

CURRICULUM VITAE

PERSONAL DATA

NAME: OSINUBI, Abraham Adewale Adepoju
BIRTHDAY: 12th May
NATIONALITY: Nigerian
ADDRESS: Department of Anatomy, College of Medicine of the
University of Lagos, Lagos, Nigeria
MARITAL STATUS: Married with children

INSTITUTIONS ATTENDED

Government College, Ketu, Lagos, Nigeria (September 1975 - June 1980)
University of Ibadan, Ibadan, Nigeria (October 1981- September 1987)
Lagos City Computer College, Ikeja, Lagos, Nigeria (October 1997 - May 1998)
University of Lagos, Lagos, Nigeria (1999 till date)

QUALIFICATIONS ATTAINED

Division One Distinction; West African Examination Council (June, 1980)
M.B.,B.S.; University of Ibadan, Ibadan, Nigeria (1987)
Diploma in Computer Science; Lagos City Computer College, Ikeja, Lagos, Nigeria (1998)
M.Sc. (in Anatomy); University of Lagos, Lagos, Nigeria (2000)
Ph.D. (in Anatomy); University of Lagos, Lagos, Nigeria (2006)

EXPERIENCE

(a) UNIVERSITY TEACHING EXPERIENCE

INSTITUTION	DESIGNATION	AREAS OF SPECIALIZATION	SUBJECTS TAUGHT	DATE
Anat. Dept. Coll. of Med., University of Ibadan	Part-time Demonstrator	Anatomy	Gross Anatomy Microscopic Anatomy	Dec., 1985 to Feb., 1986
Anat. Dept. Coll. of Med., University of Lagos	Part-time Demonstrator	Reproductive & Cell Biology, Chronobiology	Gross Anatomy, Embryology	Dec., 1999 to Feb., 2001
Anat. Dept. Coll. of Med., University of Lagos	Lecturer II	Reproductive Anatomy, Cell Biology	Gross Anatomy, Embryology, Microscopic Anatomy, Stereology (P.G.)	Mar., 2001 to Nov., 2007
Anat. Dept. Coll. of Med., University of Lagos	Senior Lecturer	Reproductive Endocrinology, Cell Biology Morphometry	Gross Anatomy, Embryology, Microscopic Anatomy, Stereology (P.G.)	Nov., 2007 to June, 2011
Anat. Dept. Lagos State University Coll. of Medicine	Associate Professor & Head of Dept. (Sabbatical Appointment)	Reproductive Endocrinology, Morphometry, Cell Biology	Gross Anatomy, Developmental Anatomy, Neuroanatomy, Microscopic Anatomy, Stereology (P.G.)	May, 2008 to Apr., 2009
Anat. Dept. Coll. of Med., University of Lagos	Head of Dept.	Reproductive Endocrinology, Cell Biology Morphometry	Gross Anatomy, Embryology, Histology, Stereology (P.G.)	Aug., 2010
Anat. Dept. Coll. of Med., University of Lagos	Associate Professor & Head of Dept.	Reproductive Endocrinology, Cell Biology Morphometry	Gross Anatomy, Embryology, Histology, Stereology (P.G.)	June, 2011

(b) PROFESSIONAL EXPERIENCE

EMPLOYER	DESIGNATION	NATURE OF DUTY	DATE
Lagos State Health Management Board	House officer	Consultation and Calls in Departments of Surgery, Medicine, Paediatrics, Obstetrics & Gynaecology	Dec., 1987 to Nov., 1988
National Sports Commission	Medical officer	Consultation and Calls in the Sports Clinic & on the pitch	Dec., 1988 to Nov., 1989
Osof Clinics & Hospitals	Senior Medical Officer	Consultation, Administration & Teaching	Jan., 1990 to Nov., 1998

PROFESSIONAL MEMBERSHIP

1. Anatomical Society of Nigeria
2. Anatomical Society of West Africa
3. American Association of Anatomists
4. Nigerian Medical Association
5. Nigerian Society of Endocrinology and Metabolism
6. Diabetes Association of Nigeria
7. European Association for the Study of Diabetes
8. Nigerian Association for the Study of Diabetes
9. American Association of Clinical Endocrinologists
10. The Endocrine Society

POSITIONS

- 1.** Present Ag. Head of Department of Anatomy, College of Medicine of the University of Lagos (2010 till date).
- 2.** Ag. Head of Department and Associate Professor of Anatomy, Lagos State University College of Medicine (2008 to 2009).
- 3.** Member, Senate of the University of Lagos (2010 till date).
- 4.** Member, Business Committee of Senate of the University of Lagos (2010 till date).
- 5.** Member, University Medical Centre Management Board of the University of Lagos (2011 till date).
- 6.** Member, Academic Programmes Committee, School of Postgraduate Studies, University of Lagos (2007 till date).
- 7.** Member, Examination Results Committee, School of Postgraduate Studies, University of Lagos (2009 till date).
- 8.** Past Coordinator, Department of Anatomy, College of Medicine of the University of Lagos (2007).
- 9.** Member, Senate, Lagos State University, Ojo, Lagos (2008/2009).
- 10.** Member, Board of Postgraduate Studies, Lagos State University, Ojo, Lagos (2008/2009).
- 11.** Coordinator of postgraduate education in the Department of Anatomy, College of Medicine of the University of Lagos (2007/2008).
- 12.** Member of the Students' Affairs Committee of College of Medicine of the University of Lagos (2007/2008).
- 13.** Chairman, Hostel Management Committee for Blocks 1 and 2, College of Medicine of the University of Lagos (2007/2008).
- 14.** Member, Postgraduate Students' Disciplinary Committee, University of Lagos (2007/2008).
- 15.** Member, Students' Affairs Committee, College of Medicine of the University of Lagos (2007/2008).
- 16.** Member, Committee on Hostel Environment, College of Medicine of the University of Lagos (2007/2008).

- 17.** Member, Felix Oladejo Dosekun Memorial Lecture-Organizing Committee, College of Medicine of the University of Lagos (2009/2010).
- 18.** Member, Board of School of Postgraduate Studies, University of Lagos (2007 till date).
- 19.** Member, Academic Board, College of Medicine of the University of Lagos (2007 to 2011).
- 20.** Member, Postgraduate Education Committee, College of Medicine of the University of Lagos (2007 till date).
- 21.** Faculty Examinations Officer, Faculty of Basic Medical Sciences, College of Medicine of the University of Lagos (2009/2010).
- 22.** Member, Central Timetable Committee of the University of Lagos (2009/2010).
- 23.** Member, Timetable Committee, College of Medicine of the University of Lagos (2009/2010).
- 24.** Member, Curriculum Review Committee, Faculty of Basic Medical Sciences, College of Medicine of the University of Lagos (2007/2008).
- 25.** Member, Prizes/Scholarship Committee, College of Medicine of the University of Lagos (2010 till date).
- 26.** Member, Medical Education Committee, College of Medicine of the University of Lagos.
- 27.** Member, 100L Curriculum Review Committee, Faculty of Basic Medical Sciences, College of Medicine of the University of Lagos (2010 till date).
- 28.** Member, E-Learning Committee, College of Medicine of the University of Lagos (2011 till date).
- 29.** Member, Curriculum Review Committee, College of Medicine, University of Lagos (2011 till date).
- 30.** Secretary-General, Nigerian Society of Endocrinology and Metabolism (2009 till date).
- 31.** Treasurer, American Association of Clinical Endocrinologists - Nigeria Chapter (2009 till date).

ORIGINAL ARTICLES IN LEARNED JOURNALS

1. Noronha CC, **Osinubi AA**, Ashiru OA, Okanlawon AO. The reversal effects of human chorionic gonadotrophin on chloroquine inhibition of ovulation: Evidence for a critical period. *J. Med. Med. Sci.*, 2001; 3(1): 8-10.

This study investigated the reversal of the anti-ovulatory property of chloroquine (CQ) by human chorionic gonadotrophin (hCG), in order to provide evidence for the presence of a critical period and attempted to characterize the mechanism of the anti-ovulatory action of CQ. Our results showed that CQ injection between 0900 and 1000 h on proestrus, completely blocked ovulation while administration of hCG induced ovulation in all animals previously blocked with CQ. This study demonstrated the presence of a critical period for the anti-ovulatory effect of CQ and that hCG is capable of reversing this action of CQ. In addition, suggests that the anovulatory effect of CQ is primarily central.

2. **Osinubi AA**, Duru FI, Noronha CC, Okanlawon AO. Effect of light and darkness on packed cell volume in the rat. *Nig. J. Health Biomed. Sci.*, 2002; 1(2): 82-85.

The aim of the study was to identify and characterize the circadian oscillation of packed cell volume (PCV) within a 24-hour time frame in Sprague-Dawley rats. We observed peak values (51.43 ± 3.51 in female rats & $51.57 \pm 2.91\%$ in male rats) at 0600 h and nadir (35.00 ± 2.92 in female rats and $33.71 \pm 2.85\%$ in male rats) at 1200 h. Since the peak and nadir PCV values were significantly different ($p < 0.05$), the study demonstrated that PCV exhibits rhythmic variations in Sprague-Dawley rats.

3. **Osinubi AA**, Ibegbu BO, Ajayi GO. The relationship between follicle stimulating hormone and sperm count and motility in fertile and infertile Nigerian males. *Afr. J. Endocrinol. Metab.*, 2003; 4(1): 22-25.

Prior to this study, there was no published work describing the pattern of follicle-stimulating hormone (FSH) in relation to seminal parameters in this environment. Hence, we sought to

investigate the relationship between FSH levels, sperm count and motility in Nigerian males. The results showed that 30.77% subjects with normal levels of FSH (1-12 mIU/ml) had sperm motility greater than 50% while 34.62% subjects with similar FSH levels had sperm count $>20 \times 10^6$ /ml. No subject with either subnormal or above normal levels of FSH had sperm motility greater than 50%. We concluded that in our environment, plasma FSH within the range of 1-12 mIU/ml may be the critical reference value for the maintenance of normal sperm motility and count.

- 4. Osinubi AA, Udeh RA, Akpantah AO, Noronha CC, Okanlawon AO.** The circadian rhythm of blood glucose in adult male Sprague-Dawley rats in Lagos. *J. Clin. Sci.*, 2003; 3(2): 1-4.

Prior to our study, the biological rhythm of blood glucose in our environment has never been reported in rat. The aim of this study was to identify and characterize the rhythm of blood glucose levels in rats kept under standard photoperiodic conditions. This study demonstrated that blood glucose level in male Sprague-Dawley rats subjected to scheduled feeding in Lagos exhibits circadian rhythm with peak (80.78 ± 5.08 mg/dL) at 1900 h and nadir (54.78 ± 3.55 mg/dL) at 1100 h.

- 5. Osinubi AA, Adeyemi A, Banmeke A, Ajayi GO.** The relationship between testosterone concentration and sperm count and motility in fertile and infertile Nigerian males. *Afr. J. Endocrinol. Metab.*, 2003; 4(1): 43-45.

The aim of this study was to determine the relationship between testosterone (TT), sperm count and motility in Nigerian males, identify its diagnostic or therapeutic significance and attempt to characterize the pattern of such relationship. We found out that no subject with subnormal level of TT (<3 ng/ml) had either sperm motility greater than 50 % or sperm count greater than 20×10^6 /ml. We therefore concluded that TT within the range of 3-10 ng/ml may

be the critical range in the Nigerian male necessary for the maintenance of normal sperm motility and count.

6. **Osinubi AA**, Akinlua JT, Agbaje MA, Noronha CC, Okanlawon AO. Effects of short-term administration of quinine on the seminiferous tubules of Sprague-Dawley rats. *Nig. J. Health Biomed. Sci.*, 2004; 3(1): 1-7.

The aim of this study was to investigate the effect of short-term administration of quinine (QU) (30 mg/kg body weight daily for 7 days) on the seminiferous tubules of rats. The results showed that there was a general destruction coupled with degeneration of cells of the seminiferous epithelium secondary to acute administration of QU. We concluded that QU has a deleterious effect on the testis and may possibly disrupt spermatogenesis.

7. **Osinubi AA**, Ajayi GO, Omilabu S, Wellington JO. The pattern of triiodothyronine, thyroxine and thyroid-stimulating hormone in Nigerian males. *Afr. J. Endocrinol. Metab.*, 2004; 5(1): 15-19.

Data relating to thyroid functions peculiar to our environment are scanty and in most cases are lacking. The aim of this study was to identify and characterize the pattern of thyroid-stimulating hormone (TSH), triiodothyronine (T3) and thyroxine (T4) in Nigerian males. Results showed that 70.5% of subjects had TSH values within 0.4-7.0 μ IU/ml; 45.6% subjects had T4 values above 13.0 μ IU/ml; and 18.9% had values below 5.0 μ IU/ml. In addition, 33.3% subjects had T3 values within the “normal range” (0.6-2.1 ng/ml) provided by the manufacturer; 41.1% had values above, while 25.6% had values below this range. This study demonstrated that there may be a need to review some of the reference values presently being used to assess thyroid function tests in our environment and a need for the provision of local values.

8. **Osinubi AA**, Ajayi GO, Omilabu S, Wellington JO. Correlation of prostate-specific antigen with luteinizing hormone, follicle-stimulating hormone, prolactin,

testosterone, inhibin B, sperm count and motility in Nigerian males. *Afr. J. Endocrinol. Metab.*, 2004; 5(1): 20-24.

Apart from the well documented widespread clinical use of prostate-specific antigen (PSA) as a tumour marker, the body of available literature contains only sparse reports on the relationship that exists between this marker and seminal parameters, luteinizing hormone (LH), follicle-stimulating hormone (FSH), prolactin (PR), testosterone (TT) and inhibin B (IH B) concentrations especially in men without prostate hyperplasia or cancer. We investigated the relationship between PSA and LH, FSH, PR, TT, IH B, sperm count and motility in Nigerian males. Our results clearly demonstrated that serum levels of PSA correlate positively with serum levels of IH B ($r = +0.60$; $p < 0.01$) and negatively with sperm count ($r = -0.5$; $p < 0.01$) in Nigerian males. To the best of our knowledge, this was the first establishment of such a relationship. Present study further highlights the heterogeneity of PSA, and that interpretation of results should be made with some caution. PSA is probably more than a tumour marker.

9. Osinubi AA, Noronha CC, Okanlawon AO. Reversal of quinine-induced testicular toxicity by testosterone in rat. *Nig. Qt. J. Hosp.*, 2004; 14 (2): 121-125.

The primary aim of this study was to evaluate, using stereological technique if testosterone (TT) is capable of reversing the toxic effects of quinine (QU) on the testis of Sprague-Dawley rat. Our results showed that there was significant testicular destruction and decrease ($p < 0.05$) in mean sperm count and motility in the QU-treated rats compared with the controls and rats administered QU and TT sequentially, while there were no significant differences in both the seminal parameters and testicular morphology and morphometry between the control and QU plus TT-treated rats. We concluded that TT is capable of reversing QU-induced testicular and seminal toxicity.

10. Edeni KO, Osinubi AA, Noronha CC, Kusemiju O, Okanlawon AO. Effects of alpha lipoic acid and electrical nerve stimulation on traumatized sciatic nerve of rabbits: a morphometric assessment. *Nig. J. Med. Rehab.*, 2004; 9(1&2): 16-20.

Researchers are presently testing new techniques to enhance nerve regeneration. Our aim was to investigate the combined beneficial effects of alpha lipoic acid (ALA) and electrical nerve stimulation (ENS) on healing of injured nerve tissue. Results of our study showed that there was a decrease in mean nerve diameter, number of Schwann cells and myelin thickness in all traumatized nerves compared with the untraumatized ones. There were significant differences ($p < 0.05$) in the mean number of Schwann cells per unit area and the myelin thickness of the traumatized nerves between the control, ALA, and the combined ALA and ENS groups with the combined therapy group yielding greatest evidence of remyelination. Based on our results, we concluded that the combined therapy of ALA and ENS may be beneficial to remyelination in traumatized nerves.

11. Osinubi AA, Noronha CC, Okanlawon AO. Effects of quinine and ascorbic acid on testicular malondialdehyde and sperm quality in the rat. *J. Clin. Sci.*, 2004; 4: 1-6.

The aim of this study was to determine changes in the testicular levels of malondialdehyde (MDA) secondary to quinine (QU) and ascorbic acid (AA) in rats, with a view to attempt to partly explain the mechanism of QU-induced testicular toxicity. Our study showed that there was a significant ($p < 0.05$) elevation of MDA levels in the testicular homogenates of rats treated with QU only compared with those of the control group and those treated with a combination of QU and AA. The semen of rats treated with only QU demonstrated a significantly lower sperm concentration and motility compared to the controls and those treated with QU plus AA. Microscopic examination of cross-sections of seminiferous tubules also showed that AA partly protects against QU-induced testicular toxicity. The results of our

study demonstrated that QU-induced testicular toxicity is at least partly via a disruption of the oxidant status of the testis.

12. Osinubi AA, Noronha CC, Okanlawon AO. Cytoarchitectural and morphometric changes in the testis induced by quinine administration in rabbits. *West Afr. J. Anat.*, (Ghana), 2005; 8: 73-80.

We have earlier demonstrated that quinine (QU) is a testicular toxicant in Sprague-Dawley rat. The aim of this study was to investigate histologically and stereologically the effects on the rabbit testes of short and long-term administration of QU. This research was also undertaken to find out whether the QU-induced testicular toxicity observed in rats will be evident in the rabbits as well. Our results showed that in rabbits treated with QU only, there was degeneration of cells of the seminiferous epithelium and a general destruction of the interstitium. Testicular destruction was more marked in animals treated for 8 weeks than in those treated for 7 days. We concluded that QU has deleterious effects on the rabbit testis.

13. Osinubi AA, Noronha CC, Akosile SK, Okanlawon AO. Histomorphometric and seminal analyses: Testosterone prevents quinine-induced testicular toxicity in Sprague-Dawley rats. *West Afr. J. Anat.*, (Ghana), 2005; 8: 109-116.

This work was sent for publication prior to paper 9. Our aim was to investigate whether concomitant administration of testosterone (TT) with quinine (QU) is able to prevent the toxic effects of the latter on the testis. Histological slides of the testes were prepared and morphometric assessment carried out. Our results showed that there was testicular destruction and significant decrease ($p < 0.05$) in the mean sperm count and motility in the QU-treated rats compared with the control and QU plus TT groups while there were no significant differences in seminal parameters, testicular morphology and morphometry of the control and QU plus TT-treated rats. We concluded that concomitant administration of TT with QU

prevents QU-induced testicular damage and QU-induced reduction in sperm concentration and motility.

14. Osinubi AA, Noronha CC, Okanlawon AO. Morphometric and stereological assessment of the effects of long-term administration of quinine on the morphology of rat testis. *West Afr. J. Med.*, 2005; 24(3): 200-205.

The aim of this study was to determine using stereological parameters the long-term morphological response of the testis to chronic administration of quinine (QU). This study demonstrated a continuous decrease in mean testicular volume (TV), diameter, cross-sectional area and volume density of seminiferous epithelium (VSE) of the seminiferous tubules (STs) in rats administered QU for 8 weeks. The TV and VSE continued to decrease after cessation of treatment for another 12 weeks. In contrast, QU administration produced a concomitant increase in the number of profiles of STs per unit area, length and numerical density of STs during the 8 weeks of treatment and the immediate 4 weeks post-treatment period. We concluded that chronic administration of QU has a deleterious effect on the STs of rats, which may not be reversible within 12 weeks of cessation.

15. Osinubi AA, Noronha CC, Okanlawon AO. Attenuation of quinine-induced testicular toxicity by ascorbic acid in rat: A stereological approach. *Afr. J. Med. Med. Sci.*, 2005; 34: 213-219.

This work was undertaken just after we demonstrated that quinine (QU) is toxic to testicular gonocytes and interstitial endocrinocytes. It sought to determine whether co-administration of ascorbic acid (AA) with QU will modify the deleterious effects of QU on the testis of Sprague-Dawley rats. Our findings were sent for publication before paper 11. There was gross testicular destruction in the QU-only-treated rats compared with the control and QU plus AA groups while there was no significant difference in the testicular morphology and

morphometry between the control and QU plus AA groups. The results of this study suggested that co-administration of AA with QU could play an important role in the modulation of QU-induced testicular damage.

- 16.** Azu OO, **Osinubi AA**, Noronha CC, Okanlawon AO. Hypoglycaemic activities of extract of *Garcinia kola* seeds in normal, hyperglycaemic and alloxan-induced diabetic rats. *West Afr. J. Anat.*, (Ghana), 2005; 8: 141-149.

In view of the increasing interest in the use of plant sources for treatment of diabetes and the conflicts arising from literatures over the antidiabetic action of *Garcinia kola* (GK) seeds, the effects of acute and chronic administration of methanolic extract of the seeds of GK on blood glucose in normoglycaemic, hyperglycaemic and alloxan-induced diabetic rats were investigated. GK produced significant blood glucose-lowering effects in normoglycaemic ($p < 0.05$), hyperglycaemic ($p < 0.05$) and in alloxan-induced diabetic ($p < 0.001$) rats when compared to the controls. GK had a pronounced blood glucose-lowering effect in alloxan-induced diabetic rats comparable to those of standard anti-diabetic drugs (glibenclamide [5 mg/kg]; chlorpropamide [250 mg/kg], human insulin lente [1 I.U. /kg] and is therefore a potential agent for the treatment of diabetes mellitus.

- 17.** Akpan HB, Noronha CC, **Osinubi AA**, Orakwue CO, Kusemiju TO, Okanlawon AO. Effects of indomethacin on the seminiferous tubules of male Sprague-Dawley rats: A stereological study. *West Afr. J. Anat.*, (Ghana), 2005; 8: 151-159.

The objective of this study was to investigate the cytotoxic effects of indomethacin on the seminiferous tubules of Sprague-Dawley rats. Histological observations showed that in animals treated with indomethacin, the drug caused a general destruction of the testicular interstitium, a degeneration of cells of the seminiferous epithelium and reduction in the size of seminiferous tubules. We concluded that indomethacin has deleterious cytological effects on the testes of Sprague-Dawley rats and may possibly disrupt spermatogenesis.

- 18.** Adejuwon SA, **Osinubi AA**, Noronha CC, Okanlawon AO. Acute effects of *Vernonia amygdalina* on blood glucose levels in normoglycaemic and alloxan-induced diabetic male Sprague-Dawley rats. *West Afr. J. Anat.*, (Ghana), 2005; 8: 161-168.

The leaves of *Vernonia amygdalina* (VA) are used locally to treat many ailments. To determine whether or not there is a scientific basis for its use as an anti-diabetic agent, the effect of the aqueous extract of the leaves of VA on blood glucose level was assessed in normoglycaemic and alloxan-induced diabetic rats. Our results showed that the aqueous extract of the leaves of VA caused a significant reduction in blood glucose levels of rats administered alloxan plus VA and extract only when compared to those treated with alloxan and distilled water only. These findings demonstrated scientifically that VA leaves possess both hypoglycaemic and anti-diabetic effects.

- 19.** **Osinubi AA**, Ajayi GO, Adesiyun AE. Evaluation of the anti-diabetic effect of aqueous leaf extract of *Tapinanthus butungii* in male Sprague-Dawley rats. *Medical Journal of Islamic World Academy of Sciences*, (Turkey), 2006; 16(1): 41-47.

Our aim was to evaluate the hypoglycaemic, anti-hyperglycaemic and anti-diabetic effects of aqueous extract of fresh green leaves of *Tapinanthus butungii* (TB) in the rat. TB produced significant dose-dependent reductions ($p < 0.05-0.001$) in blood glucose concentrations of normoglycaemic, hyperglycaemic and alloxan-induced diabetic rats comparable to glibenclamide, chlorpropamide and human insulin lente. Our results suggested that the leaves of TB have strong and remarkable anti-diabetic property. This is probably the first scientific establishment of the anti-diabetic effect of TB.

- 20.** Jewo P.I., Olabiyi A.O., Olagunju J.A., **Osinubi AAA**, Noronha C.C., and Okanlawon A.O. Comparative study of the hypoglycemic effects of extract of heated and non heated forms of *Vernonia amygdalina* leaf. *J. Clin. Sci.*, 2006; 6(2): 42-45.

The hypoglycemic effect of the aqueous extract of Heated (HE) and Non-Heated (NE) leaf extract of the *vemonia amygdalina* (Bitter leaf/Ewuro) was studied, using alloxan treated albino rats. Rats in groups with Alloxan-induced diabetes (experimental groups) were given the above extracts for 14 days and their mean blood glucose (MBG) compared with alloxan treated rats that had no extracts. Fasting blood glucose of the rats in the different groups were determined at onset *i.e.* day zero and on the 7th and 14th days. The results show a statistically significant reduction of MBG in the extract treated diabetic rats, with the non-heated group (NE) showing greater potency. By the 14th day of treatment, there was a 66% ($p < 0.001$) reduction in MBG in the NE group, and 50% ($p < 0.05$) reduction in the heated extract (HE) group. This result suggests that the hypoglycemic agents in the plant are to some extent heat-stable and raises the prospect that people ingesting large quantities of the plant may derive some advantage in the control of diabetes.

21. Osinubi AA, Udeh RA, Noronha CC, Okanlawon AO. Blood glucose levels in adult Sprague-Dawley rats following bilateral optic enucleation. *Nig. Med. J.*, 2006; 47(3): 57-60.

This study was to determine the 24-h blood glucose (BG) levels in the adult male rats, and to quantify the effect of bilateral optic enucleation (BOE) on blood glucose level. Our results showed the persistence of circadian rhythm in the bilateral optically enucleated rats, though with a phase-shift. The optically enucleated rats also had significantly ($p < 0.05$) lower BG levels at all time points than the sighted ones. We concluded that BOE affects both the levels and rhythm of BG in adult male Sprague-Dawley rats. BG level observes a rhythm in bilateral optically enucleated Sprague-Dawley rats with peak at 0300 h (vs. 1900 h in sighted rats) and nadir at 1100 h (vs. 1100 h in sighted rats).

22. Osinubi AA, Ajala MO, Noronha CC, Okanlawon AO. Quinine lowers serum and testicular testosterone in adult Sprague-Dawley rats. *Afr. J. Med. Med. Sc.*, 2006; 35: 425-430.

The work reported in paper 22 was undertaken prior to that reported here. Paper 22 was also sent for publication before paper 21. While the chief aim of paper 22 was to see if QU alters testicular TT, this study focused on alterations in serum TT secondary to QU treatment as well as attempted to see if the changes in testicular TT will parallel that of serum since it is more practical to assess serum TT than testicular TT. Both the serum and testicular levels of TT in rats administered QU only were significantly ($p < 0.001$) lower than those of the control and QU plus TT-treated rats. In addition, changes in serum TT paralleled that of the testis in response to QU administration.

23. Osinubi AA, Daramola AO, Noronha CC, Okanlawon AO, Ashiru OA. The effect of quinine and ascorbic acid on rat testes. *West Afr. J. Med.*, 2007; 26(3): 217-221.

This work was undertaken and sent for publication prior to the work reported in paper 21. The main thrust of this work was to determine the changes in the testicular levels of testosterone (TT) secondary to quinine (QU) and ascorbic acid (AA) administration in rats. Prior to this particular study, our proposition that QU-induced testicular toxicity might be through a disruption of TT synthesis/secretion remained mere speculation. We therefore sought to assay testicular TT in rats administered QU, AA and distilled water. Results obtained from this study showed that QU significantly ($p < 0.01$) decreased testicular TT concentrations, in addition to inducing formation free radicals (from elevation of malondialdehyde levels) in the testes of rats compared with those of the control group and those treated with a combination of QU and AA.

24. Osinubi AA. Effects of *Vernonia amygdalina* and chlorpropamide on blood glucose.

Medical Journal of Islamic World Academy of Sciences, (Turkey), 2007; 16(3): 115-119.

The aim of this study was to subject a promising antidiabetic herb *Vernonia amygdalina* (VA), to further investigation with a view to unlocking its potential in the treatment of diabetes mellitus as potentially emerging alternative or adjunct therapeutic. Sixty adult male Sprague-Dawley rats weighing 180-220 g were used for the experiment. Half of the animals were randomly rendered diabetic by administering alloxan (150 mg/kg). Equal numbers (20) of the rats were variously administered aqueous leaf extract of VA (500 mg/kg), chlorpropamide (250 mg/kg) and distilled water (2 ml/kg). Aqueous leaf extract of VA produced significant ($p < 0.05-0.001$), reductions in the blood glucose concentrations of normal and diabetic rats 1 to 12 hours after acute treatment compared with distilled water-treated control animals. Its blood-glucose-lowering potential in both normoglycemic and alloxan-induced diabetic male Sprague-Dawley rats compared favourably to that of chlorpropamide.

25. Osinubi AA, Adesiyun AE, Ajayi GO. Comparative effects of three herbs and standard hypoglycaemic agents on blood glucose in normoglycaemic, hyperglycaemic and alloxan-induced diabetic male rats. *Afr. J. Endocrinol. Metab.*, 2008; 7(1): 6-11.

We aimed to assess the relative efficacy of three promising herbs as potentially emerging alternative/adjunct treatment for diabetes. One hundred and ninety-two male Sprague-Dawley rats were used. A third of the animals were randomly rendered diabetic with alloxan (150 mg/kg), another third injected 50% dextrose (5 g/kg); and the last third constituted the controls. The rats were variously administered aqueous leaf extract of *Momordica foetida* (MF) (500 mg/kg), *Vernonia amygdalina* (VA) (500 mg/kg) and *Tapinanthus butungii* (TB) (500 mg/kg), glibenclamide (5 mg/kg) chlorpropamide (250 mg/kg), and human insulin lente

(0.1 I.U./kg). Extract of MF caused maximal anti-diabetic effect in six hours, VA ten hours, while TB continued to cause reduction after ten hours. The three extracts caused greater blood glucose reductions than glibenclamide in the diabetic rats, while exhibiting comparable effects with chlorpropamide and insulin. *Tapinanthus butungii* is more effective in lowering blood glucose than MF and VA in alloxan-induced diabetic rats. Leaf extract of MF should be useful in rapidly lowering blood glucose, while that of TB in situations that require more subtle reductions and in conditions in which prolonged hypoglycaemic actions are desirable.

- 26.** Gbotolorun SC, **Osinubi AA**, Noronha CC, Okanlawon AO. Antifertility potential of Neem flower extract on adult female Sprague-Dawley rats. *Afr. Health Sc.*, (Makerere University Medical School, Kampala, Uganda), 2008; 8, (3): 168-173.

The search for a relatively cheap, widely available, widely accepted and effective contraceptive of plant origin; that is equally non-invasive in administration, non-hormonal in action, non-toxic and that is relatively long-acting, generated our interest in this study (in order to meet the increasing need for population control). The aim of this study was to determine the effects of alcoholic extract of Neem flowers on the estrous cycle, ovulation, fertility and foetal morphology of cyclic adult Sprague-Dawley rats. Adult female Sprague-Dawley rats, weighing between 140-180 g were used. There were 3 main experimental groups. Group 1 rats received 1 g/kg of alcoholic extract of Neem flower by gavage for 3 weeks and the effect on estrous cycle studied. Group 2 rats were administered 1 g/kg of Neem flower alcoholic extract at 9 a.m. and at 6 p.m. on proestrus and the effect on the number of ova shed on the morning of estrus observed. Rats in Group 3 were treated with 1 g/kg of alcoholic extract of Neem flower on days 1 to 5 *postcoitum*, and observation was made for anti-implantation / abortifacient effects and possible teratogenic effects on the foetuses. All the groups were control-matched. The estrous cycle of 80% of the rats was altered with a marked prolongation of the diestrus phase. Neem flower caused a statistically

significant ($p < 0.05$) reduction in the number of ova shed in the morning of estrus in rats fed with the extract at 9 a.m. on proestrus. Neither anti-implantion / abortifacient nor teratogenic effect was observed in the rats treated with Neem flower. It was concluded that administration of alcoholic extract of Neem flower disrupted the estrous cycle in Sprague-Dawley rats and caused a partial block in ovulation and thus has the potential of being developed into a female contraceptive.

27. Horsefall AU, Olabiyi O, **Osinubi AA**, Noronha CC, Okanlawon AO. Anti-diabetic effect of Fruit Juice of *Morinda citrifolia* (Tahitian Noni Juice®) on Experimentally-Induced Diabetes Rats. *Nig. J. Health Biomed. Sci.*, 2008; 7(2): 34-37.

This study investigated the therapeutic use of Tahitian Noni Juice® (TNJ) or noni juice in controlling hyperglycaemia as claimed in folk medicine. Twenty adult male Sprague–Dawley rats with body weights ranging from 145 to 230 g were used for the experiment. They were randomly allocated into 4 groups of five, rats each. The first group, (Group A) served as control and received standard rat chow and water, throughout the duration of the study. The second group (Group B) received pretreatment with noni juice for 4 weeks, prior to introduction of diabetes. This group continued treatment with noni juice for further 4 weeks after induction of diabetes. Group C received noni juice treatment, after induction of diabetes, for 4 weeks. Group D was given distilled water at dose of 1 ml/150 mg body weight for 4 weeks before induction of diabetes with alloxan and distilled water at dose of 1 ml/150 mg body weight for 4 weeks after induction of diabetes with alloxan and distilled water at dose of 1 ml/150 ng body weight for 4 weeks after induction of diabetes with alloxan. Levels of glycaemia of animals in all 4 groups were monitored and compared. Rats which had noni juice prophylaxis, (group B), prior to induction of diabetes by alloxan had the best glycaemic control and best treatment outcome, However, stoppage of treatment with noni juice resulted

in a return of hyperglycaemia. Our findings suggest that noni juice has blood glucose lowering activity following experimentally induced diabetes in Sprague–Dawley rats.

- 28.** Shittu LAJ, Shittu RK, **Osinubi AA**, Ashiru OA. Stereological evidences of epithelial Hypoplasia of Seminiferous tubules induced by mesterolone in adult Sprague-Dawley rats. *Afr. J. Endocrinol. Metab.*, 2008; 7(1): 16-20.

Anabolic-androgenic steroid compounds are one of the most widely abused drugs by athletes and muscle builders with the goal of improving performance/ability, appearance, or muscle mass. In addition, these steroids are widely used in the treatment of male infertility and subfertility. There is a dearth of knowledge on the structural and quantitative changes of the testis secondary to this group of compounds. The present study was carried out to evaluate the effects of mesterolone (proviron), an anabolic-androgenic steroid, on some of the histomorphometric and stereological parameters of the seminiferous tubules in Sprague-Dawley rat. Two groups of 10 adult male rats were used. The treated group was given 0.06 mg/kg body weight/day of mesterolone by gavage for six weeks while the control group received equal volume of 0.9% normal saline per day. Five μm of uniformly random serial sections of the processed testicular tissues were analyzed using un-biased stereological and histomorphometric studies. The results showed that the percentage mean volume density of both the tubular lumen and epithelial height increased by 35% ($p < 0.05$) and decreased by 50% ($p < 0.05$), respectively compared to the control. Mesterolone also caused a significant decline in sperm concentration. We concluded that mesterolone produces epithelial hypoplasia in the testis post continuous management.

- 29.** Ukwenya VO, **Osinubi AA**, Gbotolorun SC, Kusemiju TO, Noronha CC, Okanlawon AO. Ameliorative effects of *Treculia africana* aqueous seed extract on hyperglycaemia and testicular histopathological alterations induced in alloxan-treated rats. *Nig. Endo. Pract.*, 2008; 2(2): 101-109.

Treculia africana (TA) has been used as an anti-inflammatory agent by the Yoruba people of West Africa. The plant is also known to be a component of an ancient anti-diabetic remedy used in the Western and Middle belt areas of Nigeria. Diabetes mellitus has been associated with testicular dysfunction. This study was conducted to investigate the anti-glycaemic property of the extract from seeds of TA and also to evaluate the potential of this extract in reversing the toxicity inflicted by diabetes on the testes. The anti-glycaemic potential of the extract was compared with glibenclamide. The animals were randomly divided into 4 groups of 5 rats each. Groups A-C rats were rendered diabetic with alloxan. After 4 weeks of being diabetic, A-C rats were treated with TA (200 mg/kg/d), glibenclamide (10 mg/kg/d) and distilled water (positive control), respectively. The non-diabetic group D animals served as the negative controls. Body weight and blood glucose levels were evaluated. At the end of 8 weeks all animals were sacrificed. Semen analysis was done on the caudal epididymal fluid while the testes were processed for light microscopic examination. TA caused significant ($p < 0.001$) blood glucose reduction (36.27%) compared to the negative control. The diabetic group treated with distilled water had testicular weight of 0.67 ± 0.06 g and zero sperm count; the group treated with TA recorded 1.31 ± 0.03 g and $33.58 \pm 8.85 \times 10^6$ /ml while the group treated with glibenclamide recorded 1.69 ± 0.08 and 63.06 ± 10.79 respectively. The distorted seminiferous tubules of the diabetic distilled water-treated rats had just a few scattered spermatogonia and spermatids. The testes of the TA-treated rats showed seminiferous tubules lined by Sertoli cells, with relatively normal germinal epithelium. The glibenclamide-treated rats showed seminiferous tubules lined by Sertoli cells with ongoing spermatogenesis. TA would be a good adjunct in the treatment of diabetes mellitus. In addition, TA may be capable of reversing the deleterious effects of diabetes on body weight, the testes and semen parameters.

30. Osinubi AA, Ajayi GO, Adegbola O. Effect of normal and pre-eclamptic pregnancies on plasma cholinesterase in Nigerian women. *Afr. J. Endocrinol. Metab.*, 2009; 8(1): 1-4.

Pre-eclampsia can be devastating and life-threatening for both mother and baby, particularly in developing countries. Early diagnosis and management are very important to the reduction of mortality and morbidity. A sensitive diagnostic and prognostic marker will therefore be of great value. There is paucity of data on the effect of pre-eclamptic pregnancy on plasma cholinesterase activity especially in Nigerians. Our aim was to determine the changes in plasma cholinesterase concentration in normal and pre-eclamptic pregnancies in Nigerians. Plasma cholinesterase concentration was determined using a colorimetric method in 30 healthy non-pregnant, 30 healthy pregnant, 30 and 27 pregnant women with mild and severe pre-eclampsia, respectively, between 28 and 41 weeks of gestation. Cholinesterase activity was re-assessed 6 weeks postpartum. The mean plasma cholinesterase levels in healthy non-pregnant women, women with normal pregnancy, pregnant women with mild pre-eclampsia and those with severe pre-eclampsia were 3594 ± 1042 , 2135 ± 422 , 1781 ± 330 and 1630 ± 326 (m/L), respectively. Six weeks postpartum, the mean cholinesterase levels in the normal pregnant, mild eclamptic and severe eclamptic groups were 3212 ± 346 , 3157 ± 750 and 2864 ± 700 (/L), respectively. Our study suggests that normal pregnancy, mild and severe pre-eclampsia cause a significant ($p < 0.01$) reduction in plasma cholinesterase activity compared to non-pregnant state, with the greatest decrease in severe pre-eclamptic pregnancy. This decline does not return to normal non-pregnant state in subjects with severe pre-clampsia within six weeks postpartum. The place of plasma cholinesterase concentration as a diagnostic and prognostic marker in pre-eclamptic and eclamptic pregnancies should be further explored.

31. Saalu LC, Osinubi AA. Environmental endocrine disruptors of testicular function. *Afr. J. Endocrinol. Metab.*, 2009; 8(1): 15-25.

In the last 50 years the incidence of infertility, testicular and prostate cancers and associated maladies has increased significantly. Infertility now affects 15-20% of couples as opposed to 7-8% fifty years ago. Average sperm counts among adult men have decreased by 50% since 1938, with a decline of 2% every year from 1973. This decline in male reproductive health has been linked to an increased presence in the environment of chemical contaminants in the form of pesticides and plastics. Rapid and unplanned industrialization caused large amounts of these synthetic compounds and their by-products to be released in the environment (air, soil, water and food). Studies have shown that occupational exposure to pesticides caused neonatal deaths, congenital defects, testicular dysfunction and male infertility. Many of these chemicals found in our environment and households have oestrogenic properties (“xenoestrogens”) and are toxic because they affect the endocrine system (“endocrine disruptors”). Evidence of the health hazards of endocrine disrupting chemicals continues to mount. In terms of male fertility, it now seems that these ubiquitous chemicals are a significant threat at various stages, from testicular development to sperm production to the functionality of healthy sperm. This class of chemicals appears to be threatening male fertility on several fronts. That endocrine disruptors abound in our environment is not in doubt. Clinicians and other health practitioners confronted with the challenges of managing male infertility should attempt to identify the aetiology of a possible exposure to endocrine disruptors, and initiate a plan to control and prevent exposure to others. In addition, concerted efforts should be made by both government and non-governmental agencies to institute local studies that will assess local endocrine disruptors, degree of contamination, level of exposure and proffer control and preventive measures. Emphasis should be placed on establishment of chemical screening and testing program, research into dose and vulnerable periods, institution

of surveillance of disease incidence, improvement of exposure monitoring, and educating community leaders and the public in general.

32. Saalu LC, Ajayi GO, Adeneye AA, Imosemi IO, **Osinubi AA**. Ethanolic seed extract of grapefruit (*Citrus paradisi* Macfad) as an effective attenuator of doxorubicin-induced oxidative stress in the rat heart. *Int. J. Cancer Res.*, (USA), 2009; 5(2), 44-52.

In the present study, we examined the ameliorating effect of the 100% ethanol extract of *Citrus paradisi* (grapefruit) seed (GSE) on survival of doxorubicin treated rats and on DOX-induced cardiomyopathy. Whereas only 20% of the rats treated with DOX (20 mg kg⁻¹ body weight intraperitoneally) survived at the end of 14 days, almost all the DOX-treated rats survived when GSE (20 mg kg⁻¹ body weight) was administered by gastric gavage. In the second experiment, GSE (20 mg kg⁻¹ body weight) was administered daily by gavage for 14 consecutive days before a cumulative single dose of DOX (20 mg kg⁻¹ body weight, intraperitoneally) was given. DOX induced marked biochemical alterations characteristic of cardiac toxicity. There was enhanced lipid peroxidation measured as malondialdehyde. The anthracycline antibiotic drug reduced the cardiac enzymatic activities of superoxide dismutase, glutathione S-transferase and catalase. Besides, it reduced significantly the reduced glutathione level; prior administration of grapefruit seed extract ahead of doxorubicin challenge ameliorated all these biochemical markers. We concluded that grapefruit seed extract has a protective role in the abatement of doxorubicin-induced cardiac toxicity that resides, at least in part, on its anti-radical effects.

33. Shittu Lukeman AJ, Shittu Remilekun K, Ogundipe Olufemi, Tayo Adetokunbo O, **Osinubi Abraham AA**. Hypoglycaemia and improved testicular parameters in *Sesamum radiatum*-treated normoglycaemic adult male Sprague-Dawley rats. *Afr. J Biotech.*, (Kenya), 2009; 8(12): 2878-2886.

The development of a new dietary adjunct with a novel natural antioxidant impact on diabetes mellitus with prevention of its long term deleterious effect on the male fertility in general has been increasingly expressed in recent time. Hence, we aim to evaluate the effects of aqueous extract of *Sesame radiatum* leaves on adult male Sprague-Dawley rats' testis using unbiased stereological, biochemical and hormonal studies. Thirty adult male rats were divided into three groups of 10 rats each. The treated groups; 1 and 2 received 28.0 and 14 mg/kg bwt of aqueous extract of sesame leaves via oral gavage, respectively, while the control group received equal volume of 0.9% (w/v) normal saline per day for 6 weeks. Serum follicle-stimulating hormone (FSH), testosterone and blood glucose were assayed. In addition five microns of uniformly random transverse sections of processed testicular tissues were equally analyzed using an un-biased stereological study. The result showed that the mean percentage volume fractions (Vf) of epithelial cells and lumen of the testis were 76% ($p < 0.05$) and 22% ($p < 0.05$), respectively, in the low dose compared to control. Conversely to the Vf of stroma and glucose level in treated, the mean raw weights of testis and of body weights (g) with the Vf of ST-epithelium in the treated groups were found ($p > 0.05$) higher than the control in a dose related manner. Serum testosterone and follicle-stimulating hormone were significantly higher and lower, respectively, in the high dose sesame when compared to control. Sesame leaves intake improved glucose profile and testicular parameters in a dose related manner via possible improved insulin activity on the cells with a stimulatory impact on sperm production. This also confirmed its folkloric claims.

34. Shittu Lukeman AJ, Shittu Remilekun K, **Osinubi Abraham AA**, Tayo Adetokunbo.

Mesterolone (proviron) induces low sperm quality with reduction in sex hormone profile in adult male Sprague-Dawley rat testis. *Sci. Res. Essay.*, (Kenya), 2009; 4(4): 320-327.

Anabolic-androgenic steroid (AAS) compounds are one of the most widely abused drugs by athletes and muscle builders with the goal of improving performance/muscle mass. However, increasing concern has been expressed because these compounds not only offer unappreciable benefits to infertile and subfertile males, but also might have deleterious effects on both human and animal physiology including sperm quality. In addition, there is the conflicting outcome of AAS usage in the clinical settings with its attendant reduced spermatogenesis and hypopituitarism in patient management. Hence, we aim to evaluate the effects of mesterolone, an anabolic-androgenic steroid, on the histomorphometry of seminiferous tubules with serum hormonal and seminal analyses in adult male Sprague-Dawley rat. Twenty adult male Sprague-Dawley rats divided into two groups of 10 each. The treated group received 0.06 mg/g body weight/ day of mesterolone (proviron) by oral gavage for six weeks while the control group received equal volume of 0.9% normal saline per day. SPSS analysis of data generated with $p < 0.05$ considered statistically significant. The result showed significant ($p < 0.05$) body weight gain in all the animals. However, both the raw testicular weight and relative testicular weight per 100 g bwt was significantly ($p < 0.05$) higher in control than treated. The mean sperm count significantly decreased by 28% ($p < 0.05$) and the motility reduced significantly by 56% ($p < 0.05$) in the treated compared to control. In addition, both follicle-stimulating hormone and testosterone of the treated were significantly lowered by 73% ($p < 0.05$) and 63% ($p < 0.05$) respectively compared to the control. The use of mesterolone is with caution and short intermittent therapy is desirable for better semen quality and improved overall fertility.

35. Saalu LC, Enye LA, **Osinubi AA**. An assessment of the histomorphometric evidences of doxorubicin-induced testicular cytotoxicity in Wistar rats. *Int. J. Med. Med. Sci.*, (Nairobi, Kenya) 2009; 1(9): 370-374.

Doxorubicin (DOX) also known as hydroxydaunorubicin is a drug used in cancer chemotherapy. It is one of the earliest compounds derived from an antibiotic group of chemotherapy known as anthracycline. It strives to kill malignant cells and produces tumor regression in a variety of human neoplasms. However, its clinical usefulness is limited by its proven toxicity to certain organs particularly the heart and the kidney. In the present study, we evaluated the effect of a single dose of DOX on the seminiferous tubules of rats. Forty male adult (11 to 13 weeks old) wistar rats weighing 185-210 g were used for this research work. The rats were randomly divided into four groups of ten rats each. Group 1 rats were given a single dose of normal saline (2.5 ml/kg) body weight ip and then were sacrificed a day after. Group 2 animals had 10 mg DOX per kg body weight ip as a single dose. These rats were sacrificed the day after DOX administration. Group 3 animals had 10 mg DOX per kg body weight ip as a single dose but were sacrificed on the 56th day. Group 4 rats had similar treatment as those in group 3, except that they were sacrificed at the end of the 16th week after DOX administration. The gross anatomical parameters assessed included the testicular weights and volumes while stereological parameters estimated include: diameter and cross-sectional area of the seminiferous tubules; number of profiles per unit area and numerical density of seminiferous tubules. The results showed that there was a general destruction along with degeneration of cells of the seminiferous epithelium following DOX administration. There was also a demonstrable progressive worsening of the testicular derangement with passage of time following DOX challenge. We conclude that DOX has a deleterious effect on the testis.

- 36.** Mbaka G, Adeyemi O, **Osinubi A**, Noronha C, Okanlawon A. The effect of aqueous root extract of *Sphenocentrum jollyanum* on blood glucose level of rabbits. *J. Med. Plants Res.*, 2009; 3(11): 370-374.

The anti-hyperglycaemic effect of the aqueous root extract of *Sphenocentrum jollyanum* Pierre (Menispermaceae) was evaluated in normal and alloxan-induced diabetic rabbits. The levels of glucose were determined at different doses and times following treatment with the extract. The oral single dose administration of the extract in OGTT study led to significant ($p < 0.05$) decrease in peak values and the area under curve by 10.5% compared to the untreated. Although the glucose level showed gradual decline it nonetheless failed to return to baseline glycaemia (65.7 ± 4.1) with a value of 118.4 ± 3.9 after 4 h indicating less glucose tolerance as compared to glibenclamide in which 65.7 ± 2.0 was recorded. In alloxan diabetic rabbits SJ exhibited dose dependent significant ($p < 0.05$) reduction in blood glucose level from day 3 of daily treatment with the extract. The maximum decrease from 337.4 ± 8.9 to 269.6 ± 3.8 was observed in the group that received 200 mg/kg⁻¹. This suggests that the plant may be a potential source for the development of a new oral anti-diabetic agent.

37. Onyemaechi O. Azu, Francis I. Duru, **Abraham A. Osinubi**, Crescie C. Noronha, Steven O. Elesha, Abayomi O. Okanlawon. Preliminary study on the androgenic effects of *Kigelia africana* fruit extract in male Sprague-Dawley rats. *MEFSJ (Middle East Fertility Society Journal)*, 2009; 14(3): 1-7.

Our aim was to evaluate the androgenic properties of *Kigelia Africana* fruit extract (KAFE) in male Sprague-Dawley rats. Intervention was administered orally as 100 and 500 mg/kg doses of KAFE over a 28 and 56 day period. Serum and testicular tissues were analyzed for light microscopy and assayed for hormones and enzymes. Administration of KAFE at 100 and 500 mg/kg resulted in the significant increase in body weight ($p < 0.01$ and 0.001), sperm count ($p < 0.001$), testosterone levels ($p < 0.001$), follicle stimulating hormone ($p < 0.001$) and luteinizing hormone ($p < 0.001$). Qualitative histopathological results did not show any deleterious alterations caused by KAFE but an enhancement of spermatogenesis with increased thickness of the seminiferous epithelium of the rats. The 100 mg/kg dose produced

better result in most of the parameters monitored than the higher dose of 500 mg/kg used. We concluded that KAFE have some androgenic effects in rats; however the precise mechanism of this action needs further elucidation. It is possible that the flavonoids/saponin content may be responsible for increased androgen biosynthesis. These results suggest that KAFE might serve as a future agent for development as an androgenic drug in human.

38. Saalu LC, **Osinubi AA**, Jewo PI, Oyewopo AO, Ajayi GO. An evaluation of influence of *Citrus paradise* seed extract on doxorubicin-induced testicular oxidative stress and impaired spermatogenesis. *Asian J. Sci. Res.*, 2010; 3(1): 51-61.

The therapeutic value of Doxorubicin (DOX) as anticancer antibiotic is limited by its organotoxicity. It has been shown that free radicals are involved in doxorubicin-induced toxicity. Doxorubicin causes the generation of free radicals and the induction of oxidative stress, associated with cellular injury. Because of the great importance of DOX in cancer therapy, researchers have expended great efforts trying to prevent or attenuate the side effects of DOX administration. There has, however, been only a little success in this regard. In this study the ameliorating role of antioxidant-rich ethanolic seed extract of *Citrus paradisi* (CP) on DOX-induced testicular oxidative stress and impaired sperm parameters was investigated. Three experimental groups of Wistar rats were used: CP-alone group that received orally CP 10 mg kg⁻¹ b.wt. daily for 14 days followed by intraperitoneal (ip) Normal Saline (NS) 2.5 mg kg⁻¹ b.wt.; DOX-alone group that had ip DOX 10 mg kg⁻¹ b.wt. as a single dose; CP plus DOX-group that were similarly given DOX, but also had oral CP 10 mg kg⁻¹ b.wt. pretreatment for 14 days. There was also a corresponding control group. The animals were autopsied 8 weeks after DOX or NS injections. Results showed that DOX-induced reduction in sperm motility and epididymal sperm concentrations as well as increase in total abnormal sperm rates were all normalized in the group pretreated with CP. Pretreatment with CP ameliorated the testicular content of Glutathione and Superoxide Dismutase, Catalase and

Glutathione Peroxidase activities. Similarly, CP treatment attenuated the DOX-induced increase in testicular lipid peroxidation reflected by malondialdehyde levels. These data indicate that CP protects the rat testis against DOX-induced oxidative stress and deranged sperm characteristics.

39. Saalu LC, **Osinubi AA**, Oguntola JA, Adeneye IO, Benebo AO. The delayed testicular morphologic effects of doxorubicin and the rejuvenating role of grapefruit seed extract. *Int. J. Pharmacol.*, (Pakistan), 2010; 6: 192-199.

Doxorubicin (DOX), one of the anthracycline antibiotic drugs isolated from the soil fungus *Streptomyces peucetius caesius*, which has been widely used to treat cancer effectively. It has also been known to induce reproductive abnormalities in males. The implication of natural phenolic compounds in the prevention of many pathologic diseases has been reported. Herein, the ability of polyphenolic-rich Grapefruit Seed Extracts (GSE), to protect rat testis against DOX-induced histomorphometric impairment was investigated. Four groups of Wistar rats were used; The GSE- alone group received intraperitoneal (i.p.) Normal Saline (NS) 2.5 mg kg⁻¹ b.wt. followed by orally GSE 10 mg kg⁻¹ b.wt. daily for 16 weeks. The DOX-alone group was given i.p., DOX 20 mg kg⁻¹ b.wt. as a single dose. The GSE plus DOX-group were similarly given DOX, but also had oral GSE 10 mg kg⁻¹ b.wt. post-treatment for 16 weeks. Another group of rats were each given orally 2.5 mL kg⁻¹ b.wt. peanut oil (vehicle) daily for 16 weeks, after 2.5 mL kg⁻¹ b.wt. normal saline was given as a single dose i.p., to serve as the control. The animals were sacrificed 16 weeks after DOX or NS injections. The testicular toxicity induced by DOX was assessed by histologic and stereologic evaluation of the testis. Present results demonstrated that post-treatment with GSE was capable of reversing the reduction of body and testicular weights as well as the testicular histomorphometric evidences of high dose and delayed DOX toxicity in the animals. The

GSE was therefore shown to exert testicular cytrejuvative effects on rats challenged with DOX.

40. Saalu LC, **Osinubi AA**, Olagunju JA. Early and delayed effects of doxorubicin on testicular oxidative stress and spermatogenesis in rats. *Int. J. Cancer Res.*, (USA), 2010; 6(1), 1-9.

In the present study, we assessed the early and delayed effects of a single dose of doxorubicin (DOX) on the testicular oxidative status and spermatogenesis in rats. Forty male adult (11 to 13 weeks old) Wistar rats weighing 185-210 g were used for this research work. The rats were randomly divided into 4 groups of 10 rats each. The control group of rats was given a single dose of normal saline (2.5 mL kg⁻¹) b.wt. intraperitoneally (ip) and then were sacrificed two weeks after. Group A animals had 10 mg DOX kg⁻¹ b.wt. ip as a single dose. These rats were sacrificed two weeks after DOX administration. Group B animals had 10 mg DOX kg⁻¹ b.wt. ip as a single dose but were sacrificed 8 weeks after. Group C rats had similar treatment as those in group B, except that they were sacrificed at the end of the 16th week after DOX administration. Epididymal sperm characteristics were evaluated. In addition, biomarkers of oxidative stress namely testicular antioxidants and lipid peroxidation in the testicular tissue were determined using spectrophotometric methods. The testicular oxidative status of DOX-treated rats was severely compromised as evidenced by the significant decrease in the activities of superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPx), in addition to the significant reduction in the reduced glutathione (GSH) level as well as the significantly enhanced lipid peroxidation measured as malondialdehyde (MDA). There was also a demonstrable worsening of the rat testicular oxidative status and sperm parameters with passage of time following DOX administration. The results indicate that DOX produces persistent damage to the spermatogenic compartment of the testis as well progressive increase in the testicular oxidative stress.

41. Salawu AA, Osinubi AA, Dosumu OO, Kusemiju TO, Noronha CC, Okanlawon AO.

Effect of the juice of lime (*Citrus aurantifolia*) on estrous cycle and ovulation of Sprague-Dawley rats. *Endocr. Pract.*, (USA), 2010; 16: 561-565.

The aim of this study was to determine the effect of lime juice on the estrous cycle and ovulation of cyclic female rats. Twenty-five adult female Sprague-Dawley rats were used. The experiment was divided into 2 groups (I, II). In Experiment I, 15 rats were randomly divided into 3 groups (Ia, Ib, Ic) of 5 rats each. The estrous cycles of the rats were studied for the first 16 days to establish cyclicity, after which lime juice was administered by gavage for the next 24 days. Rats in Ia received 1 ml of undiluted lime juice; rats in Ib received 1 ml of 50 % diluted lime juice while group Ic received distilled water only. In experiment II, 10 female rats were used in this study, and were divided into 2 groups with 5 rats in each (IIa and IIb). IIa rats received 1 ml of undiluted lime juice on morning of proestrus and IIb received distilled water only on the day of proestrus. The rats were sacrificed the next day, using chloroform anesthesia. The upper parts of the oviducts were excised and examined under the light microscope to check for the number of ova shed. There was an irregular pattern in all phases of estrous cycle of rats fed lime juice. There was a significant ($p < 0.05$) reduction in the number of ova shed in rats administered lime juice compared to the control. Ovulation was partially blocked as shown by the reduced number of ova observed in the oviducts from the treated rats (5.10 ± 2.37) compared with the control (12.70 ± 1.14). Lime juice causes irregularity of the estrous cycle, partially blocks ovulation, and may possibly compromise fertility.

42. Okoko II, Osinubi AA, Olabiyi OO, Kusemiju TO, Noronha CC, Okanlawon AO.

Anti-ovulatory and anti-implantation potential of the methanolic extract of seeds of *Abrus precatorius* in the rat. *Endocr. Pract.*, (USA), 2010; 16: 554-560.

The aim of the present study was to investigate the effect of the methanolic extract of seeds of *Abrus precatorius* on estrous cycle, ovulation, and implantation in Sprague-Dawley rat. Cyclic female rats were randomly divided into four groups (A - D). Rats in A had daily vaginal smears for a total of 64 consecutive days while being fed the extract for the first 32 days. Rats in B were fed with a single dose of extract on the day of proestrus and sacrificed the following morning for counting of ova. Group C rats received *Abrus precatorius* from day 1-10 post coitum and sacrificed on day 12 to check for anti-implantation effect, while the dams in D received extract from 6th – 19th day of gestation. *Abrus precatorius* caused a reversible disruption in the estrous cycle of the regularly cyclic rats and completely blocked ovulation in all the treated rats. Despite successful mating with males of proven fertility, uterine dissection on day 12 postcoital revealed neither post-implantation nor resorption sites in all the animals treated with *Abrus precatorius*. *Abrus precatorius* caused a decrease in mean body weight, mean crown rump length, and mean tail length of fetuses of the treated rats. The need to control fertility cannot be overemphasized. There is a need to continue the search for new anti-fertility agents that have minimal side effects, widespread acceptability, in addition to being reversible, affordable and accessible. Methanolic extract of *Abrus precatorius* seeds caused reversible alterations in the oestrous cycle pattern and completely blocked ovulation in Sprague-Dawley rats. In addition, the seeds possess anti-implantation activity and may affect gross foetal morphometry in the rat.

- 43.** Azu OO, Duru F IO, **Osinubi AA**, Noronha CC, Elesha SO, Okanlawon AO. Preliminary study on the antioxidant effect of *Kigelia africana* fruit extract (Bignoniaceae) in male Sprague-Dawley rats. *Afr. J. Biotech.*, (Kenya), 2010; 9(9): 1374-1381.

Testicular germ cells as well as epididymal maturing spermatozoa are endowed with enzymatic and non-enzymatic scavenger systems to protect lipid peroxidation damage. A number of pathologies and systemic challenges can lead to antioxidant/pro-oxidant disequilibrium. With increasing interest in herbal therapies for management of some fertility-related and inflammatory conditions, we investigated the antioxidant effect of *Kigelia africana* fruit extract (KAFE) on normal rats. KAFE showed a non-dose dependent elevation in testicular catalase ($p < 0.05$), significant decline in malondialdehyde ($p < 0.001$) and an up-regulation of glutathione ($p < 0.001$) levels. Seminal parameters were also enhanced by KAFE with the lower dose producing better effects. Male infertility is frequently accompanied by increased testicular or seminal fluid oxidative stress. This result provides further scientific basis for the use of KAFE in the treatment of male infertility.

- 44.** Azu OO, Duru FIO, **Osinubi AA**, Noronha CC, Elesha SO, Okanlawon AO. Protective agent, *Kigelia africana* against cisplatin-induced renal oxidative injury in Sprague-Dawley rats. *Asian J. Pharmaceut. Clin. Res.*, 2010; 3(2): 84-88.

The protective effect of methanol extract of *Kigelia africana* fruit extract (KAFE) against cisplatin-induced renal toxicity in male rats was studied. Over 28 days, cisplatin-treated rats suffered significant loss in body weight ($p < 0.05$), elevation in blood urea nitrogen ($p < 0.001$) and serum creatinine (Scr) ($p < 0.001$) levels as well as tubular necrosis. However, KAFE alone and as a prophylaxis significantly ($p < 0.05$) increased these parameters. Though post-treatment of animals with KAFE after cisplatin did not restore serum catalase activity it was lower than those receiving cisplatin alone. These results suggest that KAFE may protect against cisplatin-induced renal toxicity hence might serve as a novel combination agent with cisplatin to limit renal injury.

45. Saalu LC, **Osinubi Abraham AA**, Aina WO. Quantitative evaluation of third year medical students' perception and satisfaction from problem based learning in anatomy: A pilot study of the introduction of problem based learning into the traditional didactic medical curriculum in Nigeria. *Edu. Res. Rev.*, (Kenya), 2010; 5(4): 193-200.

Problem-based learning (PBL) is a method of teaching that uses hypothetical clinical cases, individual investigation and group process. In recent years, in medical education, problem-based learning (PBL) has increasingly been adopted as the preferred pedagogy in many countries around the world. Controversy, however, still exists as the potential benefits and overall outcome of PBL over traditional didactic learning (TDL). The present study compared the learning effectiveness of PBL with TDL using both experimental method (students' performance in examination) and observational method (students' responses to questionnaires). The self-administered questionnaires measured learning outcomes and acquisition of interpersonal skills on a 5-point Likert type rating scale of 1 (strongly agree) - 5 (strongly disagree). The study population comprised third year medical students of Lagos State University College of Medicine, Ikeja, Lagos, Nigeria. Half of the new innovative Human Anatomy curriculum was taught using PBL and the other half using TDL. The PBL method resulted in better examination scores than TDL for the same students. A majority of students felt that, the PBL sessions were better at fulfilling learning objectives, gave better factual knowledge of Anatomy, promoted better student participation in the learning process, provided more learning fun, ensured more students team work and interpersonal skills acquisition and enabled more students' reflective/critical thinking and reasoning of anatomy, as compared to traditional teaching methods. Most of the students opined that more such sessions should be organized in the future. The main disadvantage perceived was that, it was

time-consuming. We conclude that, based on the examination scores and the responses of the students, PBL are more successful than TDL.

46. Oyewopo AO, Saalu LC, **Osinubi AA**, Imosemi IO, Omotoso GO, Adefolaju GA.

The attenuating effect of zinc on propoxur-induced oxidative stress, impaired spermatogenesis and deranged steroidogenesis in wistar rat. *J. Med. Med. Sci.*, (China), 2010; 1(5): 178-184.

Propoxr (PPX), a carbamate pesticide is known to cause reproductive toxicity partly through induction of cellular oxidative stress. In the present study, the ability of zinc (Zn), a known antioxidant to ameliorate testicular oxidative stress was investigated in adult male Wistar rats exposed to PPX (10 mg/kg body weight per day) orally for 30 days. The results from this study showed that there was a significant reduction ($p < 0.05$) in the growth rate and relative weights of testes of PPX-exposed rats compared to the control. PPX-exposed rats also displayed a significant ($p < 0.005$) decreases in plasma testosterone levels, epididymal sperm count and spermatozoa motility when compared to the control values. Furthermore, there was a statistically significant increase in malondialdehyde (MDA) and a significant ($p < 0.005$) decrease in the activities of Glutathione Peroxidase (GPx) in the testes of PPX- exposed animals. Zn supplementation in the *PPX*-exposed rats restored the activities of testicular GPx and the testicular content of MDA to the levels of the control group. Co-treatment with Zn also normalized the deranged sperm parameters and hormonal profiles. We conclude that Zn administration minimized the evidences of testicular oxidative damage and reversed the impairment of spermatogenesis and steroidogenesis induced by *PPX* in the rat.

47. Azu OO, Duru FIO, **Osinubi AA**, Oremosu OA, Noronha CC, Elesha SO, Okanlawon

OA. Histomorphometric effects of *Kigelia africana* (Bignoniaceae) fruit extract on the testis following short-term treatment with cisplatin in male Sprague-Dawley rats. *MEFSJ.*, (*Middle East Fertility Society Journal*), 2010; 15(3): 200-208.

Aim was to investigate the short-term effects of *Kigelia africana* fruit extract (KAFE) on cisplatin-induced testicular histo-morphometric changes in Sprague–Dawley (SD) rats. Design: This is an experimental animal study. Materials and methods: Fifty-seven male SD rats were acclimatized and grouped into 10 of five rats per group. Each rat was administered either KAFE in 100 and 500 mg/kg doses orally or cisplatin 10 mg/kg i.p. or normal saline to controls. Experiment was terminated after 28 days by i.p. injection of ketamin 50 mg/kg. Testicular tissue was processed for histological and morphometric analyses while catalase enzyme activity, lipid peroxidation and glutathione levels were assayed accordingly. Sperm count/motility was also assessed. Results: Cisplatin treatment caused over 37.5% mortality of SD rats. Qualitative histological assessment showed no deleterious changes following treatment with KAFE alone or as a pre-treatment with cisplatin. KAFE post-treatment resulted in focal vacuolar changes in the seminiferous tubules (ST) of the SD rats. Cisplatin-treatment negatively affected the histoarchitecture of the seminiferous tubules with massive loss of spermatogenic cells. There was also a significant reduction in testicular weight/volume, ST diameter and cross-sectional areas ($p < 0.001$) but KAFE positively improved these parameters. KAFE alone and as prophylaxis significantly increased body weight, serum testosterone and follicle-stimulating hormone ($p < 0.001$). It showed a significant elevation in catalase activity, decline in malondialdehyde and up-regulated glutathione levels ($p < 0.001$). These parameters were negatively affected by cisplatin treatment. Conclusion: The cytoprotection against cisplatin-induced testicular damage by KAFE is likely via an antioxidant modulatory pathway. Also, it is possible that KAFE possesses an androgen-stimulating property.

48. Enye LA, Saalu LC, **Osinubi AA**. The prevalence of agenesis of palmris longus muscle amongst students in two Lagos-based medical schools. *Int. J. Morphol.*, (Chile), 2010; 28(3): 849-854.

Palmaris longus (PL) muscle, although of little functional use to the human upper limb, assumes great importance when used as a donor tendon for transfer or transplant. The surgeon's awareness of the incidence in a population is therefore desirable. In the present study, 500 Medical students (242 males and 258 females) of ages 16 to 40 years from both College of Medicine of the University of Lagos, Idi-Araba and Lagos State University College of Medicine, Ikeja were examined for the presence or absence of the PL tendon, using the conventional (Schaffer's) test. The prevalence and pattern of PL agenesis was further analyzed statistically for differences in the prevalence or pattern of PL agenesis with regard to body side or sex. The prevalence of PL agenesis was found to be 12.6% (8% Unilateral and 4.6% Bilateral). Out of those with unilateral agenesis, 20 (4%) had left-sided agenesis and 20 (4%) had rightsided agenesis. Although female subjects had a prevalence of agenesis of PL tendon (Unilateral and Bilateral combined) of 36 out of 258, (13.95%) while in male subjects this prevalence was 23 out of 242 (9.5%). The prevalence of PL muscle agenesis in this study was found to be much higher than the reported average for blacks (2-3%).

49. Basse RB, Yama OE, **Osinubi AA**, Noronha CC, Okanlawon. Micro-anatomical effect of Tahitian Noni dietary supplement on the heart of caffeine-treated Sprague-Dawley rats. *Internet J. Health*, 2010: 11(2).

This study was designed to assess the effects of Tahitian Noni on the heart of Caffeine-treated rats. Thirty adult Sprague-Dawley rats, weighing between 105-200 g were used. They were divided into 6 groups of 5 rats each. Group 1 was the control. Group 2 received 200 mg/kg of caffeine for 8 weeks, group 3 received 200 mg/kg of caffeine for 4 weeks and 5 ml/kg of Noni for another 4 weeks, group 4 received both 200 mg/kg of caffeine and 5 ml/kg of Noni for 8 weeks, group 5 received 5 ml/kg of Noni for 8 weeks, group 6 received 5 ml/kg of Noni for 4 weeks and 200 mg/kg of caffeine for another 4 weeks. There was no significant

difference in cholesterol levels and body weights of treated groups when compared to control. The histological sections showed focal necrosis in groups 2, 3 and 4 with degenerative changes observed in group 2. Groups 5 and 6 tended towards normal. Tahitian noni dietary supplement modulates the effect of a high dose of caffeine on the heart.

50. Kusemiju TO, Osinubi AA, Noronha CC, Okanlawon AO. Effect of aqueous extract of the bark of *Carica papaya* on testicular histology in Sprague-Dawley rats. *Nig. Q. J. Hosp.*, 2010; 20(3): 133-137.

Males generally have few options for controlling their fertility and these options are far from being satisfactory. There is a great need for research to develop more contraceptive modalities for males. The overall aim of this research was to determine the histological responses of the testes of Sprague-Dawley rats to aqueous extract of bark of *Carica papaya* using a single daily dose of 100 mg/kg and also to investigate if these responses are reversible or not. Sixty mature (6-8 weeks old) male Sprague-Dawley rats, divided into 2 equal groups, were used for this experiment. Group 1 rats were fed with 100 mg/kg/day of the extract for 4 and 8 weeks, while group 2 rats served as the control subjects. Each cauda epididymis of the rats was exteriorized, incised and sperm motility and count conducted on expressed fluid. The testes were harvested and processed for histological examination under light microscope. Phytochemical analysis was done to ascertain the main constituents in the extract, while the LD₅₀ was conducted to guide in the dose of administration of the extract. A subgroup of the animals was allowed a recovery period of 8 weeks before sacrifice. The results showed that 500 mg/kg (LD₅₀) of the extract of bark of *Carica papaya* produced signs of toxicity with mortality of 50% of the rats. The extract at a dose of 100 mg/kg caused histological changes ranging from seminiferous tubular distortion to outright destruction/degeneration of the seminiferous tubules. In addition, the testicular interstitia of extract-treated rats showed disorganization and hypocellularity. The extract also caused a significant ($p < 0.05$) reduction

in both sperm count and motility. There was no significant reversal of these antispermatogenic effects following a recovery period of 8 weeks. Aqueous extract of the bark of *Carica papaya* has deleterious effects on both the seminiferous tubules and testicular interstitium and deserves to be further investigated as a potential male contraceptive agent.

51. Bassey RB, Yama OE, Samuel TA, **Osinubi AAA**, Noronha CC, Okanlawon.

Ameliorative effects of Tahitian Noni dietary supplement on reproductive hormonal profile and sperm quality of caffeine-induced testicular toxicities in adult Sprague-Dawley rats. *Nig. Endocrine Practice*. 2010; 4(1): 7-12.

Caffeine is one of the world's most consumed beverages, and has been implicated as contributing to a wide variety of illnesses including infertility. Because most of the common medical treatments for infertility are expensive and can involve serious side effects, compositions containing natural products that would treat infertility are therefore highly desirable. Our aim is to investigate the effect of Tahitian Noni dietary supplement on the hormonal profile and seminal parameters of Sprague-Dawley rats following testicular toxicities induced by caffeine. Thirty adult male Sprague-Dawley rats, weighing between 105-200 g were used. There was a control and 5 experimental groups. Group 1 was the control. Group 2 received 200 mg/kg of caffeine for 8 weeks. Group 3 received 200 mg/kg of caffeine for 4 weeks and 5 ml/kg of Noni for another. 4 weeks, Group 4 received both 200 mg/kg of caffeine and 5 ml/kg of Noni for 8 weeks, Group 5 received 5 ml/kg of Noni for 8 weeks, Group 6 received 5 ml/kg of Noni for 4 weeks and 200 mg/kg of caffeine for another 4 weeks. Tahitian Noni caused a statistically significant improvement in the sperm count, percentage of sperm motility and testicular weight/volume compared to those treated with caffeine only. There was statistically significant difference in testosterone, follicle-stimulating hormone and luteinizing hormone and cholesterol levels in the group treated with caffeine compared to the control group. Administration of Tahitian Noni dietary supplement

causes an improvement in the hormonal profile and seminal parameters, thereby modulating the testicular toxicities caused by a high dose of caffeine.

52. Yama OE, **Osinubi AA**, Noronha CC, Okanlawon A O. Effect of methanolic seed extract of *Momordica charantia* on body weight and serum cholesterol level of male Sprague-Dawley rats. *Nig. Q. J. Hosp. Med.*, 2010; 20(4): 209-213.

A steady weight increase disproportionate to height is by far the most prevalent type of body weight imbalance (overweight and obesity) in apparently healthy individuals of growing age. Many subsisting weight-reduction regimes or formulations are ineffective. Therefore, an effective and affordable weight-reduction product will add to the options available for the management of weight-related conditions. This study aimed to investigate the effects of graded oral doses of methanolic seed extract of *Momordica charantia* (MC) on the body weights and cholesterol levels of male rats. Twenty adult male Sprague-Dawley rats, weighing 176 ± 70 g, were used for this study. The animals, divided randomly into 4 groups (A-D) received daily graded oral doses of 15, 25 and 50 mg/100 g body weight of methanolic seed extract of MC, respectively, while Group D rats had distilled water for 56 days. The weights of the animals in each group were recorded weekly throughout the duration of the experiment. Serum cholesterol levels were assayed from blood obtained from a left ventricular puncture. Treatment of rats with MC extract resulted in a dose-dependent, statistically significant ($p < 0.05$; $p < 0.01$) reduction in the body weight compared to control. The mean serum cholesterol levels in response to graded doses of MC in the different groups A to C also showed a statistically significant decrease ($p < 0.05$) from the baseline control value of 4.4 ± 1.0 mMol/L to 3.4 ± 0.7 , 2.5 ± 0.4 and 2.0 ± 1.3 mMol/L, respectively. Present study demonstrated that MC caused dose-dependent reductions in body weight and serum cholesterol concentration in male Sprague-Dawley rats. MC may, therefore, be useful in

controlling body weight increase in individuals of growing age as well as be a potential agent in the management of overweight and obesity.

53. Imosemi IO, **Osinubi AA**, Saalu LC, Olagunju JA. Phenytoin-induced toxicity in the postnatal cerebellar development in rat: effect of *Calotropis procera* on selective biochemical and haematological variables. *Int. J. Biol. Chem. Sci.*, (South Africa) 2010; 4(6): 2387-2396.

Phenytoin, an antiepileptic drug is used in managing seizures. Phenytoin-associated oxidative stress causes cellular damage by the generation of free radicals. Vitamin C, a standard antioxidant and *Calotropis procera* are believed to scavenge oxygen free radicals. The effect of *C. procera* extract on haematological and biochemical variables in an in-vivo model was studied. Pregnant rats were administered phenytoin (50 mg/kg body weight). Extracts of *C. procera* (300 mg/kg body weight) and vitamin C (200 mg/kg body weight) were administered one hour prior to phenytoin treatment separately, while control animals received tap water only. The animals had access to food and water *ad libitum*. Blood was collected from animals on day 50 postpartum for packed cell volume (PCV), haemoglobin (Hb) content and evaluation of levels of alanine aminotransferase (ALT) and aspartate aminotransferase (AST) evaluation. Lipid peroxidase (LPO) and reduced glutathione (GSH) levels in the cerebellum were assessed as markers of oxidative stress on day 50 postpartum. Phenytoin-induced toxicity was associated with increased cerebellar LPO and decreased GSH levels. Increase in ALT and AST levels in the serum was observed. However, PCV and Hb levels were not affected. LPO, GSH, ALT and AST levels registered a tendency to shift towards normalcy on administration of *C. procera* and vitamin C to phenytoin. In conclusion, supplementation with *C. procera* leaf extract reduced the rate at which phenytoin induced toxicity in developing rat cerebellum postnatally.

- 54. Azu OO, Osinubi AAA.** Survey of problem-based learning and traditional methods of teaching anatomy to 200 level pharmacy students of the University of Lagos, Nigeria. *Afr. J. Pharm. Pharmacol.*, (Kenya) 2011; 5(2): 219-224.

The introduction of problem-based learning (PBL) may be a very uncomfortable problem for the students originally exposed to the didactic methods of teaching and learning. Our medical and pharmaceutical curriculum is yet to adopt this new method of learning and as such this study looks forward to exposing some aspects of the traditional style as well as introducing to the students the new method using PBL. It is envisaged that in the five-year Pharmacy program, the students would be exposed to and monitored and their academic performance vis-à-vis their professional competencies adjudged using this two styles of teaching anatomy. A total of one hundred and fifty 200 level Pharmacy students were randomly divided into fifteen groups of ten per group during their 2 semester course in Anatomy in the academic year 2007/2008 session. The students were exposed to both the PBL and traditional methods of teaching anatomy alternately. At the end of the period, 150 structured questionnaires were administered to the students and analyzed statistically. Results from this preliminary study does show that the PBL method of teaching Anatomy to Pharmacy students has strong positive impact in the general perception and knowledge build of the students in their 200 level studies despite the obvious challenges of the environment.

- 55. Imosemi IO, Osinubi AA.** Phenytoin-induced toxicity in the postnatal developing cerebellum of Wistar rats, Effect of *Calotropis procera* on histomorphometric parameters. (*Toxicidad Inducida por Fenito na en el Desarrollo Postnatal del Cerebelo de Ratas Wistar, Efecto de Calotropis procera sobre los Par metros Histomorfom tricos*). *Int. J. Morphol.*, (Chile) 2011; 29(2): 331-338.

The role of methanolic leaf extracts of *Calotropis procera* in phenytoin-induced toxicity on histomorphometric variables in the postnatal developing cerebellum of Wistar rat was

studied. Pregnant rats were treated orally with 50 mg/kg phenytoin in pre and post natal life and 300 mg/kg methanolic leaf extract of *Calotropis procera* 1 hour prior to phenytoin administration. 200 mg/kg vitamin C (standard antioxidant) was also administered orally 1 hour prior to phenytoin treatment. The control animals received water. Standard diet of rat pellets and water were provided *ad libitum*. At the end of the experiment, the offspring of days 1, 7, 14, 21, 28 and 50 post partum, five per group were sacrificed by cervical dislocation. The cerebellum of all groups were dissected out and processed for histomorphometric studies. The results showed in the developing cerebellum of phenytoin treated animals, a delayed cell maturation in the external granular layer, reduction of the molecular layer, astrocytic gliosis and loss of Purkinje cells on day 50 postpartum. Administration of extracts of *Calotropis procera* and vitamin C though reversed these changes when compared with the phenytoin treated group, but not significantly when compared with the control. In conclusion, supplementation with methanolic extracts of *Calotropis procera* reduced the rate at which phenytoin induced toxicity in the postnatal developing cerebellum of Wistar rat.

- 56.** Saalu LC, **Osinubi AA**, Akinbami AA, Yama OE, Oyewopo AO, Enaibe BU. *Moringa oleifera* Lamarck (drumstick) Leaf Extract modulates the evidences of hydroxyurea-induced testicular derangement. *Int. J. Appl. Res. Nat. Prod.*, (IJARNP-HS Publications (USA)). 2011; 4(2): 32-45.

Hydroxyurea (HDU) is an antineoplastic agent that is commonly used in the treatment of Sickle cell disease (SCD). However, the therapeutic value of HDU is limited by its organotoxicity including testicular toxicity. It has been shown that free radicals are involved in HDU-induced toxicity. The application of natural phenolic compounds in the prevention of many pathologic diseases has been reported. Herein, the ability of polyphenolic-rich *Moringa oleifera* Leaf Extract (MOLE) to protect rat testis against HDU-induced histomorphometric,

spermatogenic, and oxidative status impairments were investigated. Three experimental groups of Sprague-Dawley rats were used; MOLE- alone group that received orally MOLE 50 mg/kg body weight (b.w) daily for 90 consecutive days. HDU-group had 25 mg HDU/kg b.w/day/orally for 90 consecutive days. MOLE plus HDU-group that were *Moringa oleifera* world's most useful trees is also widely grown in the tropical regions, treated orally for 90 consecutive days with both 25 mg HDU/kg b.w/day and MOLE 50 mg/kg b.w/day. There was also a corresponding control group which had distilled water 2.5 ml/kg b.w/day/orally for 90 consecutive days. Our results demonstrated that co-treatment with MOLE protected the testis against the morphologic, spermatogenic and oxidative status changes induced by HDU. Industrial relevance: Hydroxyurea is commonly used in management of sickle cell disease. The use of this drug is however limited by its organotoxicity including testicular damage. The present study therefore explores the ability of extract of *Moringa oleifera* Leaves to prevent testicular damage during HDU therapy with a view of providing base line information on its possible use as an adjunct in future treatment regimes.

57. Basse RB, Yama OE, **Osinubi AA**, Noronha CC, Okanlawon A. Effects of Tahitian Noni dietary supplement on caffeine-induced testicular histo-pathological alterations in adult Sprague-Dawley rats. *Middle East Fertility Society Journal (MEFSJ)*. 2011; 16(1): 61-66.

Its aim was to investigate the possible ameliorating effect of Tahitian Noni dietary supplement on caffeine-induced testicular histopathological alterations in Sprague-Dawley rats. This is an experimental animal study. Thirty adult male Sprague-Dawley (SD) rats, weighing between 105 and 200 g were acclimatized and grouped into six of five rats per group. Group 1 was the control, Group 2 received 200 mg/kg of caffeine for 8 weeks, Group 3 received 200 mg/kg of caffeine for 4 weeks and 5 ml/kg of Noni for another 4 weeks, Group 4 received both 200 mg/kg of caffeine and 5 ml/kg of Noni for 8 weeks, Group 5

received 5 ml/kg of Noni for 8 weeks, Group 6 received 5 ml/kg of Noni for 4 weeks and 200 mg/kg of caffeine for another 4 weeks. Tahitian Noni caused a statistically significant increase in the mean body weight of the SD rats, opposed to the groups treated with caffeine. There was also a statistically significant increase in the testicular weight, sperm count and motility in the SD rats treated with Noni compared to those treated with caffeine. Caffeine negatively affected the histo-architecture of the seminiferous tubules with massive loss of spermatogenic cells while the groups exposed to Noni tended towards normal when compared with the control. Administration of Tahitian Noni dietary supplement ameliorates the testicular toxicities caused by a high dose of caffeine.

58. Dosumu OO, Duru FIO, **Osinubi AA**, Oremosu AA, Noronha CC. Influence of virgin coconut oil (VCNO) on oxidation stress, serum testosterone and gonadotropic hormones (FSH and LH) on chronic ethanol ingestion. *Agric. Biol. J. N. Ame.*, (Connecticut, USA), 2010, 1(6):1126-1132.

The present study explored the effect of virgin coconut oil on oxidative stress, testosterone and gonadotropic hormones in alcohol-induced testicular injury. Twenty-five male rats were randomly assigned to one of five groups ($n = 5$). The oil was processed from the mature endosperm of coconut and administered at 6.7 ml/kg body weight, while alcohol was given orally at 7 ml/kg body weight. After sacrifice, testicular malondialdehyde and serum hormone levels were determined. Testicular malondialdehyde levels increased significantly in animals treated with alcohol alone ($p < 0.001$), and animals treated with alcohol following virgin coconut oil treatment ($p < 0.05$) while the other groups showed a significant decrease ($p < 0.05$) when compared with the control. However, when compared with the group treated with alcohol alone, all the other groups showed a significant decrease ($p < 0.05$) in testicular malondialdehyde level. Serum testosterone levels increased significantly ($p < 0.05$) in rats treated with virgin coconut oil when compared with the alcohol-only treated group, while

serum FSH and LH levels were not significantly different from the control values in all the treatment groups. Virgin coconut oil effectively lowered alcohol-induced oxidative stress by reducing testicular malondialdehyde levels and ameliorated the deleterious effect of alcohol on serum testosterone level, but showed no effect on serum FSH and LH levels.

59. Gbotolurun SC, **Osinubi AAA**, Oremosu AA, Noronha CC. The effect of amodiaquine on oestrus cycle, ovarian histology and oxidative stress markers in regular cyclic Sprague-Dawley rats. *Agric. Biol. J. N. Am.*, (Connecticut, USA), 2011; 2(4): 630-637.

This study investigated the effect of amodiaquine hydrochloride (AQ.HCl) administered by gavage on the oestrous cycle, ovarian morphology and on the antioxidant status of superoxide dismutase (SOD) and catalase (CAT) in the ovary of 15 regular cyclic Sprague-Dawley rats. The experiment was divided into 3 groups as follows: group I- received 6 mg/kg bw AQ.HCl for 28 day; group II- received 12 mg/kg bw of AQ.HCl for 28 days; and group III- received distilled water and served as control. The animals were autopsied on the 28th day by cervical dislocation. Result showed that the mean length of the oestrous cycle was prolonged in all the AQ.HCl treated rats when compared to the control. The increase in mean cycle length was statistically significant ($p < 0.05$) in the group that received 12 mg/kg bw of AQ.HCl. Histological sections of the ovaries of the rats treated with AQ.HCl revealed that the most remarkable change was widespread follicular atresia when compared to the control. The study revealed a reduction in the antioxidant status of SOD and CAT in the ovary. This reduction in anti-oxidant status was statistically significant ($p < 0.05$) for CAT. The result of this study showed that AQ.HCl is deleterious to the ovary by prolonging the length of the oestrous cycle, producing widespread follicular atresia and depletion of the enzymatic antioxidant status of SOD and CAT and consequently resulting in a state of oxidative stress in the ovary.

60. Azu OO, Duru FIO, **Osinubi AAA**, Oremosu AA, Noronha CC, Okanlawon AO, Elesha SO. Long term treatment with *Kigelia africana* fruit extract ameliorates the testicular toxicity following cisplatin administration in male Sprague-Dawley rats. *Journal on medicinal plant research*, 2011; 5(3): 388-397.

Cisplatin is one of the most potent chemotherapeutic antitumor drugs that generates reactive oxygen species and also inhibits the activity of antioxidant enzymes in testicular tissues. In the present study, we investigated the long term effects of treatment with *Kigelia africana* fruit extract (KAFE) and cisplatin in male Sprague-Dawley rats. Our literature survey indicated a lack of any experimental study showing the effects of long term use of KAFE in any experimental chemotherapeutic protocol using cisplatin. 50 Sprague-Dawley rats were used for the study, divided into 10 groups ($n = 5$ in each group): control group, KAFE alone groups (100 and 500 mg/kg), cisplatin group, KAFE and cisplatin co-treatment group, KAFE prophylactic groups, and KAFE post-treatment groups. Testicular histopathology, MDA, GSH, catalase activities were determined alongside epididymal sperm count and motility. Hormonal assay for testosterone, FSH and LH was determined as well as morphometric parameters. Cisplatin-treated rats suffered 44% attrition rate with significantly reduced weight compared to controls and KAFE treated rats. Similarly, sperm motility was below 50% in cisplatin-treated rats while KAFE treatment resulted in over 70% motility. The cross-sectional area of seminiferous tubules in cisplatin-treated rats was $27.77 \pm 0.9 \times 10^3 \mu\text{m}^2$ as against $35.28 \pm 1.6 \times 10^3 \mu\text{m}^2$ in controls. While in cisplatin treated group the tissue levels of GSH and catalase activities were found to be significantly lower than in control and KAFE treated rats, MDA levels were significantly higher. Administration of KAFE as an adjunct to cisplatin and as post-treatment was not as effective in ameliorating the derangements in histoarchitectural and biochemical parameters caused by cisplatin as the case when it is administered as a prophylactic or alone. Long term treatment with KAFE in rats has not

shown any serious histoarchitectural alterations in the testis of the animals. While it is possible that KAFE may confer protecting capabilities against cisplatin-induced testicular damage, our studies has proven that pretreatment offers a better option in reducing the ravages caused by cisplatin in the testis in a mechanism believed to be free-radical mediated.

CHAPTERS IN BOOK

1. **Osinubi AAA.** Tissue Preparation, Light and Electron Microscopy, Polymerase Chain Reaction, Microarray Analysis, Immunocytochemistry. In: Abraham Osinubi and Chia Saalu (editors), Interactive Anatomy Text Series - Histology. Lagos: Miral Printing Press, 2009, 1-20.
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3. **Osinubi AAA, Imosemi IO, Saalu CL.** Epithelium, Connective Tissue, Nervous Tissue, Muscle Tissue, Adipose Tissue, Skin. In: Abraham Osinubi and Chia Saalu (editors), Interactive Anatomy Text Series - Histology. Lagos: Miral Printing Press, 2009, 55-88.
4. **Osinubi AAA.** Cartilage, Bone. In: Abraham Osinubi and Chia Saalu (editors), Interactive Anatomy Text Series - Histology. Lagos: Miral Printing Press, 2009, 111-128.
5. **Osinubi AAA, Saalu CL.** Blood. Hematopoiesis, Immune System. In: Abraham Osinubi and Chia Saalu (editors), Interactive Anatomy Text Series - Histology. Lagos: Miral Printing Press, 2009, 129-152.
6. Saalu CL, **Osinubi AAA.** Circulatory System, Respiratory System. In: Abraham Osinubi and Chia Saalu (editors), Interactive Anatomy Text Series - Histology. Lagos: Miral Printing Press, 2009, 175-204.

7. **Osinubi AAA, Saalu CL.** Male Reproductive System, Female Reproductive System, Urinary System. In: Abraham Osinubi and Chia Saalu (editors), Interactive Anatomy Text Series - Histology. Lagos: Miral Printing Press, 175-204.
8. Saalu CL, **Osinubi AAA.** Hypophysis, Adrenal Gland, Islets of Langerhans, Thyroid Gland, Parathyroid Gland, Pineal gland. In: Abraham Osinubi and Chia Saalu (editors), Interactive Anatomy Text Series - Histology. Lagos: Miral Printing Press, 2009, 205-224.
9. Saalu CL, **Osinubi AAA.** Nervous System, Sensory Organs, Special Sense Organs, Integumentary System. In: Abraham Osinubi and Chia Saalu (editors), Interactive Anatomy Text Series - Histology. Lagos: Miral Printing Press, 2009, 225-248.

PAPERS READ AT CONFERENCES

1. Cytoarchitectural and morphometric changes in the testis induced by short and long-term administration of quinine in rabbits.
Osinubi AA, Noronha CC, Okanlawon AO
Conference: 10th International Conference of Anatomical Society of West Africa (Ghana, 2003)
2. The circadian rhythm of blood glucose in normal Sprague-Dawley rats in Lagos.
Udeh RA, **Osinubi AA**, Akpanta A, Noronha, CC, OkanlawonAO
Conference: 10th International Conference of Anatomical Society of West Africa (Ghana, 2003)
3. Short and long-term effects of quinine on rat testis: A morphometric assessment
Osinubi AA, Noronha CC, Okanlawon AO
Conference: 2003 Scientific Conference & Annual General Meeting of the Nigerian Society of Endocrinology and Metabolism
4. The correlation between prostate-specific antigen and seminal fluid analysis in Nigerian males
Osinubi AA, Wellington JO, Ajayi GO
Conference: 2003 Scientific Conference & Annual General Meeting of the Nigerian Society of Endocrinology and Metabolism
5. The pattern of triiodothyronine, thyroxine and thyroid-stimulating hormone in Nigerian males
Osinubi AA, Wellington JO, Ajayi GO
Conference: 2003 Scientific Conference & Annual General Meeting of the Nigerian Society of Endocrinology and Metabolism

6. The relationship between prostate-specific antigen and hormonal profile in Nigerian males

Osinubi AA, Wellington JO, Ajayi GO

Conference: 2003 Scientific Conference & Annual General Meeting of the Nigerian Society of Endocrinology and Metabolism

7. The effect of bilateral optic enucleation on the level and rhythm of blood glucose in Sprague-Dawley rat

Osinubi AA, Udeh RA, Noronha CC, Okanlawon AO

Conference: 2003 Scientific Conference & Annual General Meeting of the Nigerian Society of Endocrinology and Metabolism

8. Acute effects of *Vernonia amygdalina* on blood glucose levels in normoglycaemic and alloxan-induced diabetic male Sprague-Dawley Rats

Adejunwon SA, **Osinubi AA**, Noronha CC, Okanlanwon AO

Conference: 2003 Scientific Conference & Annual General Meeting of the Nigerian Society of Endocrinology and Metabolism

9. Attenuation of quinine-induced testicular toxicity by ascorbic acid in rat: A stereological approach

Osinubi AA, Noronha CC, Okanlawon AO

Conference: 2004 International Conference of Endocrinology, Lisbon, Portugal

10. Evaluation of the hypoglycaemic, anti-hyperglycaemic and anti-diabetic effects of aqueous leaf extract of *Tapinanthus butungii*.

Osinubi AA, Ajayi GO, Adesiyun AE

Conference: The 2005 University of Lagos Annual Research Conference and Fair

11. The effects of quinine and ascorbic acid on rat testicles.

Osinubi AA, Daramola AO, Noronha CC, Okanlawon AO, Ashiru OA

Conference: The 2005 University of Lagos Annual Research Conference and Fair

12. Comparative effects of three tropical herbs, glibenclamide, chlorpropamide and human insulin lente on blood glucose in normoglycaemic, hyperglycaemic and alloxan-induced diabetic rats.

Osinubi AA, Adesiyun AE, Ajayi GO, Ogunleye OO, Akinlua JT, Agbaje MA

Conference: 19th World Diabetes Congress (December, 2006), Cape Town, South Africa.

13. (a) Introduction to stereology and andrological techniques

Osinubi AA

(b) Quinine - A male contraceptive?

Osinubi AA, Noronha CC, Daramola AO, Ajala MO, Okanlawon OA, Ashiru OA

Conference: 1st Conjoint International Conference on Fertility, Anatomy and Morphological Sciences (September, 2007).

14. (a) Quinine - A male contraceptive?

Osinubi AA, Noronha CC, Daramola AO, Ajala MO, Okanlawon OA, Ashiru OA

(a) Thyroid function tests in pregnant women in Lagos, Nigeria

Osinubi AA, Ajayi GO, Oshundiya OO, Balogun RO

Conference: 2007 Scientific Conference and Annual General Meeting of the Nigerian Society of Endocrinology and Metabolism (September, 2007).

15. The search for male contraceptive: The quinine study

Osinubi AA, Noronha CC, Daramola AO, Ajala MO, Okanlawon OA, Ashiru OA

Conference: The 1st Scientific Conference and General Meeting of the American Association of Clinical Endocrinologists - Nigerian Chapter (November, 2007).

- 16. Stereology application – Our experience with testicular toxicology and morphometry**
Osinubi AA, Noronha CC, Daramola AO, Ajala MO, Okanlawon OA, Ashiru OA
Conference: 7th Annual Scientific Conference of the Anatomical Society of South
South and South Eastern Nigeria (November, 2007).
- 17. Secular trends in male reproductive functions: A fact, fiction or an artefact?**
Akingbade A and **Osinubi AA**
Conference: 2008 Scientific Conference and Annual General Meeting of the Nigerian
Society of Endocrinology and Metabolism (Abuja, Nigeria)
(September, 2008)
- 18. Anatomical variations or anatomical abnormalities- Where is the dividing line? And
where and when is the local canon?**
Osinubi AA, Enye LA, Olakulehin OE, Tedunjaiye OA, Saalu CL, Imosemi IO,
Anuforo, AC, Agbara JO, *et al.*
Conference: 6th Annual Scientific Conference of the Anatomical Society of Nigeria
(October, 2008)
- 19. (A) Role of herbal nutritional supplements in the management of diabetes mellitus –
A systematic review**
Yama O, **Osinubi AA**
**(B) Role of vitamins and minerals (dietary supplements) in the management of
diabetes mellitus – A systematic review**
Yama O, **Osinubi AA**
Conference: The 2nd Scientific Conference and General Meeting of the American
Association of Clinical Endocrinologists (AACE) - The Nigerian Chapter
(October, 2008)

- 20.** Evaluation of the hypoglycemic, anti-hyperglycemic and anti-diabetic effects of aqueous leaf extract of *Tapinanthus butungii* in male Sprague-Dawley rats
- Osinubi AA**, Ajayi OG, Adesiyun AE.
- Conference: 13th International Congress of Endocrinology
- Rio de Janeiro, Brazil
- (November, 2008)
- 21.** Cytoarchitectural and morphometric alterations of testes of Sprague-Dawley rats secondary to quinine
- Osinubi AA**, Daramola AO, Ajala MO, Noronha CC, Okanlawon AO.
- Conference: 18th Annual Meeting & Clinical Congress of American Association of Clinical Endocrinologists in Houston, Texas, USA
- (May, 2009).
- 22.** Correlation of prostate-specific antigen with luteinizing hormone, follicle-stimulating hormone, prolactin, testosterone, inhibin B, sperm count and motility in Nigerian males
- Osinubi AA**, Ajayi GO, Omilabu SA, Wellington JO.
- Conference: 7th Annual Scientific Conference of the Anatomical Society of Nigeria
- (February, 2010)
- 23.** Correlation of prostate-specific antigen with luteinizing hormone, follicle-stimulating hormone, prolactin, testosterone, inhibin B, sperm count and motility in Nigerian males
- Osinubi AA**, Ajayi GO, Omilabu SA, Wellington JO.
- Conference: 19th Annual Meeting & Clinical Congress of American Association of Clinical Endocrinologists in Boston, Massachusetts, USA
- (April, 2010).

24. Reversal of propoxur-induced testicular alteration by *Cissus populnea* in Wister rats.

Oyewopo O, Saalu LC, **Osinubi AAA**, Ashiru OA.

Conference: Joint Meeting of Anatomical Societies, Bursa, Turkey

19-22 May, 2011

CONFERENCES / WORKSHOPS ATTENDED

1. 10th International Conference of Anatomical Society of West Africa
Date: 11th-14th May 2003
University of Ghana Medical School, College of Health Sciences, Korle-bu, Accra,
Ghana.
2. Information & Communication Technology Training for Network Administration
Date: 2nd-14th June, 2003
College of Medicine, University of Lagos, Lagos, Nigeria
3. 3rd Workshop on Effective use of Biomedical Communications Media and
Equipment
Date: 11th and 12th June, 2003
College of Medicine, University of Lagos, Lagos, Nigeria
4. Workshop on Statistical Methods on Medical Research
Date: 16th and 17th September, 2003
College of Medicine, University of Lagos, Lagos, Nigeria
5. 2003 Scientific Conference and Annual General Meeting of The Nigerian Society of
Endocrinology and Metabolism
Date: 24th - 27th September, 2003
University of Lagos, Lagos, Nigeria
6. Workshop on Health Planning
Date: 15th and 16th March, 2004
College of Medicine, University of Lagos, Lagos, Nigeria
7. 12th International Congress of Endocrinology
Date: 31st August-4th September, 2004
Lisbon, Portugal

- 8.** 2004 Scientific Conference and Annual General Meeting of The Nigerian Society of Endocrinology and Metabolism
Date: 22nd- 24th September, 2004
University of Lagos, Lagos, Nigeria
- 9.** The 2005 University of Lagos Annual Research Conference and Fair
Date: 26th October, 2005
University of Lagos, Lagos, Nigeria
- 10.** 2006 Annual General Meeting & Scientific Conference of The Nigerian Society of Endocrinology and Metabolism
Date: 20th-23rd September, 2006
Jos, Nigeria
- 11.** 1st Conjoint International Conference on Fertility, Anatomy and Morphological Sciences
Date: 19th-21st September, 2007
Lagos, Nigeria
- 12.** 2007 Scientific Conference and Annual General Meeting of the Nigerian Society of Endocrinology and Metabolism (Lagos, Nigeria)
Date: 26th-28th September, 2007.
Lagos, Nigeria
- 13.** The 1st Scientific Conference and General Meeting of the American Association of Clinical Endocrinologists (AACE) - The Nigerian Chapter
Date: 2nd November, 2007
Lagos, Nigeria

- 14.** 7th Annual Scientific Conference of the Anatomical Society of South South and South Eastern Nigeria
Date: 29th November-1st December, 2007
Calabar, Cross River State, Nigeria
- 15.** 2008 Scientific Conference and Annual General Meeting of the Nigerian Society of Endocrinology and Metabolism (Abuja, Nigeria)
Date: 24th-26th September, 2008.
Lagos, Nigeria
- 16.** 6th Annual Scientific Conference of the Anatomical Society of Nigeria (Zazzau 2008)
Date: 14th-17th October, 2008
Ahmadu Bello University, Zaria, Nigeria
- 17.** The 2nd Scientific Conference and General Meeting of the American Association of Clinical Endocrinologists (AACE) - The Nigerian Chapter
Date: 30th and 31st October, 2008
Lagos, Nigeria
- 18.** 13th International Congress of Endocrinology
Date: 8th -12th November, 2008
Rio de Janeiro,
Brazil
- 19.** Full Day Ethics Workshop on Ethical Issues in Clinical Research
Theme: Enhancing Integrity in Clinical Research
Date: 8th November, 2008
Windsor Barra Hotel, Rio de Janeiro, Brazil
- 20.** 18th Annual Meeting & Clinical Congress of American Association of Clinical Endocrinologists

Date: 13th-17th May, 2009

Houston, Texas, USA

21. 7th Annual Scientific Conference of the Anatomical Society of Nigeria

Date: 24th -26th February, 2010

Olabisi Onabanjo University, Ogun State, Nigeria

22. 19th Annual Meeting & Clinical Congress of American Association of Clinical Endocrinologists in Boston, Massachusetts, USA

Date: 21st-25th April, 2010

The John B. Hynes Veterans Memorial Convention Center and the Sheraton Boston Hotel, Boston, Massachusetts, USA

23. 32nd Scientific Conference and Annual General Meeting of the Nigerian

Society of Endocrinology and Metabolism (Lagos, Nigeria)

Date: 16nd -17th September, 2010

Lagos, Nigeria

24. 8th Annual Scientific Conference of the Anatomical Society of Nigeria

Date: 13th -16th October, 2010

Bayero University Kano, Kano, Nigeria

25. 1st Scientific Conference of the Faculty of Basic Medical Sciences, College of

Medicine of the University of Lagos

Date: 18th and 19th May, 2011

26. 33rd Scientific Conference and Annual General Meeting of the Nigerian

Society of Endocrinology and Metabolism (Lagos, Nigeria)

Date: 21st -23rd September, 2011

Kongo Conference Hotel, Zaria, Nigeria

LIST OF Ph.D. STUDENTS SUCCESSFULLY SUPERVISED/CO-SUPERVISED

S/NO.	NAME	UNIVERSITY	YEAR OF COVOCATION
1.	SCL	Lagos State University	2009
2.	YOE	University of Lagos	2009
3.	GSC	University of Lagos	2010
4.	DOO	University of Lagos	2010

LIST OF Ph.D. STUDENTS PRESENTLY BEING SUPERVISED/CO-SUPERVISED

S/NO.	NAME	UNIVERSITY
1.	JIP	Lagos State University
2.	II	University of Ibadan
3.	OAQ	University of Ilorin
4.	OOA	University of Lagos
5.	OIE	University of Lagos
6.	AEN	University of Lagos
7.	FBA	University of Lagos
8.	AFA	University of Lagos

LIST OF M.Phil. STUDENTS PRESENTLY BEING SUPERVISED/CO-SUPERVISED

S/NO.	NAME	UNIVERSITY
1.	BRB	University of Lagos
2.	ACI	University of Lagos
3.	IA	University of Lagos

RESEARCH INTERESTS

1. Testicular toxicology and morphometry
2. Telemedicine and teleinformatics
3. Curriculum development

CURRENT RESEARCH

1. Testicular toxicology and development of non-hormonal male contraceptive
2. Investigation of the safety of commonly used oral hypoglycaemic agents in pregnancy.
3. Investigation of the anti-diabetic and fertility potential of some herbs.

INTERNATIONAL AWARDS AND FELLOWSHIP

1. Travel Grant awarded by The International Society of Endocrinology (ISE) to present the paper, “Attenuation of Quinine-induced Testicular Toxicity by Ascorbic acid in rat: A Stereological Approach” at the 12th International Congress of Endocrinology (ICE) in Lisbon, Portugal (31st August – 4th September, 2004).
2. Travel grant awarded by American Association of Clinical Endocrinologists (AACE) to present the paper, “Cytoarchitectural and Morphometric Alterations of Testes of Sprague-Dawley Rats Secondary to Quinine” at the AACE 18th Annual Meeting & Clinical Congress, Houston, Texas (13th – 17th May, 2009).
3. Awarded Fellow of the American College of Endocrinology (FACE) by the American College of Endocrinology (ACE) in December, 2009. Convocation was held on Saturday 25th April, 2010 at the Sheraton Boston Hotel, Boston, Massachusetts, USA.

LOCAL AWARD

1. Voted by the students as the lecturer with greatest positive influence on the students in the College of Medicine of the University of Lagos (2010).

SIGNIFICANT CONTRIBUTIONS OF SOME OF THE PUBLICATIONS TO KNOWLEDGE

1. In year 2002, we described for the very first time the PCV (packed cell volume) pattern of Sprague-Dawley rat in this environment. This work has far-reaching implications in that it demonstrated that PCV levels may need to be interpreted with reference to the time of sample collections.
2. In 2003, we showed clearly the relationship between testosterone, follicle-stimulating hormone and seminal parameters in Nigerian males. We also provided our local critical reference values of testosterone and follicle stimulating hormone necessary for the maintenance of normal sperm motility and concentration.
3. To the best of our knowledge, we are the first to scientifically show that *Vernonia amygdalina* and *Tapinanthus butungii* are potential anti-diabetic agents.
4. My team described the circadian rhythm of blood glucose in adult male Sprague-Dawley rats in Lagos in 2003.
5. From review of literatures available, we were also the first to clearly demonstrate that serum levels of prostate specific antigen correlate positively with serum levels of inhibin B and negatively with sperm count in Nigerian males.
6. Our work on the effects of quinine on the testis of both rats and rabbits has the potential of developing a non-invasive, non-steroidal and an acceptable male contraceptive. This work is currently the most extensive study conducted by a single laboratory on the effects of quinine on the cytoarchitecture and morphometry of the testes of rats. In addition, this study has provided quantitative evidence that quinine-induced testicular toxicity is largely preventable by testosterone, ascorbic acid and alpha tocopherol.

7. Our study has shown that quinine-induced testicular toxicity is an excellent animal model for the study of fertility, infertility and the process of spermatogenesis. This model has been cited by several other investigators.

COMMUNITY SERVICE

1. I reach out to the whole world through my websites, (www.profabrahamosinubi.com and two others), encouraging students, youth, the rejected, the sick, especially with my periodic quotes, and other motivational articles.
2. I have also been using my website to preach peace to the whole world.
3. Active participation in public enlightenment campaign on HIV/AIDS, diabetes, *etc.*
4. Enlightenment campaign on the adoption of proper lifestyle so as to achieve optimal health.
5. Free voluntary services in NGOs medical clinic.
6. Participation in free community clinic for the aged.
7. Free motivational talks to students and the youth.
8. Offering of free medical services to victims of natural and other disasters.
9. Schools' programs on career talks.
10. Community development program.