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Research article

The Impact of Adding Dragon Fruit (Hylocereus sp.) Peel Extract to Drinking Water on the Percentage of Carcasses and Offal Organs of Free-Range Village Chickens

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Abstract.
The purpose of this study was to determine the impact of adding dragon fruit(*Hylocereus*sp) peel juice (DFPJ) to drinking water on the percentage of carcasses, and external and internal offal organs of free-range village chickens (White Gold &Lamcy). The study was carried out foreight weeks using a completely randomized design, which included 16 units (four levelsof DFPJ andfour replications of each, withfive birds per replication, for a total of 80 birds). The following treatmentswere given: R0: no DFPJ, R1: 5% DFPJ, R2: 10% DFPJ, and R3: 15% DFPJ in 1liter of drinking water. The variables observedwere: carcass percentage, and the percentage of external and internal offal organs.The results showed that the percentage of carcasses of the native chickens reared in free range were significantly different with the R2 and R3 treatments, while the R0 and R1 treatments had no effect on the internal and external offal organs of the chickens. It can be concluded that giving 10% or 15% dragon fruit peel juice through drinking water can have a significant effect on chicken carcass percentage, whereas using 5% does not have an effect.

Keywords: carcass, dragon fruit (*hylocereussp*) peel extract,free- range, offal organs.

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1. Introduction

Kampung chicken or village chicken is native chicken, which can be found in Indonesia area to used for traditional ceremonies [1] and [2] Indonesia has at least 34 breeds of native chickens and it breed are most popular while 11 breed are meet and egg producers. However, growth is the main challenge for Indonesia native chicken production. By intensive rearing system, Indonesian native chicken reaches slaughter weight in 4,5 months or more [3] and [4] reported that the local chicken crossbreds had lower fat and cholesterol contents due to a higher muscular contraction compared to modern breeds, in poultry breeding program, selection in molecular approach could be done

before the traits were expressed or shortly after hatching [3] .Chickens crossbreed had lower fat and cholesterol contents due to a higher muscular contraction compared to modern breeds [4]. Intensive maintenance patterns can improve productivity of native chickens [4] in [3] . One of the result crossed village chickens with other strain (White Gold &Lamcy), the crossbred (White Gold &Lamcy) be slaughtered for market at the age of 60-65 d, because the growth rate is similar to that of pure Kampung chicken at the age of 5-6 month. According to [5] and [6] the factors that affect the growth of chickens, namely: ration, genetics, environment and maintenance. In order free-range chickens to grow fast, they can be reared using a system free range (Umbaran). Directly affects the welfare of behavior and quality of meat. The free -range production system is one of the profitable alternative housing systems[7].

Utilization of feed additive widely used by farmers to maximize and accelerate growth. The most commonly weed feed additive is antibiotics as growth promotors or antibiotic growth promoters (AGP).The uses of excessive antibiotic in the diet could be followed by an accumulation of residual and bacterial resistance to an antibiotic that threats consumers. There should be a solution to replace the use of antibiotics with feed additives. Phyto biotics is claimed to be the safest additives that from plants and have similar activity as antibiotics. According [8] and [9]dragon fruit peel extract consist of antioxidant ,vitamin (C, E, and A, flavonoid , terpenoid, alkaloid, niacin, pyridoxine, cobalamin, phenolic, carotene, and [10] and [11] it also suspected has benefits as an antioxidant.

According to [10] That the use of rations containing antioxidants in livestock can reduce the effects of free radicals in the digestive tract so as to increase the consumption of rations. Previous research [12] stated that the skin of red dragon fruit contains saponins which can affect the amount of feed consumption and feed efficiency to growth performance [13] and[3]. The results of research by [14] used dragon fruit peels juice with level % and 3% in drinking water had no significant different on carcass (g) dan percentage (%) , carcass part in 52 week Lohmann Brown.

A Study based on this facts was set out with the following objective :to evaluate the effect of using dragon fruit peel juice (Hylocereussp) in drinking water on the percentage of carcasses, external and internal offal organs of native chickens (White Gold &Lamcy) reared in free range.

2. Methodology

This research was carried out in the chicken farm by the breeder, which is located in ChekomariaStreet ,Kedua-Banjar, Peguyangan Village , Denpasar Regency, Bali-Province for 8 weeks.

2.1. Cages and equipment

The cage used is 2 m x 2 m and a height of 100 cm as much as 16 plots. Each cage unit free range contain 5 chickens each. Every cage equipped with a plastic feed and drinking water container.

The chicken used is a 14 d (205.89 ± 0.68g /chicken were used). Rations were given is the commercial CP511 PT Charoen Pokhpand Indonesia, which has the following nutritional containing amount, 2948 kcal/kg EM 2948, 23% protein, 5% fat, 5% crude fiber, 7% ash, 0,9% calcium and 0,6% phosphor. Chickens were given access *ad libitum* to ration and drinking water.

Bird were allotted in a completely randomized design with four treatments, and four replicates of 5 birds each, a totally of 80 chickens. Treatment given: R0: without dragon fruit peels juice; R1: gave 5% dragon fruit peels juice R2: gave 10% dragon fruit peels juice and R3: gave 15 dragon fruit peels juice in one liter of drinking water provided.

Variables observed: percentage of carcass, percentage of external and internal organs offal. In order to assess carcass characteristics a selection of 3 chickens per unit repetition of each treatment.

The data were analyzed using Analysis of variance (ANOVA), to determine the effect of treatments and the differences among treatments means were examined by Duncan Multiple Range Test [15].

3. Result and Discussion

The result showed that average of carcass weight and carcass percentage of cross-breed (white Gold &Lamcy) without dragon fruit peel juice given in drinking water as a control (Table 3.1). In the treatment gave of level 5% (R1), 10% (R2) and 15% (R3) have average carcass weight respectively 445.00g - 457.50g and 466.00g statistically were significantly different ($P<0.05$) than R0.

The addition of level 10% (R2) and level 15% (R3) each had an average of 4,87% and 6.61% higher than the R0 treatment significantly ($P<0,05$), while in R1 treatment

Table 1: Production of White Gold x Lamcy chicken aged 10 weeks.

Variable	Treatment[1]				SEM [3]
	R0 (0%)	R1 (5%)	R2 (10%)	R3 (15%)	
Carcass (g)	435.20^{b}	445.4^{b}	457.50^{a}	466.00$^{a2)}$	3.90
Carcass Percentage (%)	55.84^{b}	57.11^{b}	58.64^{a}	59.71^{a}	1.29
Chest (%)	33.17^{a}	33.60^{a}	33.94^{a}	34.31^{a}	1.09
Back (%)	25.16^{a}	26.96^{a}	25.56^{a}	25.42^{a}	0.59
Wing (%)	14.78^{a}	13.1^{a}	12.84^{a}	12.49^{a}	0.71
Thigh (%)	26.89^{a}	26.34^{a}	27.66^{a}	27.78^{a}	0.97
External Offal (%)	30.8^{a}	30.00^{a}	28.80^{a}	30.00^{a}	0.10
Internal Offal (%)	13.36^{a}	12.89^{a}	12.56^{a}	10.29^{a}	0.10

Note :1. R0: Drinking water 0 % dragon fruit peel juice; R1: 5% dragon fruit peel juice R2: 10%dragon fruit peel juice and R3: 15% dragon fruit peel juice 2.Mean in the same line with different superscripts differ significantly different (P<0,05) 3.SEM *"Standart Error of Treatmeans"*

had an average carcass weight of 2.31% higher than the control (R0), statistically the results showed no significant difference (P>0.05).The treatment with 10 % and 15% level dragon fruit peel juice in drinking water the highest yield which can be associated to a lower percentage of internal offal (Table 3.1). The level dragon fruit peel juice in drinking water after the consumption produce a balance in the intestinal flora are the create the ideal conditions in the intestinal tract making the digestive process in the animal more efficient and allows the best absorption of nutrients, the caused of the mechanisms by which absorption of nutrients improves the carcass weight and carcass percentage [14] and be linked to a better absorption of nutrients [16], [13], and [8] and working with dragon fruit peel juice in drinking water cause significantly the carcass yield.

As shown in Table 3.1 all the treatment with level dragon fruit peel juice in drinking water R0, R1, R2 and R3 had no significant different (P>0.05) on the components of the carcass part : breast , thigh, wing and back (P>0.05). The level dragon fruit peel juice in drinking water after the consumption , produce a balance in the intestinal flora are the create the ideal conditions [6], in the intestinal tract making the digestive process in the animal more efficient and allows the best absorption of nutrients a greater retention of nutrients is reflected in greater deposit of lean meat in the present study (P>0.05) carcass yield percentage parts and components [2] and [5]. Similarly, information was no effect on components of main poultry part percentage: breast, back, wing and thigh (P>0.05) [16], [6] and [8]. A greater retention of nutrients is reflected in greater deposit of lean meat in the present study. Carcass yield, its part, and components. According to [14] used dragon fruit peels juice with level % and 3% in drinking water had no significant different on carcass weight and percentage, carcass part in 52 week Lohmann Brown.

4. Conclusion

It can be concluded that giving 10% and 15% levels of dragon fruit peel extract through drinking water has an significant effect on the carcass percentage, while the use of 5%, 10% and 15% does not affect the percentage of external and internal offal organs of village chickens (White Gold &Lamcy) reared in free range.

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