EFFECT of ETHANOL LEAF EXTRACT of *Gongronema latifolium* (BUSH BUCK) on the REPRODUCTIVE SYSTEM of MALE ALBINO RATS.

Abstract

Medicinal plants are plants used for medicinal purposes and are commonly used in treating and preventing specific ailments and diseases that are generally considered to be harmful to humans. *Gongronema latifolium* is a well-known plant that is beneficial in preventing and treating certain diseases and ailment due to their phytochemical constituents. This study evaluates the effect of ethanol leaf extract of *Gongronema latifolium* on the reproductive system of male Albino rats using standard methods. Twenty-five male rats equally divided into five groups and five female rats were used. Group I and 2 served as the Normal and Positive controls and were orally administered with distilled water and subcutaneously standard drug; testosterone respectively. The other three groups were orally treated with *Gongronema latifolium* extract at low, middle and high dosage (200,300 and 400ml/kg body weight) respectively. After 7 days of treatment, the female rats were introduced into the male cages in the ratio 1:1 (male: female) to ascertain for the different aphrodisiac parameters. Treatment continued for another 7 days after which the male animals were sacrificed and blood samples collected for hormonal assay. Results showed that all the aphrodisiac frequencies had a significant increase ($p \leq 0.001$) in mounting frequency, intromission frequency and penile erectile frequency when compared with the controls while the mounting latency, intromission latency, ejaculatory latency and penile erectile latency were significantly reduced ($p \leq 0.001$) in comparison with the controls in this study. Most of the reproductive hormones were significantly increased ($p \leq 0.001$) in the extract treatment group when compared to the controls. Thus, this study suggests that the crude leaf extract of *Gongronema latifolium* may possess aphrodisiac properties and consequently on the reproductive system.

Comment [U1]: Should be II

Keywords: Medicinal plants, *Gongronema latifolium*, Phytochemical, Reproductive system, Aphrodisiac, Reproductive hormones

Introduction

Medicinal Plants and Its Importance

Medicinal plants are those plants that are commonly used in treatment and prevention of specific ailments and diseases that are generally considered to be harmful to humans [1]. They have been known to be an important potential source of therapeutics or curative aids and are used with the intention of maintaining health, to be administered for a specific condition, or both, whether in modern medicine or in traditional medicine [2] and these are due to their phytochemical constituents which are chemically vital and active substances found in the plants that produce specific physiological action on the human body. The most important bioactive components of plants are; flavonoid, tannin, phenolic compounds and alkaloids [3]. Some medicinal plants can complement, damage or neutralize their possible negative effects in the body, and they are known as synergic medicinal plants; some are used in the treatment of complex cases like cancer diseases, they are known as official medicinal plants; some have ability to prevent the appearance of some diseases by reducing the side effect of synthetic treatment, these are known

as preventive herbal medicinal plants [4]. The use of medicinal plants has attained a commanding role in health system all over the world. This involves the use of medicinal plants not only for the treatment of diseases but also as potential material for maintaining good health and conditions.

Gongronema latifolium is the botanical name for a local herb called 'utazi' by the Eastern part of Nigeria (Igbos) [5] 'arokeke' by the Western part of Nigeria (Yorubas) and 'utasi' by the Efik and Ibibios [6;7]. *Gongronema latifolium* is of West African Origin [8]. It is found throughout Nigeria and other tropical countries such as Guinea-Bissau, Western Cameroon and Sierra Leone [9]. It is an edible rainforest plant indigenous to South Eastern part of Nigeria. It is indicated as one of the aromatic plants of medicinal importance from Nigeria [10]. *Gongronema latifolium* has a very widespread distribution in the tropical and subtropical regions especially in West African countries (such as Nigeria, Cote d'Ivoire, Sierra Leone, Ghana and Senegal) and America, with an average abundance in Northern and South Eastern Asia [11]. The common name for this leaf is Bush buck leaf and it belongs to the family of Asclepiadaceae [12; 13]**.** *Gongronema latifolium* is a well-known medicinal plant in herbal medicine used in antimicrobial, anti-inflammatory and antioxidant activity as a result of its phytochemical properties. It belongs to the class of medicinal plants that are beneficial in preventing and treating certain diseases and ailments that are detrimental to human health. It is one of those leaves with numerous benefits for the human organism and this include both nutritional and health benefits such as; fertility benefits as it helps raise low sperm count, act as pain reliever, helps to lower sugar level, etc [14]. Pharmacological studies speculate that the plant has analgesic, antimicrobial, antibacterial, antiulcer, antioxidant, anti-asthmatic, antipyretic, hypoglycemic and anti-inflammatory properties [14]. Studies by [15] showed the presence of different types of alkaloids, flavonoids, total phenolic compound, lignan, terpenes, sterol, allicin, hydroxycinnamic acids, saponin and carotenoid in the leaves of *Gongronema latifolium* with some in an appreciable concentration. These results showed that *Gongronema latifolium* leaves possess a wide variety of phytochemicals which can be of pharmacological implication, both in terms of prevention and treatment/management of diseases. Important phytochemicals obtain from *Gongronema latifolium* plant and their health benefits are as indicated: Flavonoids are known to inhibit formation of plagues in arteries and so prevent artherosclerosis, hypertension and other cardiovascular diseases [16; 17]. They are also very important antioxidants that mop up reactive oxygen radicals known to be involved in many conditions that cause cancers, diabetes, inflammatory diseases and neurodegenerative diseases [18]. Saponins lower cholesterol and glucose level. They are also involved in ulcer protection and certain antimicrobial activity [19]. Alkaloids are involved in antimicrobial and hypoglycemic activities [20]. Resins and essential oils have also been involved in antimicrobial [21], anti-inflammatory and antioxidant properties [22; 23]. Cardiac glycosides (mainly cardenolides and bufadienolide groups) are useful for treatment of heart conditions [24].

The entire male reproductive system is dependent on hormones which are involved in fertility and sexuality and are usually produced in the testes [25]. The primary hormones involved in the functioning of the male reproductive system are follicle stimulating hormone (FSH), luteinizing hormone (LH) and testosterone. Sexuality is an important and fundamental factor in reproduction including conjugation, conception and procreation. Sexual dysfunction which is the inability to attain normal sexual activity, loss or partial erection, inability to keep erection, premature ejaculation, reduced libido or orgasm, arousal disorder and lack of detumescence [26] has been

estimated to occur in approximately 30 million men globally [27]. Substances that have the ability to stimulant or increase sexual desire, performance, arousing sexual instinct, increased pleasure and enjoyment are referred to as aphrodisiacs [28] and they exert their sexual enhancing effects by increasing the flow of blood, promoting erection and by causing relaxation of corpus cavernosal smooth muscle [29]. In need to resolved issues of sexual dysfunction, some medicinal plants have gain attention as they are studied and discovered to have aphrodisiac properties and are of fewer or no side effects.

Testosterone is a medication (androgen family of medications) and naturally occurring steroid hormone [30]. Testosterone can be in form of a gel or patch that is applied to the skin, liquid that is injected into a muscle, tablet that is placed in the cheek or tablet that is taken by mouth. It is used to treat male hypogonadism. It may also be used to increase athletic ability in the form of doping [30].

Gongronema latifolium contains different active chemicals where some have been validated; thereby possessing good medicinal qualities. Sexual activities including reproductive hormones play a significant role in reproduction, therefore this present work determines the Effect of Ethanol Leaf Extract of *Gongronema latifolium* (Bush Buck) on the Reproductive System of Male Albino Rats.

Materials and Methods

Collection and Preparation of Plant Materials

Gongronema latifolium was purchased from Itam market in Akwa Ibom State, Nigeria in October 2019. The plant was identified and authenticated by Prof. (Mrs.) Uduak Eshiet of the Department of Botany and Ecological Studies, Faculty of Science, University of Uyo, Nigeria. It was given the Voucher Number UUPH 9(a) and was deposited at the Department of Pharmacognosy and Natural Medicine, Faculty of Pharmacy Herbarium, University of Uyo, Nigeria.

The wet method of extraction was used for the extraction. The leaves were plucked from the plants stalk, thereafter the leaves were washed and drained to remove the debris, and 500g weight of the leaves were cut into pieces and immersed in 2.5L of 50% ethanol, stirred and kept in a plastic container for 72 hours. At the end of the three days the mixture was filtered using a cheese cloth and then with a cotton which was immersed in a funnel. The filtrate was then put in a beaker and kept in a water bath at 30-40^{o}C, it yielded 25g of extract and was stored in a refrigerator at 4^{o}C until required for analysis.

Comment [U2]: for how long?

Comment [U3]: without reduce the volume? Is it solid extract?

Experimental Animals

Twenty-five male and five female Albino rats weighing between 150- 200g were used in this study. They were obtained from the animal house of the Faculty of Pharmacy, University of Uyo where the experiment was also carried out. The animals were kept in wooden cages with wire mesh top and maintained under standard conditions of humidity [50±5%] and temperature [28±2^{o}C] and maintained in a 12 hours light and 12 hours dark cycle. They were given growers feed and water *ad libitum*. Ethical approval was gotten from the College of Health Sciences, University of Uyo, Akwa Ibom State, Nigeria.

Experimental Design

The animals were divided into five (5) groups of five (5) rats per group and labelled (I- V). The animals in group I served as the Normal Control (NC) and was administered distilled water only. The animals in group II which served as the Positive Control (PC) were administered testosterone subcutaneously at 400mg/kg. The animals in group III, IV and V were administered ethanol leaf extract of *Gongronema latifolium* at 200, 300 and 400mg/kg respectively. The required dose of the extract was measured and administered orally to each rat based on their body weight as shown on {Table 1}. The extract was administered for 7 days before observation of aphrodisiac potency of the extract with five female rats in the ratio 1:1 (male: female) and administered for another 7 days after which the animals were sacrificed and blood samples collected for hormonal assay.

Table 1: Experimental Design

Groups	No. of Animals	Treatment	Dosage
I (Normal control)	5	Distilled water	5ml/kg
II (Positive control)	5	Testosterone	400mg/kg
III (Low dose)	5	Ethanol extract of *Gongronema latifolium*	200mg/Kg
IV (Medium dose)	5	Ethanol extract of *Gongronema latifolium*	300mg/Kg
V (High dose)	5	Ethanol extract of *Gongronema latifolium*	400mg/Kg

Evaluation of the Aphrodisiac parameters of the extract on the Male Albino Rats

After 7 days of administration of the extract, each male rat was placed in a Plexiglass cage and given 10 minutes to acclimatize before the introduction of an estrous female rat. The test commenced when the female rats were introduced into the Plexiglass cage in the ratio 1:1. Observations were conducted in the dark phase of the light-dark cycle under dim light and very quiet conditions. Each test session was considered ended when either of the following took place:

i. At the end of 15 minutes, or
ii. Immediately after the post ejaculation intromission, or
iii. If ejaculation did not occur within 15 minutes, or
iv. If ejaculation latency exceeded 15 minutes, or
v. If the mount latency or post ejaculatory interval exceeded 15 minutes.

Estrous was induced in the females by administration of 17-β-estradiol (0.2ml/kg) and progesterone (0.2ml/kg), 48 hours and 8 hours respectively before the introduction of the female into the cage containing the male rats.

The following parameters were documented:

Mount latency (ML): This is the time interval from the introduction of the female into the cage until the first mount.

Mount Frequency (MF): This is the total number of mounts preceding ejaculation.

Intromission latency (IL): This is the time interval from the introduction of the female into the cage until the first intromission.

Intromission frequency (IF): This is the total number of intromissions preceding an ejaculation.

Ejaculation latency (EL): This is the time from the first intromission to ejaculation.

Post-Ejaculatory Interval (PEI): This is the time interval between an ejaculation and the next first mount. (Jian *et al*., 2012; Fouche *et al*., 2015).

Sample Collection and Preparation

After 14 days of administration, the animals were anaesthetized with chloroform vapour and sacrificed. Whole blood was collected by cardiac puncture from each animal using sterile needle and 5ml syringe, emptied into a plain sample bottle and allowed to stand for 15minutes to clot before it was spun in a westerfuge centrifuge (model 1384) at 10,000g for 15minutes. Serum was separated with Pasteur pipette into another plain sample bottle and kept in the refrigerator at 4^{o}c until needed for hormonal assay.

Results

Phytochemical Screening

The phytochemical screening of ethanol extract of *Gongronema latifolium* as shown in the {Table 2}, revealed the presence of the following secondary metabolites: alkaloids, flavonoids, saponins, tannins cardiac glycoside.

Table 2: Phytochemical Composition of *Gongronema latifolium* Leaf Extract

Test	Observation	Inference
Alkaloids	Cream precipitate	+
Salkowiski's test	Brown ring	+
Flavonoids	Yellow colouration	+
Saponins	Persistent foaming	+
Tannins	Dark green color	+
Free Anthraquinones	Pink colouration	-
Combined Anthraquinones	Pink colouration	-

Key: - absent, + positive

Effect of Extract on Sexual Behaviour of the Male Albino rats

The result as shown in {Table 3} revealed that Mounting latency (ML) showed a significant increase ($p \leq 0.05$) in the group administered with standard drug (1.28±0.56) when compare to the normal control (0.55±0.33). There was a non-significant decrease in ML in low dose treatment

group (0.00±0.00), middle dose treatment group (0.15±0.06) and high dose treatment group (0.47±0.29) when compared to the normal control group. There was a significant decrease (P = .05) in ML in the low dose treatment group (0.00±0.00), middle dose treatment group (0.15±0.06), and high dose treatment group (0.47±0.29) when compared to the positive control group (1.28±0.56).

Mounting frequency (MF) had a significant increase ($P \leq .001$) in the middle dose treatment group (6.40±0.55) when compared to the normal control (4.00±0.19). There was also a significant increase ($P \leq .001$) in the group administered with standard drug (9.40±0.80) when compared to the normal control (4.00±0.19). There was a non-significant decrease in the low dose treatment group (0.80±0.80) and high dose treatment group (3.00±0.32) when compared to the normal control. There was a significant decrease ($P \leq .001$) in MF in the low dose treatment group (0.80±0.80) and high dose treatment group (3.00±0.32) when compared to the positive control group (9.40±0.80). There was also a significant decrease ($P \leq .001$) in the middle dose treatment group (6.40±0.55) when compared to the positive control group.

The result also showed that Intromission latency (IL) had a significant increase (P =.05) in the group administered with standard drug (1.24±0.52) when compare to the normal control (0.73±0.47). Also, there is a non-significant decrease in IL in low dose treatment group (0.00±0.00), middle dose treatment group (0.34±0.20) and high dose treatment group (0.00±0.00) when compared to the normal control group. There was a non-significant decrease in IL in the low dose treatment group (0.00±0.00), middle dose treatment group (0.34±0.20), and high dose treatment group (0.00±0.00) when compared to the positive control group (1.24±0.52).

Also, from the result; Intromission frequency (IF) had a significant increase (P = .05) in the group administered with standard drug (8.80±0.77) when compare to the normal control (2.20±0.42). There was also a significant increase (P = .05) in the middle dose treatment group when compare to the normal control (2.20±0.42). There was a non-significant decrease in the low dose treatment group (0.20±0.20) and high dose treatment group (0.00±0.00) when compare to the normal control. There was a significant decrease ($P \leq .001$) in IF in low dose treatment group (0.20±0.20) and high dose treatment group (0.00±0.00) when compared to the positive control group (8.80±0.77). Also, there was a significant decrease ($p \leq 0.01$) in the middle dose treatment group (5.40±0.71) when compared to the positive control group.

Ejaculatory latency (EL) had a significant increase ($p \leq 0.01$) in the middle dose treatment group (5.12±0.20) when compare to normal control (0.82±0.82). There was also a significant increase (P = .05) in the group administered with standard drug (5.56±0.80) when compared to the normal control (0.82±0.82). There was a non-significant decrease in the low dose treatment group (0.00±0.00) and high dose treatment group (0.00±0.00) when compared to the normal control. There was also a significant decrease ($P \leq .001$) in EL in the low dose treatment group (0.00±0.00) and high dose treatment group (0.00±0.00) when compared to the positive control group (5.56±0.80). Also, there was a non-significant decrease in the middle dose treatment group (5.12±0.20) when compared to the positive control group.

Penile erectile latency (PEL) showed a significant increase ($P \leq .001$) in the middle dose treatment group (6.27±0.85) when compared to the normal control (1.40±0.40). Also, there was a significant increase (P = .05) in PEL in the group administered with standard drug (3.00±0.50) when compared to the normal control group. There was a non-significant decrease in the low

dose treatment group (0.00±0.00) and high dose treatment group (0.00±0.00) when compared to the normal control group.

Penile erectile frequency (PEF) had a non-significant increase in the middle dose treatment group (0.80±0.80) when compared to the normal control group (0.40±0.40). There was also a non-significant increase in PEF in the group treated with the standard drug (0.60±0.40) when compared to the normal control group. There was a non-significant decrease in the low dose treatment group (0.00±0.00) and high dose treatment group (0.00±0.00) when compared to the normal control group. There was a non-significant decrease in PEF in the low dose treatment group (0.00±0.00) and high dose treatment group (0.00±0.00) when compared to the positive control group (0.60±0.40) and also a non-significant increase in the middle dose treatment group (0.80±0.80) when compared to the positive control group.

Post ejaculatory interval (PEI) had a significant increase ($P \leq .001$) in the middle dose treatment group (9.87±0.94) when compared to the normal control (1.71±0.71). Also, there was a significant increase ($P \leq .001$) in PEI in the group administered with standard drug, positive control group (10.15±0.50) when compared to the normal control group. There was a non-significant decrease in the low dose treatment group (0.00±0.00) and high dose treatment group (0.00±0.00) when compared to the normal control group. There was a significant decrease ($P \leq .001$) in PEI in the low dose treatment group (0.00±0.00) and high dose treatment group (0.00±0.00) when compared to the positive control group (10.15±0.50). Also, there was a significant decrease ($P \leq .001$) in the middle dose treatment group (9.87±0.94) when compared to the positive control group.

Table 3: Effect of *G. latifolium* leaf extract on Sexual behavior of the male Albino rats

TREATMENT (mg/kg)	Normal control	200 (Low dose)	300(Middle dose)	400(High dose)	Standard drug (Testosterone)
Mounting Latency (ML	0.55±0.33	0.00±0.00[d]	0.15±0.06[d]	0.47±0.29[d]	1.28±0.56[a]
Mounting Frequency (MF)	4.00±0.19	0.80±0.80[f]	6.40±0.55[b,e]	3.00±0.32[f]	9.40±0.80[c]
Intromission Latency (IL)	0.73±0.47	0.00±0.00	0.34±0.20	0.00±0.00	1.24±0.52[a]
Intromission Frequency (IF)	2.20±0.42	0.20±0.20[f]	5.40±0.71[c,e]	0.00±0.00[f]	8.80±0.77[c]
Ejaculation Latency (EL)	0.82±0.82	0.00±0.00[f]	5.12±0.20[b]	0.00±0.00[f]	5.56±0.80[c]
Penile Erectile Latency (PEL)	1.40±0.40	0.00±0.00[d]	6.27±0.85[c,e]	0.00±0.00[d]	3.00±0.50[a]
Penile Erectile Frequency (PEF)	0.40±0.40	0.00±0.00	0.80±0.80	0.00±0.00	0.60±0.40
Post Ejaculatory Interval (PEI)	1.71±0.71	0.00±0.00[f]	9.87±0.94[c]	0.00±0.00[f]	10.15±0.50[c]

Data are expressed as mean ± SEM. Significant at [a]$P = .05$; [b]$P \leq .01$; [c]$P < .001$ when compared to normal control. Significant at [d]$P = .05$; [e]$P \leq .01$; [f]$P \leq .001$ when compared to standard drug. n=5.

Effect of the Extract on Reproductive Hormones of the Male Albino rats

From the result as shown in {Table 4 and Figure 1}, Testosterone showed a significant increase ($P \leq .001$) in the low dose treatment group (1.73±0.20), middle dose treatment group (1.68±0.17) and also in the high dose treatment group (1.69±0.28) when compared to the normal control group (0.20±0.05). There was also a significant increase ($P \leq .001$) of Testosterone in the low dose treatment group (1.73±0.20), middle dose treatment group (1.68±0.17) and high dose treatment group (1.69±0.28) when compared to the positive control which is the standard drug (0.18±0.02). There was a non-significant decrease in the group administered with the standard drug (0.18±0.02) when compared to the normal control group.

Also from the result, LH showed a significant increase ($P \leq .001$) in the low dose treatment group (2.58±0.18) and also in the middle dose treatment group (2.57±0.11) when compared to the normal control group (1.53±0.08). Also, LH showed a significant increase ($P = .05$) in the high dose treatment group (2.44±0.04) when compared to the normal control group. There was a significant increase ($p \leq 0.01$) of LH in the low dose treatment group (2.58±0.18) and middle dose treatment group (2.57±0.11) when compared to the positive control (1.51±0.16). There was also a significant increase ($P = .05$) of LH in high dose treatment group (2.44±0.04) when compared to the positive control. There was a non-significant decrease in the group administered with the standard drug (1.51±0.16) when compared to the normal control group {Table 4 and Figure 2}.

Comment [U4]: Luteinizing hormone

On {Table 4 and Figure 3}, FSH showed a non-significant increase in the low dose treatment group (2.37±0.25), middle dose treatment group (3.03±0.07) and in the high dose treatment group (3.15±0.10) when compared to the normal control group (2.19±0.04). There was a non-significant decrease of FSH in the low dose treatment group (2.37±0.25) when compared to the positive control (2.39±0.27). Also, there was a non-significant increase in the middle dose treatment group (3.03±0.07) and high dose treatment group (3.15±0.10) when compared to the positive control. There was a non-significant increase in the group administered with the standard drug (2.39±0.27) when compared to the normal control group.

Comment [U5]: Follicle-stimulating hormone

Table 4: Effect of *G. latifolium* leaf extract on male reproductive hormones

TREATMENT (mg/kg)	Testosterone (ng/mL)	LH (mIU/mL)	FSH (mIU/mL)
Normal Control	0.20±0.05	1.53±0.08	2.19±0.04
200(Low dose)	1.73±0.20[c,f]	2.58±0.18[b,e]	2.37±0.25
300(Middle dose)	1.68±0.17[c,f]	2.57±0.11[b,e]	3.03±0.07
400(High dose)	1.69±0.28[c,f]	2.44±0.04[a,d]	3.15±0.10
Positive Control (Standard drug)	0.18±0.02	1.51±0.16	2.39±0.27

Data are expressed as mean ± SEM. Significant at [a] $P = .05$; [b] $P \leq .01$; [c] $P \leq .001$ when compared to normal control. Significant at [d] $P = .05$; [e] $P \leq .01$; [f] $P \leq .001$ when compared to the standard drug (positive control). n = 5

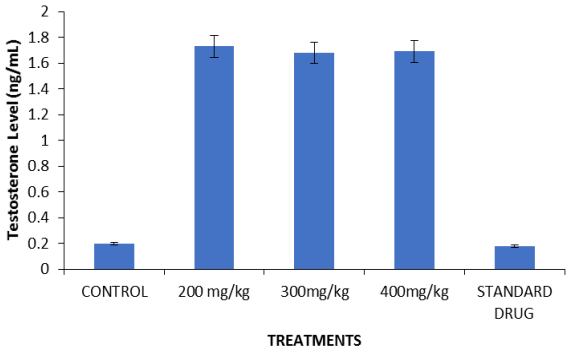

Figure 1: Effect of ethanol extract of *Gongronema latifolium* on Testerone level

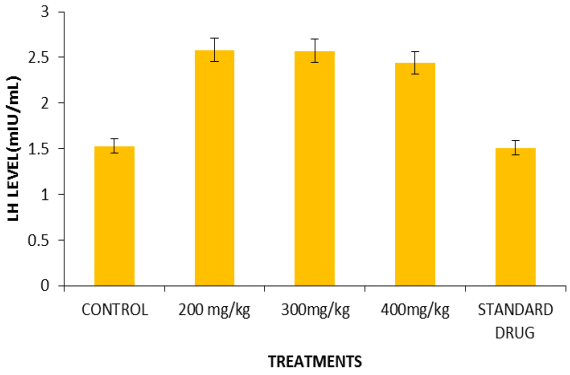

Figure 2: Effect of ethanol extract of *Gongronema latifolium* on Lutenizing hormone level

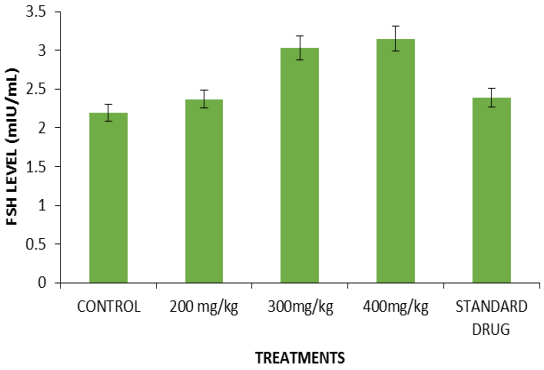

Figure 3: Effect of ethanol extract of Gongronema latifolium on Follicle stimulating hormone level

Discussion

The photochemical screening of the *Gongronema latifolium* extract showed the presence of alkaloids, flavonoids, saponins, tannins and cardiac glycoside and the absence of free anthraquinones and combined anthraquinones which was also in line with the work of [33]. It has been reported that saponin constitutents found in many plants may possess fertility potentiating properties and may be useful in treatment of impotency [34]. Therefore, saponin may have boost testosterone level as well as trigger sexual enhancing effect in this study. The presence of flavonoids in plants has been reported to have a role in alteration of hormonal level ([35] and may be responsible for enhanced male sexual behavior in this study. Reports have also shown alkaloids to may have been responsible for facilitation and enhancement of sexual behavior [36]. Therefore, alkaloid may as well trigger sexual activity in this study. These phytochemical compounds are known to play important roles in bioactivity of medicinal plants and their medicinal effects lie in these phytochemical compounds [14] (Balogun *et al*., 2016).

Aphrodisiacs are substances that have the ability to stimulant or increase sexual desire, performance, arousing sexual instinct, increased pleasure and enjoyment [28]. These are substances that can be used to modify impaired sexual functions. In the male rats, the extract caused a marked change in sexual behaviour. The result of these study showed that the administration of the ethanol leaf extract of *Gongronema latifolium* at the middle dose level of 300mg/kg body weight showed a significant decrease in mounting latency with a corresponding increase in mounting frequency as compared to the controls suggesting sexual motivation which is not in line with the work of [37] but in line with result of [38]. There was also decrease in intromission latency and increase in intromission frequency suggesting increased copulation rate [39]. The result also showed that the effect of the extract on sexual behaviour of the rats as showed in Table 3 were dosage specific as its aphrodisiac effect was most effectively seen in the middle dose treatment group. Similar findings were recorded by [39] while working on the potential aphrodisiac activity of *Psoralea corylifolia* in male Albino rats.

Conclusions

These indices of libido when taken together pointed to the fact that the *Gongronema latifolium* extract may possess aphrodisiac properties. These effects were further enhanced by the action of the extract in increasing the serum level of testosterone, follicle stimulating hormone and lutenizing hormone which are hormones involved in fertility and sexuality and are usually produced in the testes. All doses of the extract (Low, Middle and High dose) were seen to boost these hormones level ~~as shown in {Table 4}~~ which therefore shows there was a significant increase in these hormones. Hence, *Gongronema latifolium* extract might possess aphrodisiac potentials and may increase hormonal levels.

References

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