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# Addition of Rodent Tuber Leaf Flour (Typhonium Flagelliforme) In Growth Period Peking Duck

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## Abstract

*Utilization of local resources to support livestock production in the research location includes rodent tuber leaves found in many areas palm plantations, which have good nutritional content, but have high crude fiber. This study aims to find out the effect of Rodent Tuber Leaf Flour on rations during peking duck growth. The research method used an experimental method with completely randomized design (CRD) consist of 4 treatments and 5 replications, where treatment P1 = control ration feed, P2 = treatment feed with 5% rodent tuber leaves, P3 = treatment feed with 10% leaves rodent tuber and P4 = treated feed with 15% rodent tuber leaves, parameters count was feed consumption, body weight gain and feed conversion. The results showed significant effect results on ration consumption, the results of body weight gain showed significant effect results and in feed conversion showed significant effect results. The conclusion is the addition of rodent tuber leaf flour to the rations of Peking ducks at the level of 10% in the ration increases ration consumption and body weight gain, and increases the efficiency of ration conversion.*

Keywords
rodent tuber; growth; peking duck

## I. Introduction

Peking duck (Anas plattyrhynchos) is a type of waterfowl that is included in the type of meat, because it has fast growth in a relatively short time, with the classification of kingdom animalia, phylum chordata class aves order anseriformes and family Anatidae. Peking ducks are omnivorous (eating everything), that is, they eat animals and plants such as seeds, grasses, fish, snails and snails. Ducks have the ability to grow very quickly because they are able to consume large amounts of rations (Ridwan, Sari, Andika, Candra, & Maradon, 2019).

In the Peking duck business, one of the most important things is the ration used to feed ducks to determine the growth and production of livestock. In Indonesia, especially in the region of North Sumatra, there are many plantations and one of the plants that grows a lot in the plantation area is the rodent tuber plant. Seeing the large amount of potency of the rodent tuber plant is a potential source of feed that can be used as feed material for livestock.

Rodent tuber plants are included in medicinal plants which are native to Indonesia which are found throughout the region. grows both in the lowlands and highlands (Sianipar, Ariandana, Wantho, Rustikawati., & Maarisitthe, 2013).

Rodent tuber is also spread in Asia, especially in humid places and lack of sunlight. (Chan, Koh & Muhammad, 2005). Taro leaves have considerable potential as animal feed ingredients because they contain the following nutrients:

**Table 1.** Nutritional Content of Rat Taro Leaves

| Nutritional Content of Rat Taro Leaf Flour | Contain % |
|---|---|
| Water Contetnt | 14,33 |
| Crude Protein | 18,12 |
| Crude Fiber | 31,04 |
| Crude Fat | 2,93 |
| Ash | 9,44 |
| Gross energy (Kkal/kg) | 3129 |

Source: UNPAB Laboratory Analysis, 2020

Until now, research that raises the potential of rodent tuber as a feed ingredient / additional feed ingredient for livestock both ruminants and poultry is still very rare, one of the studies conducted by (Liu, AS, Foenay, TAY, & Koni, TNI 2020) concerning the Use of Taro Flour on Physical Quality and Nutrient Content of Chicken Feed Pellets states that nutrient quality is the lowest water content, highest fat content and lowest crude fiber in the use of 4% taro tuber flour.

## II. Research Methods

This research was conducted in VI sei village, left branch of the village head of the river, secanggang sub-district. The research material used 100 Day old ducks (DOD) and the ingredients of the rations included corn bran, rice bran, palm kernel meal, coconut cake, rat taro flour, soybean meal, coconut oil and mineral mix.

The tools used in the research were research cages, feed places, drinking containers, tarpaulins, calculators, scales, stationery, cameras for documentation. The tools used to make rations are knives, tarps, ovens, grinders.

This study used a non-factorial Completely Randomized Design (CRD) consisting of 4 treatments with 5 replications. The treatments given are:

P1 = 100% feed ration (control) 0%
P2 = 95% ration feed + rat taro flour (rat taro leaf flour) 5%
P3 = 90% ration feed + rat taro flour (rat taro leaf flour) 10%
P4 = 85% ration feed + rat taro flour (rat taro leaf flour) 15%

The research was carried out using a battery cage with a size of 70cm x 70 cm for each plot. Feed is given every 8 hours by weighing the rest of the feed then given new feed according to the needs, drinking water is given ad-libitum, which is always available at all times.

The research data will be analyzed with analysis of variance and if there is a real difference, it will be further tested using the least significant difference (LSD) further test. (Hanafiah, 2010) Observed parameters Feed consumption Feed consumption is the difference between the amount of feed given and the rest of the feed on the following morning. Feed consumption is calculated by the following formula: Feed consumption (g / day) = amount of feed given - amount of leftover feed Consumption data recording is done every day feeding and recapitulation is done every day Weight Gain (g) The body weight

growth is calculated based on the difference from the weighing done every week by weighing the body weight every week then subtracting the body weight from the previous week to obtain the weekly weight gain data, then divide it by the number of days each week to obtain the daily weight gain. Efforts to Increase Health Degrees in Indonesia until now have not been considered to have an Continuation of Health Development Continuation, this is when compared to neighboring Countries Health Degrees in Indonesia are still considered low. One indicator of the success of development for the development of an ideal nation is the establishment and organization of a good health system (Akbar, 2021).

Feed Conversion (g) Feed conversion is calculated by comparing the total amount of ration consumed with the total body weight gain produced. Calculations were made at the end of the study.

**Table 2.** The Composition of the Rations Used

| Feed Ingredients | Perlakuan | | | |
|---|---|---|---|---|
| | P1 | P2 | P3 | P4 |
| Corn | 25 | 21 | 15 | 15 |
| Rice bran | 27 | 26 | 31 | 27 |
| Palm Kernel meal | 18 | 20 | 17 | 17 |
| Fish meal | 28 | 26 | 25 | 24 |
| Taro Leaf rodent tuber | 0 | 5 | 10 | 15 |
| Oil | 1 | 1 | 1 | 1 |
| Mineral mix | 1 | 1 | 1 | 1 |
| Total | 100 | 100 | 100 | 100 |
| Composition of Nutrient Content | | | | |
| Crude Protein | 22,09 | 21,83 | 21,87 | 21.79 |
| Energi Metabolis | 2901 | 2856 | 2856 | 2872 |
| Crude Fiber | 5,23 | 6,12 | 7.34 | 7,95 |
| Crude Fat | 3,07 | 3,47 | 3,21 | 3,12 |

## IV. Discussion

The average ration consumption, body weight gain and ration conversion can be seen in Table 3 below.

**Table 3.** Recapitulation of Research Results

| Parameter | Treatment | | | |
|---|---|---|---|---|
| | P1 | P2 | P3 | P4 |
| Feed Consumption | $91,28\pm0,11^{a}$ | $92,20\pm0,11^{b}$ | $93,39\pm0,08^{c}$ | $91,57\pm0,18^{a}$ |
| Body Weight Gain | $19,31\pm2,24^{b}$ | $18,87\pm0,96^{b}$ | $20,70\pm1,55^{c}$ | $17,01\pm1,65^{a}$ |
| Feed Convertion | $4,72\pm0,57^{b}$ | $4,90\pm0,26^{c}$ | $4,51\pm0,35^{a}$ | $5,420\pm0,53^{d}$ |

Values bearing different superscripts in a column differ significantly ($P<0.05$).

The average amount of feed consumption due to the provision of rat taro leaf flour on the performance of Peking ducks was 92.15 g / head for 60 days. The results of the analysis of variety showed that giving flour to the performance of the Peking duck had a

significant effect (p <0.05) on the amount of feed consumption. The amount of feed consumption with the provision of rat taro leaf flour in the P3 treatment (90% ration feed + 10% rat taro leaf flour) was higher when compared to other treatments. This is because P3 treatment has a higher level of palatability when compared to other treatments, so that its consumption is higher. This is in accordance with the opinion (Ambara, Suparta, & Suasta, 2013) that palatability affects the amount of feed consumed and feed palatability is one of the important factors that can affect the level of feed consumption. Different types of feed ingredients used to prepare feed can cause differences in palatability and nutrient content which ultimately affect the different amounts of feed consumed by livestock.

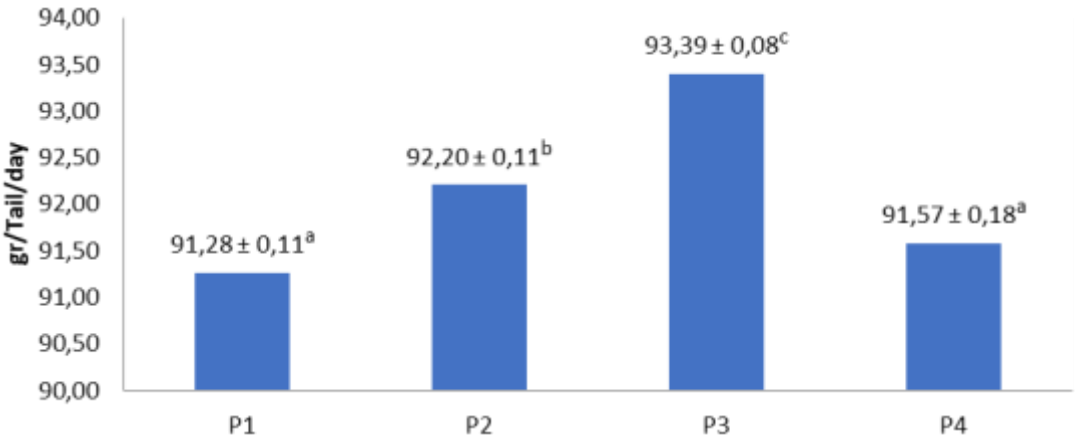


***Figure 1.*** *Feed Consumed by Livestock*

Treatment. P1 = 100% ration feed (control), P2 = 95% ration feed + 5% rat taro leaf flour, P3 = 90% ration feed + 10% rat keladis leaf meal, and P4 = 85% ration feed + rat taro leaf flour 15%.

Dry matter consumption is usually influenced by body size, the amount of energy contained in feed and digestion rate (Wandari, Suthama, & Yunianto, 2017). Livestock will stop consuming feed when their dry matter needs have been met, even though other nutrient needs are not fulfilled, so that the feed given should have a quality that can meet the basic needs of life and livestock production. Added by (Rasyid, 2013) that certain feeds that are less palable than others will limit the consumption of one animal.

The ration consumption of Peking ducks in P3 treatment with a content of 10% rodent tuber leaf flour in the ration has the highest consumption level due to the factor of paltability and to meet the nutritional needs of the livestock itself which is obtained from rations that have high levels of crude fiber, as in the study. (Daud, Mulyadi, & Fuadi, 2016) by feeding Peking ducks with a crude fiber content of up to 10% in the ration, resulting in a ration consumption level of 140 grams / head / day.

The decrease in the consumption level in the 15% treatment, the addition of rat taro leaf flour in the ration was caused by a change in the level of palatability, seen from the change in the aroma of the ration in the treatment with the aroma and taste of the ration in the Tesbut treatment. The results of field observations on P4 treatment (15% rodent tuber leaves) Peking duck only consumed until the ration provided was limited to the needs of the ducks. It is also supported by the crude fiber content in the P4 treatment feed which is higher in crude fiber content compared to other treatments.

The average increase in body weight of Peking ducks due to treatment of taro leaf flour for peking ducks performance was 18.98 g / head / day. The results of the analysis of

variance showed that the provision of rat taro leaf flour on the performance of the Peking duck had a significant effect (P> 0.05) on the increase in body weight of the Peking duck. The increase in body weight of Peking ducks in P3 treatment (90% ration + 10% rat taro leaf meal) was higher when compared to P1, P2 and P4. This is consistent with the increase in the level of taro taro leaf flour used in the ration to the limit of 10% usage. This happens because above 10% of the ration will cause an increase in crude fiber and changes in the aroma and taste of the ration which results in a decrease in feed consumption which is followed by a decrease in the average body weight level because the nutrients that enter the body of livestock are reduced as a source of meat formation in the body duck.

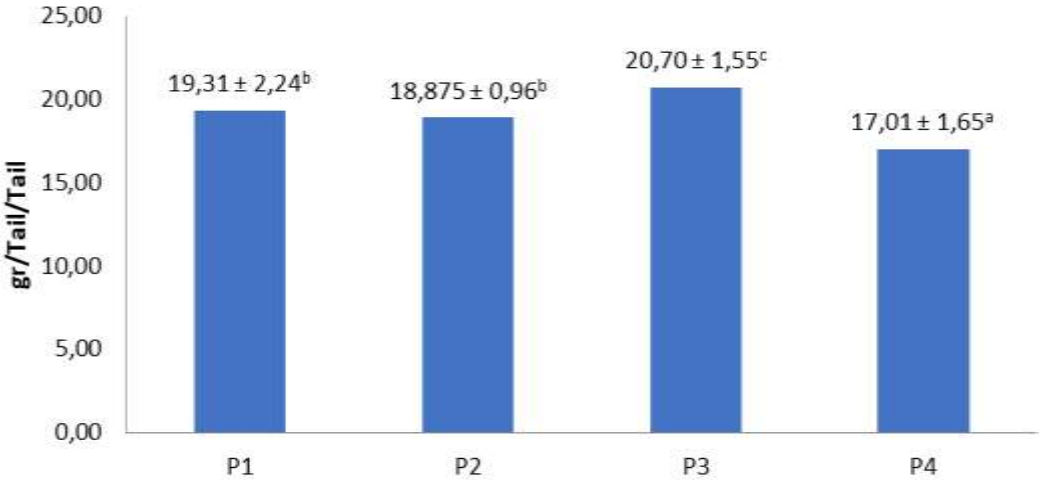


***Figure 2.*** *Average Body Weight Level*

Treatment. P1 = 100% ration feed (control), P2 = 95% ration feed + 5% rat taro leaf flour, P3 = 90% ration feed + 10% rat keladis leaf meal, and P4 = 85% ration feed + rat taro leaf flour 15%.

The factor of the level of consumption of the ideal balance between protein and energy will obtain a maximum livestock growth rate. Providing sufficient rations will increase livestock weight gain resulting in high livestock weight, so that the resulting livestock body weight is also high. Likewise, the content of the protein-energy balance value in each ration. This causes the weight of the Peking duck to be significantly different. (Sukirmansyah, Daud, & Latif, 2016). Efforts to Increase Health Degrees in Indonesia until now have not been considered to have an Continuation of Health Development Continuation, this is when compared to neighboring Countries Health Degrees in Indonesia are still considered low. One indicator of the success of development for the development of an ideal nation is the establishment and organization of a good health system (Huho, 2020).

The level of body weight gain of Peking ducks in this study was in line with the level of ration consumption consumed, which was the highest in the P3 treatment. This is due to the high number of rations consumed and the resistance of Peking duck to the high amount of crude fiber in the ration given. The results of the study (Christian, Djunaidi, & Natsir, 2016) state that using rations with a crude fiber level in the ration of 7.66% has an increase in body weight of 23 g / head / day, the results of this study are not much different from the results obtained.

Feed conversion is an important indicator in livestock business in determining the level of costs used in livestock business. The lower the feed conversion value indicates an increase in duck performance. (Ambara, Suparta, & Suasta, 2013).

The average conversion rate of the treatment with taro leaf flour on the performance of Peking duck was 4.91. The results of the analysis of variety showed that giving taro leaves flour to the performance of the Peking duck had a significant effect (P> 0.05) on feed conversion. Feed conversion between treatments showed significantly different results due to body weight gain between treatments which was also significantly different, so that the feed conversion value was significantly different. This is because the value of the ration conversion rate, which is the ratio of the amount of feed consumed to the production / body weight gain produced in the same period of time (Alyandari, NR, Wahyuni, .S, & Abun. (2015). This also shows that the feed which given can improve the performance of the Peking duck digestive system.Increased live weight and the rate of ration consumption are the main factors that affect the feed conversion ratio and the feed conversion value is influenced by digestibility and the efficiency of utilization of nutrients in the metabolic processes that take place in the digestive system. Quantitatively, the ration conversion value in treatment P3 is relatively smaller when compared to treatment P1, P2 and P4. This can inform that the P3 treatment ration is more efficient when compared to other treatments. This is because the different types of rations that make up the rations can result in different levels of palatability due to changes in taste and also changes in nutrient content levels that cause the level of livestock ration consumption.

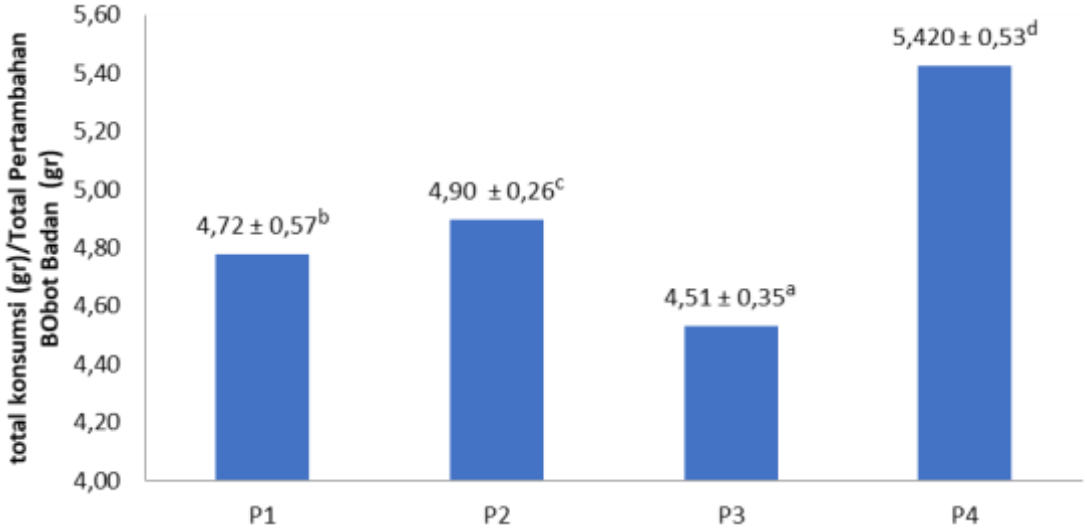


***Figure 3.*** *Nutrient Content Levels that Cause the Level of Livestock Ration Consumption*

Research. P1 = 100% ration feed (control), P2 = 95% ration feed + 5% rat taro leaf flour, P3 = 90% ration feed + 10% rat keladis leaf meal, and P4 = 85% ration feed + rat taro leaf flour 15%.

## V. Conclusion

Ration conversion which is a description of the level of effectiveness in the use of rations. The low ration conversion rate means that the use of feed is more efficient and vice versa if the conversion rate is large, the use of feed is inefficient. The ration conversion rate can be influenced by several things including the increase in body weight of livestock

and consumption of livestock rations. In addition, the feed conversion value is influenced by the level of digestibility and the efficiency of nutrient utilization in the livestock body. (Subekti & Hastuti, 2015) in the study, the results of the conversion of broiler duck ration were 2.2 using fermented feed with good ration content and had a fairly low amount of course and weight.

From the research, it was concluded that rodent tuber flour had a good chance as a ration for Peking duck. Among these treatments, P3 treatment (90% ration feed + 10% rat taro leaf meal) resulted in the best feed consumption, body weight and feed conversion when viewed from other treatments.

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