice bran and the unavailability of RPSH amino acids. It is necessary to test the maturation process of RPSH with fermenters that are able to break down more fiber.

Conclusion

The fermented mixture of rice bran and protein from slaughtered house waste can be included in KUB chicken diet up to 10% without affecting growth performance and carcass percentage.

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References

Association of Official Analytica Chemists. (1999). *Official Methods of Analysis of The Association Analytical Chemist*. Virginia : AOAC, Inc.

Beshara, M., Rizk, Y., El-Shhat, A., Awad, A., & Abdallah, A. (2017). Effect of Feeding Different Levels of Dietary Fiber on Productive and Economical Performance in Local Ducks: 1-During Growing Period and Subsequent Laying Performance. *Journal of Animal and Poultry Production*, 8(11). DOI: https://doi.org/10.21608/jappmu.2017.46052

Der, G., & Everitt, B. (2001). Handbook of Statistical Analyses Using SAS, Second Edition. In Handbook of Statistical Analyses Using SAS, Second Edition. https://doi.org/10.1201/9781420057553

Imsya, A., Riswandi, & Yaqub. (2022). Optimization of the utilization of blood meal with palm oil fronds absorbance fermented as feed stuff to changes of nutrition content. *IOP Conference Series: Earth and Environmental Science*, 1016(1). DOI: https://doi.org/10.1088/1755-1315/1016/1/012028

Khawaja, T., Khan, S. H., & Ansari, N. N. (2007). Effect of different levels of blood meal on broiler performance during two phases of growth. *International Journal of Poultry Science*, 6(12). DOI: https://doi.org/10.3923/ijps.2007.860.865

Munira, M., Nafiu, L. O., & Tasse, A. M. (2016). Performans Ayam Kampung Super Pada Pakan Yang Disubttusi Dedak Padi Fermentasi Dengan Fermentor Berbeda. *Jurnal Ilmu Dan Teknologi Peternakan Tropis.* DOI: https://doi.org/10.33772/jitro.v3i2.1683

Palinggi, N. N., Paada, M. Y., Usman, U., & Rachmansyah, R. (2016). Pengaruh Penggunaan Tepung Darah Hasil Proses Enzimatik Dan Fermentasi Dalam Pakan Terhadap Pertumbuhan Ikan Kerapu Macan. *Jurnal Riset Akuakultur*, 8(3). DOI: https://doi.org/10.15578/jra.8.3.2013.403-415

Putranto, H. D., Aziz, N. F., Santoso, U., Kususiyah, K., & Soetrisno, E. (2021). Pemberian Tepung Katuk dan Dampaknya Terhadap Parameter Mutu Karkas Ayam Kampung Betina. *Buletin Peternakan Tropis*, 2(2). DOI: https://doi.org/10.31186/bpt.2.2.140-148

Sutrisna, R. (2011). Penggunaan beberapa tingkat serat kasar dalam ransum itik jantan sedang bertumbuh. Jurnal Penelitian Pertanian Terapan.

Widowati, M., Sutrisna, R., Septinova, D., & Nova, K. (2022). Pengaruh Substitusi Tepung Daun Singkong (Manihot utillisima) Terfermentasi Aspergillus niger Terhadap Bobot Hidup, Bobot Karkas, Dan Lemak Abdominal Ayam Joper Umur 8 Minggu. *Jurnal Riset Dan Inovasi Peternakan (Journal of Research and Innovation of Animals)*, 6(4). DOI: https://doi.org/10.23960/jrip.2022.6.4.407-417