PERFORMANCE AND HEMATOLOGICAL VALUES OF RABBITS FED GRADED LEVELS OF BOILED *DELONIX REGIA* SEED MEAL

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ABSTRACT
Eight (8) weeks feeding trail was carried out to determine the potential effect of boiled Delonix regia in rabbits' diet. Diet formulated contained 0% (T1), 2.5% (T2), 5% (T3), 7.5% (T4) and 10% (T5) of boiled Delonix regia seed meal. A total number of 30 rabbits age ranging between 6-8 weeks were randomly allotted to (5) treatments having 3 replicates of 2 rabbit per replicate. The rabbits were fed the experimental diet over a period of eight (8) weeks. Feed intake was measure daily and the rabbits were weighed weekly. Parameters taken in this experiment were body weight, hematological values, and carcass characteristics. There was significance increase in feed intake of rabbits in T2 inclusion level of the boiled Delonix regia seed meal compared to other treatments. Whereas, there were no significant variation between TI, T4 and T5. The White Blood Cell count was observed to be within values of 2.10 – 5.43x10(ml). The result also revealed that the red blood cell (RBC) is within the recommended range (5.0-8.0). From the experiment it could be concluded that dietary inclusion of Delonix regia seeds resulted in significant improvement in growth performance of rabbit and the difference observed at 5% level of inclusion could be due to the strain of the rabbits used.

Key words: Rabbits, Delonix regia, Hematology, Growth Performance

INTRODUCTION
The intake of animal protein is low in developing countries than in developed countries. The FAO recommends a minimum of 70g of protein daily per caput out of which at least 35g (50%) should come from animal proteins. Micro-livestock such as rabbit, have been suggested as a rapid means of obtaining animal protein (Orerede *et al.,* 2000) because the daily weight gain is high in proportion to the body weight which gives them a rapid growth rate and early sexual maturity. These resulted in the rabbit reaching the weight of sexual maturity and its 30% faster than other animals (Ajayi *et al.,* 2005) which makes it suitable as meat producing small livestock, in developing countries (Argeniwa, *et al.,* 2000). *Delonix regia* is also known as Flamboyant tree, it's a tropical, ever green shrub which belongs to the family of fabacae, (Christman, 2004). It is noted for its fern-like leaves and flamboyant displays of flower. Hematological parameter is an important and reliable medium used to monitor and evaluate health and nutritional status of animals, Gupta et al. (2007). The various function of the blood is made possible by the individual and collective actions of its constituents, this study therefore investigates the performance and hematological values of rabbits fed graded levels of boiled *Delonix regia* seed meal

MATERIALS AND METHODS
The study was conducted at the teaching and research farm, Federal College of Animal Health and Production Technology, Chaha Farm, Vom. Jos South Local Government Area of Plateau State. A total of 30 Rabbits were obtained from commercial farmers within Vom in Plateau State. They were of mixed breeds and sexes and were randomly allotted into five dietary treatments with six (6) rabbits per treatment in three (3) replicates using the completely randomized design (CRD). The experimental rabbits were fed with formulated diet containing 0% (T1), 2.5% (T2), 5% (T3), 7.5% (T4) and 10% (T5) inclusion rate of boiled *Delonix regia* seed meal and the recommended management and health practices were strictly adhered to. Feed and clean water was supplied *ad-libitum*. Daily feed consumption was recorded as difference of feed offered and the left-over. Weight gain was measured weekly. Blood samples were collected from the heart and marginal vein of the ear into bottles containing EDTA as anticoagulant. The samples were taken to laboratory for analysis to determine the Packed Cell Volume (PCV), Red Blood Cell (RBC), White blood cell (WBC), Neutrophils (N), Lymphocytes (L), total protein, cholesterol and Urea. The PVC, RBC, WBC, N and L were

determined using the Wintrobe-icrohaematocrit. Neuber-haematocytocytometer and Cyano-haemoglobin Results obtained from blood parameters was subjected to analysis of variance (ANOVA) using SAS (2008) software. Means were separated with Duncan multiple range test at 5% level of significance.

RESULTS AND DISCUSSIONS

Table 1: Composition of Experimental Diet Containing Graded Levels of *Delonix regia* Seed Meal

Ingredient	0%	2.5%	5%	7.5%	10%
Maize	53.11	50.58	48.08	45.56	43.00
Maize Offal	13.28	12.64	12.02	11.39	10.76
GNC	29.26	29.89	30.55	31.20	31.85
*Delonixregi*i	0.00	2.50	5.00	7.50	10.00
Bone meal	2.50	2.50	2.50	2.50	2.50
Limestone	1.00	1.00	1.00	1.00	1.00
Salt	0.30	0.30	0.30	0.30	0.30
Premix	0.25	0.25	0.25	0.25	0.25
Lysine	0.15	0.15	0.15	0.15	0.15
Methionine	0.15	0.15	0.15	0.15	0.15
TOTAL	100	100	100	100	100
Calculated Values%					
Crude Protein	19.00	19.15	20.04	20.56	21.07
ME (Kcal/kg)	2927.20	2909.84	2894,78	2878.53	2860.08

Table 2: Haematological Analysis before Trial

PARAMETERS	A	B	C	D	E	SEM
P.C.V.(%)	35.67	30.33	34.33	34.00	29.00	1.350
WBC(x109/L)	5.43	3.07	2.67	4.13	2.10	0.535
NEUTROPHILS (%)	64.00^{a}	57.00^{a}	38.67^{b}	60.33^{a}	63.00^{a}	3.270
LYMPHOCYTES (%)	43.67^{b}	46.33^{ab}	61.00^{a}	37.33^{b}	37.00^{b}	3.330

Note: abc - means within a row with different superscripts are significantly Different (P<0.05).
PCV- packed cell volume; WBC- white blood cell; SEM- standard error mean

Table 3: Hematological Analysis after the Trial

PARAMETERS	A	B	C	D	E	SEM
PCV (%)	31.33	32.00	31.33	33.67	32.33	0.616
WBC (x 10^{9}/L)	9.30	8.13	6.17	8.36	7.50	0.588
RBC(x 10^{12}/mm3)	1.67	1.90	1.67	2.10	1.90	0.096
Neutrophils (%)	29.67	32.00	31.00	41.67	32.67	2.380
Lymphocytes (%)	66.67	69.00	62.00	59.00	36.67	2.670

Note: abc - means within a row with different superscripts are significantly Different (P<0.05).
PCV- packed cell volume; WBC- white blood cell; SEM- standard error mean

Table 4: Serum Analysis

Parameters	A	B	C	D	E	SEM
Total protein	58.95^{a}	59.69^{a}	51.52^{b}	51.41^{b}	50.91^{b}	1.320
Cholesterol	0.69^{ab}	0.75^{b}	0.55^{b}	0.64^{ab}	0.51^{b}	0.033
Urea	7.39^{bc}	6.13^{c}	7.81^{bc}	9.00^{ab}	10.56^{b}	0.509

Note: abc -means within a row with different superscripts are significantly Different (P<0.05).

Table 5: Growth Performance of Rabbits fed boiled *Delonix regia* Seed Meal

Parameters	0%	2.5%	5%	7.5%	10%	SEM
Initial weight (g)	190	170	150	180	255	1.59
Final weight (g)	420	390	425	415	495	0.05
Weight gain (g)	230[a]	220[b]	235[a]	235[a]	240[a]	2.00
Total feed intake (g)	1059.9	1098.9	735.4	1016	1036.3	10.45
Feed conversion ratio	4.61[a]	4.90[a]	3.13[c]	4.32[b]	4.32[b]	0.54

Note: abc -means within a row with different superscripts are significantly Different (P<0.05)

The Table 5 above shows the performance of the rabbits fed graded levels of *Delonix regia* seed meal, at 5% with the feed conversion ratio and feed intake observed to differ significantly from other treatments 0%, 25%, 75% and 10% respectively. But the weight gain obtained at 10% inclusion rate was higher and this corresponded with the investigation made by Fatufe (2009) who also fed diet containing *Delonix regia* seed meal at 5% and 10% and discovered it has no adverse effect on body weight and carcass evaluation of the rabbits. Although, at 5% inclusion level, two (2) mortality were recorded with stunted growth, which could be attributed to the strain and type of the rabbit used for the experiment since the rabbits were obtained from different commercial farmers. From the result, the Packed Cell Volume (PCV) obtained fell within the range of 31.0-48.6%. Hence, the higher packed cell volume (PCV) obtained from the results shown a better nourishment of these diets on the rabbits during the trials. Also, the result of white blood cell count (WBC) values shows that the defensive system of the rabbit selected was not affected before and after the trial. The White Blood Cell count was observed to be within values of 2.10 – 5.43x10ml. The result also further revealed that the red blood cell (RBC) is within the recommended range (5.0-8.0). This implies that the seeds did not cause any inflammatory and allergic reactions to the rabbits, at 10% inclusion rate. Treatment with 10% dietary inclusion of cooked and fermented *Delonix regia* seed meal gave promising results which was comparable to the control (maize and Soybeans diets), thus, it is recommended for adoption by farmers.

CONCLUSION

The research shows how efficient *Delonix regia* is to the nutrition of rabbits and other livestock, it can be used to replace Soya beans in a diet. The results from the study is an indication that *Delonix regia* seed meal diets could be fed to rabbit from 2.5% - 10% inclusion without causing any side effect, thus providing a cheaper source of feeding. The study has shown that raw and processed *Delonix regia* seeds contain anti nutrients hence the need for detoxification before feed to the animal.

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