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Hematological Parameters and Growth Performance of Swine Fed with *Alternanthera sessilis*

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Abstract:

To evaluate the efficacy of *Alternanthera sessilis* as feed supplement on the Growth Performance and Hematological parameters of Swine (*Sus scrofa domesticus*) the researchers employed a Completely Randomized Design (CRD) and utilized 15 heads of Large White pig in a uniformed size and age. The Experimental animals were divided into 4 treatments replicated 3 times as the T1- pure commercial feeds, T2-100% *Alternanthera sessiles*, T3- combination of 50% commercial feeds and 50% *Alternanthera sessilis*, T4 was then a combination of 30% commercial feeds and 70% *Alternanthera sessilis*. The efficacy was observed within 120 days. Ahead of the allotment of the experimental animals initial weighing were conducted to ensure the weight uniformity. Subsequently, administration of the different treatments was done. Data on final weight, gain in weight, feed consumed, feed conversion efficiency and feed conversion ratio for growth performance and the hematological parameters at 120 days end of the study. Results revealed that there were significant differences in final weight, gain in weight, feed conversion efficiency and feed conversion ratio among all treatment. However results showed that the T3 combination were not significantly different from T1. Furthermore, on the hematological parameters results showed no significant difference between treatments. This implies that *Alternanthera sessilis* was recommended at 50%combination to 50% commercial feeds and it was safe for feeding swine without any harmful effect on the performance.

Keywords: *Alternanthera sessilis, feed supplement, hematology, swine.*

Introduction

The production volume of swine has one of the major contributors to ensuring the Philippines' food security, it discussed that 60% of pork Filipinos consumed. Despite the huge demands for pork, there are impediments faced by animal raisers encountered on the production, among those problems, the most serious was the high price of commercial feeds. Previously the price of commercial feeds has been increased leading some swine raisers to stop production. In addition, also a significant problem in many herds of swine is low fattening efficiency, which depressingly affects the success of the production.

With those issues the researchers aimed to developed local feed combination as feed supplement from weeds for accelerating the achievement of the designated fattening effects, maintaining the optimal composition of swine, and effectively thwarting diarrhea and its negative effects are vastly essential while

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lessening the use of commercial feeds to cut the high expenses on the production and the study was conducted to determine the efficacy of *Alternanthera sessilis* on the hematological parameters and growth performance of swine.

Materials and Methods

A total of 15 heads large white pig that is uniformed in size and age was utilized and it was conducted within 120 days. The experimental animals were divided into 4 treatment replicated three times as the T1- pure commercial, T2- 100% *Alternanthera sessilis,* T3-50% *Alternanthera sessilis* +50% commercial feeds, T4- 70% *Alternanthera sessilis* +30% commercial feeds. The data on growth performance in terms of initial weight, taken before the allotment of the experimental animals, while the final weight, gain in weight feed consumption, feed conversion efficiency and feed conversion ratio was gathered at the 120 days end of the study. The data on gain weight was determined by subtracting final weight to the initial weight, data on FCE was determined by dividing the gain in weight to feed consumption and multiplied by 100, while the FCR was determined by dividing the total feed consumption by the gain in weight. Two ml of blood from each experimental animals was collected at the 120 days end of the study for the hematological parameters in terms of packed cell volume, lymphocyte count, Red blood cell, neutrophills, eosinophil, hemoglobin and white blood cell had been gathered. Using the computed mean, the analysis of variance (ANOVA) was analyzed following the Completely Randomized Design (CRD). Tukey Kramer Multiple Comparison (TKMC) was used to further analyze and compare the significant differences between treatment means.

Results

Growth Performance

The growth performance of the swine in terms of initial, final and gain in weight as influenced by the *Alternanthera sessilis* was shown in table 1.

Table 1. Initial, Final, and Gain in Weight of Swine as Affected by *Alternanthera sessilis* at Different Level

Treatments	Initial weight(kg)	Final weight (kg)	Gain in weight (kg)
T1	6.00	60.005a	53.231a
T2	6.25	35.003c	27.606c
T3	6.05	60.242a	53.998a
T4	6.15	50.000b	45.567b
F-Test	**ns**	**	**

Note: ns- not significant; *significant; ** highly significant; Means with the same letter are not significantly different

Evidently as reflect on table 1 that the initial weight of the experimental animals were in uniform as the means range from T2 with the highest mean of 6.25, followed by T4 with a mean of 6.15, T3 with a mean of 6.05, while the T1 obtained the lowest mean of 6.00.

Means on the final weight and gain in weight was highly significant at 0.01 to 0.05 alpha levels. Experimental animals fed with 50/50 percent combination of *Alternanthera sessilis* and commercial feeds had the highest final weight of 600.242a and weight gain of 53.915a compared to the other treatment. However, it was also shown that the Treatment 1 and Treatment 3 were not significantly different.

Table 2. Feed Consumed, Feed Conversion Efficiency and Feed Conversion ratio of Swine as Affected by *Alternanthera sessilis* at Different Level

Treatments	Feed Consumed (kg)	FCE	FCR
T1	180	29.57	3.38a
T2	178	28.50	6.44b
T3	182	29.62	3.37a
T4	178	28.59	3.90a
F-Test	**ns**	**ns**	*

Note: ns- not significant; *significant; ** highly significant; Means with the same letter are not significantly different

Table 2 also presents the efficiency of broilers to convert feeds into meat. On the feed consumed it was shown that T3 had the highest mean of 182, followed by T1 with a mean of 180, while the T2 and T4 obtained the lowest mean of 178. On the other hand, the feed conversion efficiency means range from the highest mean of 29.62 of T3, followed by T1 with a mean of 29.57, T4 with a mean of 28.59, while the T2 obtained the lowest mean of 28.50. and for the Feed conversion ratio the T3 obtained the lowest mean of 3.37, followed by T1 with a mean of 3.38, T4 with a mean of 3.90 and the T2 with the highest mean of 6.44.

Table 3. Effect of *Alternanthera sessilis* on the Hematological Parameters of Swine

Parameters	T1	T2	T3	T4
Packed Cell Volume	38.00%	36.05%	39.00%	37.00%
Lymphocyte Count	45.13%	47.00%	46.23%	45.89%
Red blood cell	15.87%	17.00%	16.34%	15.00%
Neutrophills	32.00%	33.05%	33.07%	32.10%
Eosinophil	8.50%	9.00%	8.90%	8.79%
Hemoglobin	14.14%	14.15%	14.00%	13.97%
White blood cell	16.00%	17.00%	16.73%	16.57%
F-Test	**ns**	**ns**	**ns**	**ns**

Hematological parameters results shows in table 3, The values of Packed Cell Volume, Lymphocyte Count, Red blood cell, NeutrophillsEosinophil, Hemoglobin and White blood cells obtained in this study revealed that there were no significant at $p>0.05$ level differences from all hematological parameters across treatment group.

Discussion

Before the administration of the different treatment initial weight was conducted. As the results shows initial weight were not significantly different to every treatment. This means that all experimental animals had a same weight before the administration of the different treatment.

In terms of Final weight and Gain in weight results was highly significant difference. This implies that the *Alternanthera sessilis* at different level had a different impact to large white pig. However, in treatment 1 and treatment 3 had no significant difference, which means the 50% *Alternanthera sessilis* and 50% commercial feeds combination were comparable to 100 percent commercial feeds.

This results were conforming that there was an effect of the *Alternanthera sessilis* in gaining weight of the experimental animals within 120 days.

Furthermore, in the feed consumption and feed conversion efficiency observation. Within the 120 days duration of the study found that analysis of variance revealed that the efficiency of experimental animals is comparable with the 100% commercial feeds treatment, this means that giving *Alternanthera sessilis* to swine do not affects its efficiency to convert feeds into meat.

While in Feed Conversion Ratio the effects of *Alternanthera sessilis* at different levels reveals significant result between and among treatment. This means that addition of *Alternanthera sessilis* on the diet of the Large White pig improve the growth performance in terms of feed conversion ratio. Hence, experimental animals at T3 was the best converters with the lowest mean of 3.37, while T2 with a mean of 6.44 acquire the highest ratio, which means among all treatments was the poorest converter.

Moreover, the hematological results of the study shows no significant differences, this implies that *Alternanthera sessilis* was nonhazardous as feeds to swine, specifically to large white pig without any effect on the blood parameters. The results obtained in the hematological parameters fall within under normal range of value.

Conclusion

Overall, the growth performance of swine fed with *Alternanthera sessilis* in combination with the commercial feeds were:

1. Swine fed with a combination of 50% *Alternanthera sessilis* and 50 % commercial feed was the best in the growth performance in terms of final weight in gain in weight and feed conversion ratio.

2. Hematological parameters measured of experimental animals (swine) fed with *Alternanthera sessilis* was safe within 120 days duration of the study.

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Conflict of Interests

No conflict of interest.

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