Scholarly Journal of Agricultural Science Vol. 7(1), pp. 20-26 February, 2017
Available online at http:// www.scholarly-journals.com/SJAS
ISSN 2276-7118 © 2017 Scholarly-Journals

Full Length Research Paper

Effect of feeding different levels of *Tridax procumbens* Meal on the Performance, Carcass Characteristics and Blood Profile of Growing Cockerel

Alagbe, J.O.

Livestock Department at Dan-malafia Research Farms, Ibadan, Nigeria. Email: demsonfarms@yahoo.com.

Accepted 18 February, 2017

This experiment was carried out to investigate the effect of feeding different levels of *Tridax procumbens* leaf meal on the performance and blood profile of growing cockerels. Experimental parameters covered growth performance, nutrient retention, carcass dressing percentage, some heamatological and blood serum analysis. One hundred and twenty, four weeks Isa white cockerels were randomly divided into four treatments groups with three replicates, each of ten birds in a Completely Randomized Design (CRD). Group 1 was fed basal diet without *T. procumbens* leaf meal (TPLM), Group 2, 3 and 4 were fed basal diets supplemented with TPLM at levels of 0.2%, 0.4% and 0.6% respectively. The basal diet was formulated to meet the nutritional requirements of growing birds according to NRC (1994), the experiment lasted for 90 days and the results obtained showed that there were no significant at P>0.05 differences among all treatments in the values of final live weight, feed intake, feed conversion ratio, nutrient retention, carcass dressing percentage. Results for heamatology showed that white blood cell counts were significantly (P<0.05) affected with the inclusion of *T. procumbens* leaf meal, SGPT and SGOT were the only parameters that were also significantly different during serum analysis. No mortality was recorded throughout the experimental period. Results obtained from this study showed that T. procumbens leaf meal is a good source of plant protein and its inclusion at 0.6% level does not have any deleterious effect on the general performance and health status of cockerels.

Key words: Growing cockerels, performance, heamatological parameters, carcass, organ.

INTRODUCTION

The protein intake of most developing countries including Nigeria is very low due to the high cost of feed; there have also been an increase in competition among ingredients used in the manufacture of feed, various efforts are being made by animal scientist in the area of Nutritional research to increase the level of animal protein intake of the populace by looking for alternatives that are cheaper sources of feed ingredients to attain success in the poultry industry.

According to Chisoro, (2015) some trees/plants are proven to contain nutritional properties that can be beneficial if incorporated into the livestock feed. Research findings have also shown that products from such multipurpose trees can be used as cheap protein supplements to improve the voluntary intake, digestibility and general performance in animals.

Tridax procumbens is a common grass found in the tropics. It is an annual herb with leaves opposites, incised toothed, broadly lance late and with prostrate ascending stems (Vaishali and Rupali, 2014). According to Bhalerao and Kelkar (2012) Tridax contains up to 26% crude protein, 39% soluble cabohydrates , 17% crude fibre and essential minerals such as calcium, phosphorus, magnesium selenium, iron, sulphur, sodium and chlorine. Amino acids, flavanol, synergic acid, tannin, steroids, polysaccharides, alkaloids, pectin, hemicelluloses and volatile oils (Vaishali , 2014). It contains Anti- bacterial (Chitra pai et al. 2011), Anti-oxidant (Reddipalli et al. 2008) and Antimicrobial (Sneha et al. 2010) properties. The extract of Tridax procumbens also possess anti-diabetic effect (Khan et al. 2012, Durgacharan et al. 2008), the leaf juice possesses antiseptic, insecticidal,

Table 1. Proximate Composition of Tridax procumbens leaf meal

Nutrrients	%DM
Crude protein	21.90
Crude fibre	14.89
Ether extracts	5.01
Ash	16.02
Nitrogen free extracts	42.18

and parasiticidal properties while its leaves are traditionally used in the treatment of dysentery, bronchial catarrh, malaria, dysentery and high blood pressure (Mundada et al. 2013, Rajaram et al. 2013). Although extensive studies have been done on Tridax procumbens, for instance, Philippe et al (2016) reported on the effect of Tridax procumbens Powder on the performance of laying birds, Vaishali and Rupali (2014) evaluated the phytochemical analysis of Tridax, yet there is a dearth of information on Tridax procumbens effect on the performance and blood profile of growing cockerels, which would have reduced a farmers cost of production. Okonkwo et al (2004) reported that haematolgical parameters can be used to determine the extent of foreign compounds including plant extracts on the blood. Therefore, the aim of this study was to evaluate the effect of feeding varying levels of Tridax procumbens leaf meal on the performance, carcass characteristics and blood profile of growing cockerels.

MATERIALS AND METHODS

Location of the experiment

The experiment was carried out at Dan- malafia Farms, Oyo State, Nigeria. The area is located within the derived savanna zone of Nigeria.

Animals and their management

A total of One hundred and twenty, four weeks old Isa white cockerels were randomly distributed into four (4) groups of 30 birds. Each group was further subdivided into 3 replicates with 10 birds per each in a Completely Randomized Design. A deep litter poultry house was used; the house was cleaned and well disinfected before the commencement of the experiment. Vaccines were administered according to the prevailing vaccination schedule in the environment. Feed and water were offered ad-libitum. The light was continuous throughout the experimental period, the performance of the birds in terms of feed intake and mortality were recorded throughout the period of the experiment which lasted for 90days.

Preparation of the experimental diets

Tridax procumbens powder was prepared by washing and drying the plants on a concrete floor to air dry for 2 weeks. The dried plants which consist of the stems, roots and leaves were grinded with a hammer mill and stored in a container. The processed Tridax meal was later subjected to proximate analysis as expressed in Table 1. The test ingredient was mixed with other ingredients to form four (4) experimental diets at levels of 0, 0.2, 0.4 and 0.6%. The proximate composition is presented in Table 2. All the experimental diets were formulated to meet the nutritional requirement of birds according to NC (1994).

Blood Analysis

At day 90, three birds were randomly selected from each replicate for blood analysis. The sampled birds were bled from punctured brachial vein to aspire 3mls of blood from each bird. Blood samples collected with Ethylene Diamine Tetra Acetate (EDTA) were used to determine Pack cell volume (PCV), heamoglobin (Hb),white blood cell counts (WBC), red blood cell count (RBC) in the sample. The PCV was determined by micro-haematocrit method (Dacie and Lewis, 1991), the haemoglobin concentration (Hb) was determined by cyano methae-moglobin method, Red blood cell counts (RBC) were determined by Neubauerhaemocytometer method (Kelly,1979), white blood cell count (WBC) determined by Wintrobe's micro heamatocrit. The Mean corpuscular volumes (MCV), mean corpuscular haemoglobin (MCH), Mean corpuscular heamoglobin concentration (MCHC) were calculated according to Bush (1991).

Blood samples that were meant for serum chemistry were collected into other bottles free of any anti-coagulant. Albumin, Globulin, Total protein, Alkaline phosphatase, Serum glutamic oxaloactetate transaminase (SGOT), Serum glutamic phosphate transaminase (SGPT). Serum total protein, albumin and globulin concentration were determined by Biuret reactions (Bush, 1975).

Nutrient Retention

The Nutrient retention trial was carried out at the 11^{th} week of the experiment, a known quantity of feed was given to each replicate and their fecal output was collected for 3 days. They were later oven-dried before subjecting it to chemical analysis. Nutrient retention was calculated as the difference between the Nutrient intake and faecal output as expressed as a percentage of nutrient

Table 2. Composition of experimental diets (%).

Ingredients	Diets			
	1	2	3	4
Maize	55.00	55.00	55.00	55.00
Wheat offal	26.00	26.00	26.00	26.00
Soya meal	10.00	10.00	10.00	10.00
Ground nut cake	5.00	4.80	4.60	4.40
Limestone	1.00	1.00	1.00	1.00
Bone meal	2.00	2.00	2.00	2.00
Lysine	0.25	0.25	0.25	0.25
Methionine	0.20	0.20	0.20	0.20
Premix*	0.25	0.25	0.25	0.25
Salt	0.30	0.30	0.30	0.30
Tridax meal	-	0.20	0.40	0.60
Total	100	100	100	100
Chemical Composition				
Crude Protein	18.18	18.70	18.87	18.97
Crude fibre	11.01	11.01	11.01	11.01
Ether extract	7.03	7.03	7.03	7.03
Ash	3.76	3.76	3.76	3.76
Calcium	1.45	2.45	1.45	1.45
Phosphorus	0.85	0.85	0.85	0.85
ME (Kcal/kg)	2804.1	2820.5	2821.4	2821.6

*Premix supplied per kg diet :- Vit A, 10,000 I.U; Vit E, 5mg; Vit D3, 3000I.U, Vit K, 3mg; Vit B2, 5.5mg; Niacin, 25mg ; Vit B12, 16mg ; Choline chloride, 120mg ; Mn, 5.2mg ; Zn, 25mg ; Cu, 2.6g ; Folic acid, 2mg ; Fe, 5g ; Pantothenic acid, 10mg ; Biotin, 30.5g ; Antioxidant, 56mg.

Table 3. Performance traits of cockerels fed varying level of Tridax procumbens leaf meal (TPM).

Parameters	Diets			
	1	2	3	4
Live weight at 4 weeks (g)	245.1	240.1	239.9	240.6
Final live weight (g)	1406.3	1532.1	1587.9	1599.5
Weight gain (g)	1161.2	1292.0	1348.0	1358.9
Daily feed intake (g)	69.12	69.34	69.71	69.87
Total feed intake (g)	5944.32	5963.24	5995.06	6008.8
Feed conversion ratio	5.11	4.61	4.45	4.42
Cost of feed (N/Kg)	70.22	75.31	75.44	75.92
Mortality	0	0	0	0
Protein Retention (%)	51.45	52.12	52.06	52.66
Fat Retention (%)	42.15	40.11	40.09	41.21
Fibre Retention (%)	79.23	80.11	83.08	79.80

intakes.

Carcass Evaluation

At the end of the experiment, three birds from each group were selected for carcass evaluation. The birds were starved of feed overnight before slaughter the next morning. The carcass weight, dressed weight, weight of the visceral organ and cut parts of the birds were recorded.

Chemical Analysis

The proximate components of Tridax procumbens meal (Powder) and samples of the four experimental diets were determined by method of A.O.A.C (1990).

Statistical Analysis

The collected data were tabulated and subjected to One-way Analysis of variance (ANOVA) by using the SAS computer program (SAS, 1994). The significant differences were used for treatment means separation as outlined by Steel and Torrie (1986). All values were presented as means and standard error.

RESULTS

Table 1 reveals the proximate composition of Tridax

Table 4. Hematology parameters of cockerels fed varying level of Tridax procumbens leaf meal.

Parameters	Diets				
	1	2	3	4	SEM
PCV (%)	30.34	30.11	31.04	32.09	0.88
Hb (g/dl)	9.06	9.04	10.15	10.03	0.47
RBC (×106mm3)	2.49	2.99	2.87	2.70	0.32
WBC (×106mm3)	10.71	12.25	13.44	16.99	0.55
MCV (Fl)	95.23	96.11	96.78	97.00	1.67
MCH (pg)	43.16	43.20	43.51	44.12	0.99
MCHC (g/dl)	23.02	23.45	23.80	24.12	0.51
	Differential counts				
Lymphocytes (%)	48.90	52.11	53.07	54.61	0.17
Monocytes (%)	8.37	10.31	11.51	11.31	0.81
Eosinophils (%)	4.12	7.42	7.67	8.92	0.37
Neutrophils (%)	31,16	31,30	32,44	33.60	0.41
Basophils (%)	-	-	-	-	

• = Significant (P<0.05)
NS= Not Significant (P>0.05)
SEM= Standard error of the mean
PCV = Pack cell volume
WBC = White blood cell
RBC = Red blood cell
MCV = Mean cell volume
MCH = Mean corpuscular volume
MCHC= Mean corpuscular haemoglobin volume

Table 5. Serum biochemistry of cockerels fed graded Tridax procumbens leaf meal.

Parameters	Diets				
	1	2	3	4	SEM
Total protein (g/dl)	3.35	3.63	3.81	3.89	0.69
Albumin (g/dl)	1.35	1.95	1.98	1.90	0.23
Globulin (g/dl)	2.00	1.68	1.83	1.99	0.22
Uric acid (mg/dl)	4.11	4.19	4.02	4.14	0.51
Creatinine (mg/dl)	0.11	0.14	0.13	0.16	0.64
Alkaline phosphate (IU/l)	154.1	156.8	158.1	159.7	1.78
SGPT (U/L)	6.83	5.17	9.10	6.50	0.91
SGOT (U/L)	13.10	10.33	15.10	12.80	0.66

• = Significant (P<0.05)
NS= Not Significant (P>0.05)
SEM= Standard error of the mean
SGPT= Serum glutamic pyruvate transaminase
SGOT= Serum glutamic oxaloacetate transaminase

procumbens leaf meal. The proximate components contains 21.90%, 14.89%, 5.01%, 16.2% and 42.18% of crude protein, crude fibre, ether extracts, ash and nitrogen free extract respectively. All the values obtained fall within the range reported by Bhalerao and kelkar (2012). The test material (Tridax procumbens) mixed with other materials were mixed together to form four experimental diets as shown on Table 2, the crude protein and crude fibre of the experimental diets increases as the inclusion of Tridax leaf meal (TLM) increases. However, the feed were formulated to meet the nutritional requirement of birds according to NRC (1994). Table 3 shows the performance traits of cockerels, the final live weight ranges between 1406.3 and 1599.5 grams.

There was no significant difference (P>0.05) in the values obtained for the final live weight, though animals placed on diet 4 had a better live weight. The total daily feed intake values obtained are 69.12, 69.34, 69.71 and 69.84 grams for diets 1, 2, 3 and 4 respectively while those of feed conversion ratio are 5.11, 4.61, 4.45 and 4.42 for diet 1, 2, 3 and 4 respectively. The total feed intake and feed conversion ratio were not significantly affected (P>0.05) by the dietary inclusion of Tridax procumbens leaf meal. The protein retention values obtained are 51.45%, 52.12%, 52.06% and 52.66% for diets 1, 2, 3 and 4 respectively while those of fibre retention are 42.15%, 40.11%, 40.09% and 41.21% for

Table 6. Relative weights of Organs and primal cuts of cockerels fed Tridax procumbens leaf meal.

Parameters	Diets			
	1	2	3	4
Dressed weight	71.31	73.50	76.61	79.60
Head	3.01	3.08	3.03	3.00
Shanks	4.11	5.01	5.11	5.29
Wings	7.04	7.13	7.01	7.15
Neck	4.67	5.68	5.88	5.91
Thighs	9.98	10.34	11.45	11.07
Drumstick	10.21	11.30	11.65	11.43
Back	10.22	11.07	11.56	11.22
Liver	2.40	2.42	2.51	2.41
Heart	0.41	0.59	0.61	0.69
Intestine (cm)	131.4	142.9	157.1	156.2
Gizzard	3.10	3.17	3.10	3.15
Pancreas	0.23	0.21	0.24	0.23
Breast	13.21	15.60	15.44	15.08
Caeca	0.61	0.64	0.67	0.63

•= Significant (P<0.05)
NS= Not Significant (P>0.05).

diets 1, 2, 3 and 4 respectively. The protein, fat and fibre retention were not significantly affected (P>0.05) by the dietary inclusion of Tridax leaf meal. Table 4 shows the haematological parameters of cockerels, the values of the pack cell volume (PCV) obtained are 30.34%, 30.11%, 31.04% and 32.09% for diets 1, 2, 3 and 4 respectively while those of haemoglobin (Hb) are 9.06, 9.04, 10.15 and 10.03 g/dl respectively. The values obtained for the red blood cell count (RBC) are 2.49, 2.99, 2.87 and 2.70 (× 106mm3) for diets 1, 2, 3 and 4 respectively. The pack cell volume (PCV), Haemoglobin (Hb), red blood cell (RBC), mean corpuscular haemoglobin (MCH) and mean corpuscular haemoglobin concentration (MCHC) were not significantly affected (P>0.05) by the dietary inclusion of Tridax procumbens leaf meal, even as the PCV, Hb, MCV, MCH, MCHC values increased from diet 1 to 4. The RBC value marginally increased from diet 1 to 4 after which it declined. The white blood cell count (WBC) values are 10.71, 12.25, 13.44 and 16.99 (× 106mm3) for diets 1, 2, 3 and 4 respectively while those of lymphocytes are 48.90%, 52.11%, 53.07% and 54.61% respectively. The values obtained for monocytes are 8.37%, 10.31%, 11.51% and 11.31% for diets 1, 2, 3 and 4 respectively. The WBC values significantly increased from diet 1 to 4, the WBC, lymphocytes, monocytes, eosinophils and neutrophils were significantly (P<0.05) influenced by different inclusion level of Tridax procumbens leaf meal (TPLM).

The serum biochemical indices as influenced as influenced by the diets are presented on Table 5. The total protein values obtained are 3.35, 3.63, 3.81 and 3.89 g/dl for diets 1, 2, 3 and 4 respectively while albumin values are 1.35, 1.95, 1.98 and 1.90 g/dl for diets 1, 2, 3 and 4 respectively. The values obtained for globulin are 2.00, 1.68, 1.83 and 1.99 g/dl for diets 1, 2, 3 and 4 while those of uric acid in mg/dl are 4.11, 4.19, 4.02 and 4.14 for diets 1, 2, 3 and 4 respectively. Albumin, globulin, total protein, uric acid and creatinine values were not significantly (P>0.05) different among the dietary treatments while Alkaline phosphatase, SGPT and SGOT were significantly affected (P<0.05) with the dietary inclusion of Tridax procumbens leaf meal.

The relative weights of organs and primal cuts are presented on Table 6. The dressed weight values are 71.31%, 73.50%, 76.61% and 79.60% for diets 1, 2, 3 and 4 respectively, the values of the head, wings, liver and gizzard were not significantly (P>0.05) different among the dietary treatments while the values obtained for the shanks, neck, thighs, drumstick, back, heart and intestine were significantly (P<0.05) affected by the dietary inclusion of Tridax procumbens leaf meal.

DISCUSSION

The crude protein level in the experimental diets increased as the inclusion of Tridax procumbens leaf meal increases; this is due to the protein content of Tridax. However it did not significantly (P>0.05) affect the final live weight of the birds. Bhalero and Kelkar (2012) reported that the leaves of Tridax procumbens contains up to 26% crude protein, 39% soluble carbohydrates and some minerals (. The final live weight of birds fed diet 3 and 4 is higher than those of control diets, the non-significant (P>0.05) differences in the values of the final live weight across the treatment group is contrary to the reports of Philippe et al (2016) when Tridax procumbens powder was evaluated in laying birds, the result obtained reveals that Tridax procumbens leaf meal could be a better unconventional feedstuff that have the capacity to give good result at a more cheaper cost since it

compared favourably with the control diet. Data collected on haematological parameters shows that Haemoglobin (Hb), pack cell volume (PCV), red blood cell (RBC), mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH) and mean corpuscular haemoglobin concentration (MCHC) were not significantly affected (P>0.05) by the dietary inclusion of Tridax procumbens leaf meal. According to Togun et al (2007) haematological studies are useful in the diagnosis of many diseases as well as investigation of the extent of damage to blood. Adeyeni et al (2000) also reported that haematological variables and protein levels of the blood of livestock are known to be positively correlated with protein quality. The values of Hb, PCV, RBC, MCV, MCH and MCHC could be a clear indication that the animals were well nourished, and possibility that Tridax leaf meal were able to supply all the essential nutrients necessary for the proper functioning of the animal's body. According to Issac et al (2003) pack cell volume (PCV) is involved in the transportation of oxygen and absorbed nutrients. Red blood cell serves as a carrier of haemoglobin which reacts with oxygen to form oxyhaemoglobin during respiration (Chineke et al., 2006). PCV, Hb and MCH are major indices for the diagnosis of anaemia (Awodi et al., 2005).

The significant difference in the values of white blood cell count and its differentials is a sign of resistance to disease, WBC counts suggests a greater challenge to the immune system. According to Eheba et al (2008) a decrease in the WBC count reflects a fall in the production of defensive mechanism to combat infection. Animals with low WBC are exposed to high risk of disease infection, while those of high counts are capable of generating antibodies and have a high degree of resistance to diseases (Soetan et al., 2013). The total protein, albumin, globulin, uric acid, creatinine and alkaline phosphatase of the cockerels used in this experiment were not affected (P>0.05) by Tridax leaf meal inclusion, this is a clear indication that the protein and minerals contained in the diet is enough to support the normal protein reserves across the treatments. The values obtained fall within the normal range reported by Abdi-Hachesoo et al (2013) on sex related differences in biochemical and haematological parameters of adult indigenous chicken, the total protein increased as the inclusion of Tridax meal increases, this agrees with the findings of Olabanji et al (2007) when wild sun flower leaf – blood meal mixture were fed to growing rabbits. High uric acid and creatinine are measure of amino acid degradation (Shukla and Parahaurii, 1995), blood protein are usually affected by level of nutrition (NRC, 1994).

The values obtained for SGPT and SGOT were significantly different (P<0.05) among the treatments. According to Aletor (1983) SGPT and SGOT values respond to the presence of toxic substances (Anti-nutrients) in the diet. Ikewuchi Jude et al (2009) reported six phytochemical from the leaves of Tridax procumbens Linn. Phytochemicals such as Alkanoids, Tannin, Saponin, Steroid, Terpenoids, Phlobatannin, Flavonoids and Cardiac glycosides have also been identified by Dhanabalan et al (2008). This result also agrees with the findings of Bolu et al (2009) when dried pawpaw seed was fed to broiler chickens. Saponins reduce the uptake of certain nutrients like glucose and cholesterol thereby lessening the metabolic burden placed on the liver (Price et al , 1987).

There was no significant (P>0.05) differences in the dress weight, wings, liver, head and gizzard among the treatment groups, diet 4 had the highest dress weight of 79.40% , while the lowest was recorded in diet 1 with 71.31%, values obtained for shanks, neck, thighs ,drumstick, back, heart and intestine reveals significant (P<0.05) differences among the treatment groups.

REFERENCES

A.O.A.C, (1990). Association of Official Analytical Chemists. Official Methods of Analysis 15th Edition, Washington D.C. Pp 69-72

Abdi-Hachesoo B., Talebi, A., Asri-Rezaei, S and Basaki, M (2013) Sex Related Differences in Biochemical and Haematological Parameters of Adult Indigenous Chicken in Northwest Iran. J. Anim. Sci. Adv. 3(10):512-516.

Adeyeni, M.O., Jayeoba, W.A and Adebambo, A.O (2000). Practical aspect of grass cutter breeding, ill particulars of coprophagy. Rev. Elev. Med. Vet. Pays. Trop; 39 (2): 247-285.

Aletor, V.A (1983). Implication of Lima bean anti-nutritional factors of digestion nutrient utilization and physiopathology of rats. Ph.D thesis University of Ibadan, Nigeria

Awodi, S., Ayo, J.O., Atodo, A.D. and Dzende, T. (2005). Some Haematological Parameters and the Erythrocyte Osmotic Fragility in the Laughing Dove (Streptopella senegalensis) and the Village Weaner Bird. Pp 384-387. Proceedings of the 10th Annual Conference of the Animal Science Association of Nigeria

Bhalerao, S.A and Kelkar, T.S (2012). Phytochemical and Pharmacological Potential of Tridax procumbens L. Int. J. Adv. Biol. Res. 2:392-395.

Bolu, S.A.O., Sola-Ojo, F.E., Olorunsanya, O.A. and Idris, K. (2009). Effect of Feeding Graded Level of Pawpaw Seed on the Performance, Haematology, Serum Biochemistry and Carcass Evaluation of Chicken Broilers. Asian Network for Scientific Information. pp. 907-908.

Bush, B.M (1991). Interpretation of laboratory Results for Small Animals Clinicians. Blackwell Scientific Publications, U.K. pp. 32-67.

Chineke, C.A., Ologun, A.G. and Ikeobi, C.O.N. (2006). Haematological Parameters of Rabbit Breeds and Crosses in humid Tropics. Pak. J. Biol. Sci. 9(11): 2102-2106.

Chinsoro, P. (2015). Potential use of baobab seeds in poultry diets, department of livestock and pasture science. Faculty of Science and Agriculture, University of Fort Hare. pp. 52-53.

Citra, P., Ujjwalan, K., Manjusha, B., Sowmya, M., Murdala, P. and Yashwant, D. (2011). Antibacterial Activity of Tridax procumbens with special reference to Nosocomial Pathogens, British J. Pharmaceutical Res. 1(4): 164-173.

Dacie, J.V. and Lewis, S.M. (1991). Practical Haematology 7th edition ELBS with Church hill Living ton, England.

Durgacharan, A.B., Suresh, G.K. and Rahul, S.A. (2008). Antidiabetic activity of leaf extract of Tridax procumbens. Int. J. Green Pharmacy. 2(2):126-128.

Eheba, E.T.E., Omoikhojie, S.O., Bangbose, A.M., Druna, M.B and Isidhahomen, C.E (2008). Haematology and Serum Biochemistry of Weaner Rabbits fed Cooked Bambara Groundnut meal as a Replacement for Soya beans meal. Proc. Of 33rd Annual Conference of Nigeria Society of Animal production 192-196.

Isaac, L.J., Abah, G., Akpan, B. and Ekaette, I.U. (2013). Haematological Properties of Different Breeds and Sexes of Rabbits (p.24-27). Proceedings of the 18th Annual conference of Animal Association of Nigeria.

Kelly (1979). Relation of physical body composition to meat yield in grass cutter. Ghana J. Sci.

Mundada, S. and Shivhare, R. (2010). Pharmacology of Tridax procumbens a Weed: Review Int. J. Pharm. Technol. Res. 2: 1391-1394.

NRC, National Research Council (1994) .Nutrients Requirements of Poultry. (9th rev. Ed). National Academy Press. Washington D.C USA.

Okonkwo, J.E, Iyadi, K.C. and Effiong, C.O (2004). Effect of Chronic Administration of Haematological Parameters of Rats. Nig. J. Physio. Sci pp. 10-13.

Olabanji, R.O., Farinu, G.O., Akinlade, J.A., Ojebiyi, O.O., Odunsi, O.O and Akingbade, A.A. (2007). Studies on Heaematological and Serum Biochemical Characteristics of Weaner Rabbits fed Wild sunflower leaf- Blood Meal mixture. Int. J. Appld. Agric. and Apicultural Res. pp. 80-86.

Price, K.R., Johnson, L.I. and Feriwick, H. (1987). The Chemical and Biological Significance of Saponins in Foods and Feed stuffs Crit. Rev. Food . Sci. Nutr., 26: 127-135.

Rajaram, S.S. and Ashvin, G.G. (2013). Preliminary Phytochemical Analysis of Leaves of Tridax procumbens Linn. Int. J. Sci. Environ. and Technol. 2(3): 388 -394.

Reddipalli, Hemalatha (2008). Anti –hepatotoxic and antioxidant defence potential of Tridax procumbens. Int. J. Green Pharm. 2(3):164-169.

SAS Institute (1994) SAS / STAT users guide. Version 6.1, 3rd Ed. SAS Inst., Cary, N.C

Shukla, S.K. and Parahaurii, S.P. (1955). Blood Biochemical Porfiles in Induced Aflatoxicosis of Cockerels. Br. Poult. Sci., 36-155-160.

Sneha, M. and Ruchi, S. (2010). Pharmacology of Tridax procumbens a weed: Review. Int. J. Pharma. Tech. Res. 2(2): 1391-1394.

Soetan, K.O., Akinrinde, A.S. and Ajibade, T.O. (2013). Preliminary Studies on the Haematological Parameters of Cockerels Fed Raw and Processed Guinea corn Pp 49-52. Proceedings of 38th Annual Conference of Nigeria Society of Animal Production.

Steel, R.G.D and J.H Torrie (1986) Principles and Procedures of Statistics. A Biometrical Approach (2nd Ed). McGraw Hill Co. Inc. NY, USA.

Togun, V.A., Oseni, B.S.A., Ogundipe, J.A., Arewa, T.R., Hammed, A.A., Ajonijebu, D.C., Oyeniran, A., Nwosisi, I. and Mustapha, F. (2007). Effects of Chronic Lead Administration on the Haematological Parameters of Rabbits- A Preliminary Study. Proc of the 41st Conf. of the Agric. Soc. of Nig. p. 341

Vaishali, N.A. and Rupali, N.A. (2014) Phytochemical Analysis of Tridax procumbens L, American Int. J. Res. Formal, Appld. and Natural Sci.. ISSN (Print): 2328-3777, ISSN (Online): 2328-3785, AIJRFANS 14-248. http://www.iasir.net