**A**

**RESEARCH PROPOSAL**

**ON THE TOPIC:**

**THE INFLUENCE OF SELECTED TROPICAL FORGAES AND TIGER NUT BASED-DIET ON GROWTH PERFORMANCE OF WEANER GROWER RABBITS**

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**SUMMARY**

Rabbits are pseudo ruminants, they consume both forage and concentrate for optimum growth and physiological functioning. Exploring the benefits of rabbits as source of protein to humans and income to producers, there is need to boost it production by exploring different feedstuff to enhance rabbit growth and feed efficiency. A species that can be exploited in this manner is *Cyperus esculentus* commonly called tiger nut. It is an under-utilised crop which belongs to the family Cyperaceae. It possesses vital agronomic and nutritional potentials as the conventionally used energy sources. Forages such as *Panicum maximum* (guinea grass), *Pennisetum purpureum* (elephant grass), *Tridax procumbens* are also acceptable due to their nutritional value for rabbit growth and development. Hence, this study will be undertaken to evaluate the hematological and serum biochemistry effect of three forages on Sixteen (16) Rabbits of about 6weeks to 8weeks old weighing from 350 - 550g using Completely randomized design in four dietary treatments. Each treatment will be replicated two times with two rabbits per replicate in completely randomized design. The rabbits will be housed in cages, fitted with feeders and drinkers. Blood samples will be collected from two rabbits per treatment on the 21th day of the experiment for determination of hematological and serum biochemistry analysis. All the data obtain will be expressed as mean ± standard error and analyzed using One Way Analysis of Variance (ANOVA). Significant means will be separated by applying Duncan multiple range.

**INTRODUCTION**

**Background of the Study**

Feed is an important aspect of animal production, increase in meat production and growth can be achieved through proper nutrition and good management (Etim and Oguike, 2010). Rabbit meat production has been on the increase in recent years because of its low cholesterol level. It has a feeding habit with no appreciable competition with men. This is because it can subsist on green as basal diet, just as the nutritional status of an individual is dependent on dietary intake and effectiveness of metabolic processes, the physiology of farm animals is also affected by several factors one of which is nutrition (Ajao *et al*., 2013). Rabbits offers great potential as a means of converting tropical forages and agricultural product to human food, they are fast growing.

Rabbits are monogastric animals, herbivores and prolific which are known to efficiently convert fodder to food. Rabbits can also easily convert the available proteins in cellulose-rich plants whereas it is not economical to feed these to chickens and turkeys; the only animals with higher energy and protein efficiency (Szendro *et al.*, 2015). Exploring the benefits of rabbits as source of protein to humans and income to producers, there is need to boost it production by exploring different feedstuff to enhance rabbit growth and feed efficiency. Additionally, at this time of ecumenical concern over antibiotic resistance in humans and animals due to residual effect from animal product (meat) there arises a desideratum for alternative economically viable victual additives. One of the major factors that obviate rapid and expeditious expansion of intensive Rabbit engenderment in developing countries is high cost of feed (Szendro *et al.*, 2015). Most researchers have optically canvassed that the elevating cost of energy and protein victual stuffs could only be solved by initiating incipient alternatives, which are aliment additives for partial supersession of the conventional energy and protein source that will enhance performance (Ugochukwu *et al.,* 2018; Agbo *et al.,* 2015). The use of forages in the feeding of rabbits had been recommended for the rabbit producer by Iyeghe-Erakpotobor and Mohammad (2008). According to them, these forages can be provided as supplement to the basic concentrate diet to meet the fiber and some of the vitamin requirements. Linga and Lukefahr (2000) advocated that the rabbits can be raised on basic forages diets. It is of interest that forages are available in abundance in the tropics and that rabbits being a pseudo ruminant can successfully handle forages for growth. Optimum production has not been sustained when rabbits are raised solely on forages or concentrate (Iyeghe-Erakpotobor *et al.,* 2006; Iyeghe-Erakpotobor and Mohammad, 2008). Cases of positive effects of raising rabbits on forages has been reported by Phimmasan *et al*. (2004) although negative effect in terms of weight loss was reported by Bamikole and Ezenwa (1999). The use of forages and other agricultural by-products such as; *Tridax precumbens* (Taiwo *et al.,* 2005) Moringa *(Moringa oleifera)* (Odeyinka *et al.,* 2008), Acacia *(Acasia nilotica)* (Abdu *et al.,* 2011), composite cassava meal (Ukachukwu *et al.,* 2011), and *Commelina benghalensis, Leucerna leucocephala, Boerhavia diffusa, Impomia triloba* (Yakubu *et al.,* 2012) have been documented. Forages such as *Panicum maximum* (guinea grass), *Pennisetum purpureum* (elephant grass), *Tridax procumbens are* acceptable by rabbits *(*Abu *et al.,* 2008). Ukpe *et al*. (2009) and Nwagu *et al.* (2010) had carried out feeding trials on rabbit using legumes such as Stylosanthes, groundnut haulms, *Calopogonium mucunoides*. Relatively few studies have been made on the comparative study on forages and heat-based diets of rabbits. Hence, this study will be undertaken to evaluate the hematological and serum biochemistry effect of three forages on weaner rabbit’s production.

**Problem Statement**

Feed is an important component to be considered when raising animals and specifically rabbits. According to Lawrence (2006), feed constitute about 70-75% of the total cost of production in livestock production including Rabbit. Rabbits are pseudo ruminants, they consume both forage and concentrate for optimum growth and physiological functioning. High cost of conventional feedstuffs is one of the major limiting factor to large scale commercial rabbit production in Nigeria and there are mostly published research information on the concentrate intake of Rabbits but seemingly little information on the comparative intake of forages and concentrate for rabbits on hematological and serum parameters is recorded, hence this research finding.

**Justification of the Study**

In recent years, more people are involved in rabbit production but are faced with high cost of feeding. It has become imperative to develop appropriate and cost effective feeding systems for rabbit farmers. However, several authors have suggested that, the increasing scarcity of animal proteins and high cost of the conventional feedstuffs in most developing countries can be addressed by incorporating forages in the diets of rabbits (Bawa *et al.,* 2008; Yakubu and Wafar, 2014). Among monogastric animals, rabbit has been reported to utilize fibrous materials for production of meat. Studies showed that chemical composition of forages could serve as a potential source of nutrients for animals (Aduku and Olukosi, 1990). Forages can be fed in the dry form as hay or fresh. Forages such as *Panicum maximum* (guinea grass), *Pennisetum purpureum* (elephant grass), *Tridax procumbens are* acceptable by rabbits and contains the essential nutrients required for rabbit growth and development (Abu *et al.,* 2008). Animal’s blood parameters provide the opportunity to analyze its physiological, nutritional and pathological status and it aids in diagnosing nutritional and or environmental stress. Hematological factors indicate certain production characteristics while the serum biochemical profile buttresses the general health characteristics of the animal. The result of this work will enhance the engenderment of more salubrious rabbits by producers and thus abbreviate the overall cost of feed, aliment and additionally rekindle the confidence of consumers and their interest to consume more meat and thus be able to derive more benefits associated with victualing rabbit meat and increased productivity; hence, broaden knowledge benefiting Animal feed industries and agricultural stakeholders in the long-run on comparative utilization of these forages.

**Objectives of the Study**

The objective of this study will be to;

* evaluate the effect of *Tridax procumbens,* *Panicum maximum,* *Pennisetum purpureum* and wheat-based diet on the hematological parameters of weaner grower Rabbits.
* evaluate the effect of *Tridax procumbens,* *Panicum maximum,* *Pennisetum purpureum* and wheat-based diet on the serum biochemistry of weaner grower Rabbits.

**MATERIALS AND METHODS**

**Study Area**

The experiment will be conducted at the Rabbitry Research unit and the Analysis conducted in Animal Science laboratory of the Department of Animal Science, Akwa Ibom State University, Obio Akpa Campus, Oruk Anam Local Government Area, Akwa Ibom State respectively. The area lies between latitude 4030’N and 50 00’N and longitudes 700 30’E and 800 00’E. The climate of the experimental site is a tropical rain forest characterized with high temperature (average of 300C), high rainfall (about 1500mm) and relative humidity of 70% on average (SLUS-AK, 1989).

**Source of experimental Materials**

The forages (*Tridax procumbens,* *Panicum maximum* and *Pennisetum purpureum*) will be sourced around the study area and the botanical identity will be confirmed. Additionally, the rabbits for the experiment will be purchased from local producers around Oruk Anam and Abak vicinity.

**Experimental Animal and Management**

Sixteen (16) Rabbits of about 6weeks to 8weeks old weighing from 350 - 550g will be used. These animals will be obtained from the Rabbitry Unit of Akwa Ibom State University, Obio Akpa. The animals will be managed intensively, kept in hutches, where they will be provided with water and a wheat-based diet concentrate diet. The animals will also be kept under controlled conditions, relative humidity and the 12-hours light-dark cycle will also maintain. They will stay in the cage for up to 10 days to acclimatize.

**Experimental Design and Diet**

Completely randomized design will be used for the experiment. The animals will be assigned to four dietary treatments. Each treatment will be replicated two times with two rabbits per replicate in completely randomized design. The rabbits will be housed in cages, fitted with feeders and drinkers. A wheat offal-based diet will be formulated and three forages; *Tridax procumbens,* *Panicum maximum* and *Pennisetum purpureum* will be served as treatment diets. Feeding will be done at 5% body weight of the animals such that the rabbits will be fed the forage at 2.5% body weight and concentrate basal diet at 2.5% body weight. The feeding will be done on the test groups twice daily for 3 weeks (21 days). Their body weight changes will be measured before and after the experimental phase.

**Data Collection**

Blood samples will be collected from two rabbits per treatment on the 21th day of the experiment for determination of hematological and serum biochemistry analysis. 5mls of blood will be collected by puncturing the jugular vein and allowing free flow of blood into labeled sterile universal bottle containing 1.0mg/ml ethyl diamine tetracetic acid (EDTA) as anticoagulant to determine the haematological parameters. Another 5mls will also collected into a labeled sterile sample bottles without anticoagulant to determine the serum biochemistry.

**Data Analysis**

All the data obtain will be expressed as mean ± standard error and analyzed using One Way Analysis of Variance (ANOVA). Significant means will be separated by applying Duncan multiple range as outlined by Duncan (1955).

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