PERFORMANCE OF BROILER CHICKEN PRODUCTION THAT GIVEN LEAF FLOUR KATUK (Saurapus Androginus) WITH DIFFERENT LEVELS

Ahmat Endang Two Sulfiar¹, Muhammad Amrullah Pagala², La Malesi²

¹Alumnus, Faculty of Animal Science, Halu Oleo University
²Lecturers of the Faculty of Animal Husbandry, Halu Oleo University
email: amrullah.pagala@uho.ac.id

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ABSTRACT

This study aimed to determine the effect of katuk leaf powder in rations on consumption, body weight gain, and ration conversion of broiler chicken. The materials used in this research were 64-day old chicks (DOC) of broiler that were maintained for five weeks. Chickens were divided into 16 plots of cages where each plot was filled with 4 chicken experiments. This study used a completely randomized design consisted of four treatments and four replications. The treatments were control (P0), level of 2% of katuk leaf powder (P1), level of 4% of katuk leaf powder (P2), and level of 6% of katuk leaf powder (P3). Parameters observed were feed consumption, body weight gain, and feed conversion. The result showed that the addition of katuk leaf powder in the ration of each treatment gave the same amount of consumption. The level of 2% of katuk leaf powder could improve the weight gain of broiler chicken.

Keywords: Broiler, katuk leaves, consumption, weight gain, feed consumption

INTRODUCTION

Broilers are a type of superior breed that results from crossing produced from male Cornish strains with large females, namely Plymouth Rocks which is a high-boned white strain (Rasyaf, 2008). The broiler is a meat race which is still a top priority in the poultry industry to meet the needs of human-animal protein. Some of the superior properties of broilers such as it does not require a large place in maintenance, highly nutritious, fast growth, and efficiently convert food into the meat so that it can reach a heavy selling age with high body weight.

Broilers can produce meat in a shorter time than other types of chicken, so the excess chicken is positively correlated with the need for animal protein in society that continues to increase. However, fast meat production in broilers requires complete dietary support rich in nutrients. So that effort is needed to increase broiler chicken production through ration modification with quite high nutritional content. Feed ingredients that have high nutritional and nutrient content are not cheap, so it needs efforts to utilize alternative feeds that are cheaper and more affordable but still have high nutritional value. One of them is the use of katuk leaf flour, where katuk leaf flour is rich in nutrients, several vitamins, proteins, and other minerals that are needed by poultry for its growth.

Based on the description above, the purpose of this study is to determine the effect of katuk leaf flour in rations on consumption, weight gain, and conversion of broiler rations.

MATERIALS AND METHODS

The material used in this study were 64 Day old chick (DOC) broilers, and the feed ingredients used were yellow corn, rice bran, RK24 concentrate, katuk leaf...
flour, viterna. The taking of this research material is in the CV. Mitra Jaya Jl. Bunggasi Andonuhu, Poasia, Kendari City, Southeast Sulawesi.

The equipment used is a digital scale, a colony cage made of sawdust wood which is divided into 16 plots and the size of each plot is 1m x 1m, each plot is equipped with a place to eat and drink, 5-watt incandescent balloons and other equipment such as blenders, basins, plastics, newspapers, sacks, and gutters.

The study was designed using a Completely Randomized Design (CRD) consisting of 4 treatments and 4 replications, where 4 treatments consisted of:

- P0: basic ration (control)
- P1: Basic ration contains 2% katuk leaf flour
- P2: Basic ration contains 4% katuk leaf flour
- P3: Basic ration contains 6% katuk leaf flour

1. The parameters measured in this study are:
- Feed consumption (Rasyaf, 2004) with the formula:
  \[
  \text{Consumption} = \text{feed is given leftover feed}
  \]

2. Weight Gain (Rasyaf, 2004):
  \[
  PBB = \frac{BB \text{ Akhir} - BB \text{ Awal} \ (g)}{7 \ (hari)}
  \]

3. Feed conversion (Rasyaf, 2004):
  \[
  \text{Konversi} = \frac{\text{Konsumsi pakan} \ (g)}{PBB \ (g)}
  \]

RESULTS AND DISCUSSION

Consumption of Broiler Chicken Rations

Feed consumption is the process of entering several nutritional elements that are in the ration that has been composed of various feed ingredients to meet the needs of broiler chickens. The effect of katuk leaf flour administration on the consumption of broiler chicken rations with different levels can be seen in the following Table 1.

Table 1. Average consumption of broiler chicken ration (gram / head / day) in each treatment.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Repeat</th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>Total</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>80,51</td>
<td>81,75</td>
<td>69,22</td>
<td>67,55</td>
<td>299,03</td>
<td>74,76</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>73,64</td>
<td>84,13</td>
<td>74,89</td>
<td>75,66</td>
<td>308,33</td>
<td>77,08</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>73,22</td>
<td>80,63</td>
<td>71,51</td>
<td>76,38</td>
<td>301,73</td>
<td>75,43</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>69,83</td>
<td>69,86</td>
<td>75,22</td>
<td>67,46</td>
<td>282,38</td>
<td>70,59</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>297,21</td>
<td>316,37</td>
<td>290,84</td>
<td>287,05</td>
<td>1197,47</td>
<td>297,87</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>74,30</td>
<td>79,09</td>
<td>72,71</td>
<td>71,76</td>
<td>297,87</td>
<td>74,47</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>±4,48</td>
<td>±6,33</td>
<td>±2,87</td>
<td>±4,92</td>
<td>±11,04</td>
<td>±2,76</td>
</tr>
</tbody>
</table>

The results of the analysis of variance showed that the administration of katuk leaf flour had no significant effect (P > 0.05) on ration consumption. The average consumption of broiler chicken rations ranged from 71.76 grams / head / day to 79.09 grams / head / day.

Consumption of broiler chicken ration for each treatment containing katuk leaf flour with a level of 2%, 4%, and 6% did not increase ration consumption. This is following research Fajri (2012) states that the addition of katuk leaf flour with a level of 2% to 3% in the ration does not increase ration consumption. While research Mide (2013) explains that the addition of 0.5% - 2% katuk leaf flour and turmeric rhizome in the ration showed no significant effect on ration consumption.
One of the factors that caused the consumption of rations in each treatment had no significant effect because the metabolic energy content in the ration of each treatment was almost the same, where the metabolic energy in this study ranged from 2953.5 Kcal/kg to 3043.5 Kcal/kg according to the needs of broilers finisher phase.

This is in line with what Rasyaf (2004) recommended that the finisher phase of the broiler chicken's metabolic energy requirements ranges from 2860-3410 Kcal/kg and protein level 17.5-21%. Whereas Abun (2006) explains that broiler chickens will increase or reduce their ration consumption according to their metabolic energy requirements, if each treatment has the same metabolic energy content, then ration consumption gives no significant effect.

According to Saleh and Dwi (2005) that the provision of rations and nutritional content of each treatment are the same in a study, the consumption of broiler rations in the treatment will provide relatively the same consumption value. This is in line with the opinion of Subekti (2006) that the consumption of rations that are relatively the same in each treatment is influenced by the nutritional content of rations in the form of protein and metabolic energy.

### Increased Broiler Chicken Body Weight

The effect of katuk leaf flour on broiler chicken body weight gain can be seen in the following Table 2.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Repeat</th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>Total</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30.59</td>
<td>32.35</td>
<td>31.58</td>
<td>25.28</td>
<td>119.79</td>
<td>29.95</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>28.61</td>
<td>33.74</td>
<td>30.34</td>
<td>28.61</td>
<td>121.29</td>
<td>30.32</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>27.53</td>
<td>36.85</td>
<td>27.26</td>
<td>28.08</td>
<td>119.71</td>
<td>29.93</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>28.20</td>
<td>28.82</td>
<td>29.27</td>
<td>27.50</td>
<td>113.79</td>
<td>28.45</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>114.92</td>
<td>131.76</td>
<td>118.45</td>
<td>109.46</td>
<td>474.59</td>
<td>118.65</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28.73a</td>
<td>32.94c</td>
<td>29.61bc</td>
<td>27.37a</td>
<td>118.65</td>
<td>29.66</td>
</tr>
<tr>
<td>SD</td>
<td>±1.32</td>
<td>±3.33</td>
<td>±1.83</td>
<td>±1.46</td>
<td>±3.32</td>
<td>±0.83</td>
<td></td>
</tr>
</tbody>
</table>

Keterangan: Angka yang diikuti superskrip yang berbeda pada baris dan kolom yang sama menunjukan hasil yang berbeda nyata (P<0.05)

The results of the analysis of variance showed that broiler chickens that received rations containing level 2% katuk leaf flour had a significant effect (P<0.05) on body weight gain. The average weight gain ranges from 27.37 grams / head / day to 131.76 grams / head / day.

DMRT test showed that P0 treatment was significantly different from P1 treatment, but not significantly different from P2 and P3. P1 treatment was not significantly different from P2 but significantly different from P0 and P3. P2 treatment was not significantly different towards P0, P1, and P3. P3 treatment was not significantly different from P0 and P2, but significantly different from P1.

The body weight gain of broiler chickens that received katuk leaf flour treatment with a level of 2% was higher than the control treatment, even though the consumption of ration for each treatment had a similar average. This is the following research Fajri (2012) that with the addition...
of katuk leaf flour with a level of 2% to 3% in the ration can increase body weight gain. Increasing broiler chicken body weight gain at level 2% katuk leaf flour may be influenced by phytochemical compounds. This compound can increase the chicken's immune response, increasing the chicken immune system is positively correlated with increasing chicken performance.

Bidura et al. (2007) stated that the addition of old katuk leaf flour by 3% can inhibit the growth of harmful microorganisms in the digestive tract of chickens so that the utilization of nutrients in the ration by chickens is more optimal and growth will increase.

Phytochemical compounds that affect broiler chicken body weight gain are saponins and flavonoids. Saponins that work in the digestive system in chickens, namely as an anti-bacterial by disturbing the stability of bacterial cell membranes, causing bactericidal cells, so the mechanism of action of saponins is included in the group that interferes with permeability cells and cause the release of various important components from within bacterial cells, namely proteins, nucleic acids, and nucleotides (Purbowati, 2011 et al). Furthermore, Manoi (2009) states that flavonoids are the largest group in phenol compounds, phenol compounds have effective properties to inhibit the growth of viruses, bacteria, and fungi. These active flavonoid compounds play a direct role in the gut as anti-bacteria by interfering with the function of pathogenic bacterial microorganisms. So it can be concluded that by inhibiting these microorganism compounds the absorption of nutrients in the intestine is better and has a positive impact on body weight gain.

**Conversion of Broiler Chicken Rations**

Feed conversion or feed conversion ratio (FCR) is a comparison of the amount of ration consumption in one week with bodyweight gain achieved in the same week. If the ratio is small, it means the FCR of the chicken is satisfactory or the chicken is eating efficiently. The effect of katuk leaf flour on broiler chickens on feed conversion can be seen in Table 3 below.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>P0</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>Total</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.63</td>
<td>2.60</td>
<td>2.19</td>
<td>2.67</td>
<td>10.02</td>
<td>2.51</td>
</tr>
<tr>
<td>2</td>
<td>2.57</td>
<td>2.39</td>
<td>2.47</td>
<td>2.64</td>
<td>10.18</td>
<td>2.55</td>
</tr>
<tr>
<td>3</td>
<td>2.66</td>
<td>1.90</td>
<td>2.62</td>
<td>2.72</td>
<td>10.19</td>
<td>2.55</td>
</tr>
<tr>
<td>4</td>
<td>2.48</td>
<td>2.40</td>
<td>2.57</td>
<td>2.45</td>
<td>9.92</td>
<td>2.48</td>
</tr>
<tr>
<td>Total</td>
<td>10.34</td>
<td>9.29</td>
<td>9.85</td>
<td>10.49</td>
<td>40.32</td>
<td>10.08</td>
</tr>
<tr>
<td>Average</td>
<td>2.59</td>
<td>2.32</td>
<td>2.46</td>
<td>2.62</td>
<td>10.08</td>
<td>2.52</td>
</tr>
<tr>
<td>SD</td>
<td>±0.08</td>
<td>±0.30</td>
<td>±0.19</td>
<td>±0.12</td>
<td>±0.54</td>
<td>±0.14</td>
</tr>
</tbody>
</table>

The results of the analysis of variance showed that the administration of katuk leaf flour had no significant effect (P> 0.05) on ration conversion. The average conversion ratio of broiler chickens ranged from 2.32 to 2.62.

The lower the value of the feed conversion indicates that the better feed conversion. The conversion value is related to the amount of ration consumption and body weight gain because ration conversion is the ability of animals to convert ration units into units of body weight. Although the ability to convert ration between treatments was not significantly different, the provision of katuk leaf flour up to the level of 2% was able to increase body weight gain of broiler chickens. This is following the research of Nasution et al (2014) which states that the addition of katuk leaf flour in the ration can increase body weight gain, although the value of
consumption and feed conversion shows no significant effect but it can compensate for the control ration even though the conversion value is above two. This is also in line with the opinion of Fajri (2012) states that the addition of katuk leaf flour in the ration shows no significant difference in the consumption and conversion of rations, but can increase body weight gain. Similarly, the opinion of Wijayanti et al (2013) explains that the high and low numbers feed conversion is caused by the difference that is getting bigger or smaller in the ratio between the ration consumed and the bodyweight gain achieved.

CONCLUSION

Based on the results of research and discussion, it can be concluded that:
1. The addition of katuk leaf flour at level 2% in the ration was able to improve the body weight gain of broiler chickens.
2. The addition of katuk leaf flour at the level of 4% and 6% in the ration had an impact on low body weight gain and the value of the feed conversion which was getting bigger in broiler chickens.

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Sekolah Pascasarjana, Institut Pertanian Bogor.