

**ABSTRACTS OF THE
 PROCEEDINGS OF THE 31st ANNUAL SCIENTIFIC CONFERENCE OF THE SOCIETY**
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**THE ETHANOLIC EXTRACT OF ZINGIBER
 OFFICINALE (GINGER) AMELIORATES
 OXIDATIVE STRESS IN EXPERIMENTALLY
 CRYPTORCHID RAT**

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Zingiber officinale (ginger) has been shown to be a rich source of antioxidants. Previous studies have shown that cryptorchidism causes oxidative stress. However, the possible effect of ginger in ameliorating cryptorchidism-induced oxidative stress in rat has not been investigated. The present study therefore looked into the effect of ethanol extract of ginger (EEG) on the oxidative stress in experimentally induced cryptorchidism in the rat. Twenty four (24) male Sprague-Dawley rats, weighing 170g-210g were divided into three (3) groups (A-C), of eight (8) rats each. Group A was sham-operated and treated with vehicle, Groups B and C were rendered cryptorchid treated with vehicle and EEG respectively. Cryptorchid rats had significantly lower testicular weight, sperm count, sperm motility, lower percentage sperms with normal morphology, superoxide dismutase (SOD), total protein (TP) and higher malondialdehyde (MDA) concentration than the sham-operated rats. However, EEG significantly increased ($P<0.05$) testicular weight, sperm count, sperm motility, sperm with normal morphology, SOD and TP while it significantly decreased ($p<0.05$) MDA concentration in the cryptorchid rats. The present study thus suggests that EEG is effective in ameliorating cryptorchidism-associated testicular oxidative stress

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**ANTINOCICEPTIVE EFFECTS OF HYBANTHUS
 ENNEASPERMUS IN MALE ALBINO RATS**

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The analgesic effect of the ethanolic extract of *Hybanthus enneaspermus* in alleviating chronic and acute pain was assayed by formalin and tail immersion tests. Forty-eight male rats were randomly divided into four groups of twelve rats each for the tail immersion test. Each group

was pre-treated with distilled water which served as the control and later treated with distilled water, 100mg/kg of acetamenophen powder, 500 mg/kg and 1000mg/kg of *Hybanthus* ethanolic extract, respectively. Twenty four male rats were randomly divided into four groups of six rats each for the formalin test. Group I was treated with distilled water. Group II was treated with 100 mg/kg of acetamenophen, groups III and IV were treated with 500 and 1000 mg/kg of the extract respectively. The extract showed significant dose dependent analgesic activities in the tail immersion and formalin test. A dose dependent analgesic response was obtained in this study at dose 500mg/kg and 1000mg/kg in both tail immersion and formalin tests. In the formalin test the leaf extract caused inhibitions of 62.48% and 72% (Early phase) and 70.54% and 78.63% (Late Phase), after the oral administration of 500mg/kg and 1000mg/kg *Hybanthus enneaspermus* extract. The 500 mg/kg and 1000mg/kg doses significantly increased the tail immersion latency in a manner comparable to acetamenophen. The 1000 mg/kg dose significantly reduced the paw licking time when compared to the standard drug acetaminophen in the formalin test. These results support the speculation that emperical use of the plant during labour may be due to its analgesic effects. The possible oxytocic effect is however still under investigation.

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**IMPROVED LUNG FUNCTIONS OBSERVED WITH
 COCONUT WATER INTAKE A POSSIBLE ROLE FOR
 ITS HIGH POTASSIUM CONTENT**

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The use of coconut water for rehydration has been viewed differently by many authors. While it is considered a better fluid than most sport drinks other opinions on its potassium level has described it as a potential risk for hyperkalaemia especially in renal disturbances (Shireff, 2000). Renal handling of high intake of potassium has been described by two major pathways: the insulin induced transport of potassium across cellular membrane and the Aldosterone mechanism (Hollander-Rodriguez et al., 2006). The possible reversal of sickling phenomenon on sickled red cells exposed to coconut water has also been reported and linked with the high potassium concentration of the fluid (Ajayi et al.,

2010). This study is therefore designed to highlight specific effects of coconut water on various body organs especially the lung functions. Peak Expiratory Flow Rate (PEFR) using a 'MICRO PEAK' Peak flow meter (Micro Medical, UK) was monitored longitudinally in twenty (20) subjects (10males and 10 females) before and at 1min, 1hr, 24hrs and 48hrs after oral ingestion of the fluid. We observed a statistical significant increase in PEFR from the 1hr which was sustained till the end of the experiment ($P<0.05$, respectively) while an acute increase in haematocrit coupled with a sustained mean corpuscular Haemoglobin concentration were also recorded ($P<0.05$, respectively). We conclude therefore that oral intake of coconut water could be associated with an acute increase of pulmonary function and ultimate oxygen delivery. The long term effects of the fluid on body organs are currently being investigated.

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CHANGES IN CARDIAC INDICES ASSOCIATED WITH ORAL INTAKE OF COCONUT WATER

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Coconut water has been indicated as a treatment for coronary vascular diseases in some developing countries and also a hepatoprotective and cardiogenic medicinal food (George et al., 2004). We have previously demonstrated the effectiveness of coconut water in vitro reversal of sickling phenomenon. Our interest is now focused on its effect on various body organs especially the heart and the Liver through their indices of assessment. Cardiac parameters such as Systolic and Diastolic blood pressure (SBP and DBP respectively), Pulse rate, Mean arterial pressure were studied that an automated blood pressure monitor calibrated earlier with a manual sphygmomanometer while Liver enzymes such as Alanine amino and Aspartate amino-transaminases (ALT and AST respectively) were studied using an automated equipment (Vitro DT60). Twenty (20) young subjects (10 males and 10 females) with mean age of 23.67 ± 0.53 and with BMI of 21.84 ± 0.56 were recruited into the study and were 50ml of coconut water orally. Cardiac indices and blood sampling were taken before and at 1hr, 24hrs and 48hrs after the oral ingestion of the fluid. We recorded a progressive lowering of the systolic and diastolic blood pressures from the 1hr period which were sustained throughout the study period with the lowest value obtained at 24th hr. We equally observed a stimulatory effect on the liver enzymes which tend to increase but within the normal limits throughout the study period. We conclude therefore that, oral intake of

coconut water could be associated with an acute lowering effect of blood pressures coupled with a stable Liver function. We however recommend a possible histological/hepatotoxic effect on the Liver on laboratory animals if the biochemical effects remain the same.

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SEX VARIATION AND ASCORBIC ACID-INDUCED CHANGES IN COGNITION DURING THE HOT- DRY SEASON IN WISTAR RATS

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The hot-dry season in the Northern Guinea Savannah zone of Nigeria is characterized by high ambient temperature and high relative humidity, imposes heat stress on the body (Ayo et al., 2011). Heat stress results in enormous generation of free radicals and other reactive oxygen species. The deleterious effects of oxidative free radicals are ameliorated by anti-oxidants. The antioxidant ascorbic acid (vitamin C), has been shown to be of value in the prevention and therapy of adverse effects of stress factors. The brain is very susceptible to oxidative stress because of its abundant lipid content. A total of 30 adult Wistar rats comprising 15 males and 15 females, weighing 140-180 g were used for the experiment and divided into two groups. Group I made up of 15 rats (7 males and 8 females) served as the control and were given tap water orally for two weeks. Group II made up of 15 rats (7males and 8 females) served as the experimental and were administered with vitamin C, at the dose of 100mg/kg daily for two weeks. Learning and memory were assessed using a step-down inhibitory avoidance learning device (Zhu et al., 2001). The number of foot-shocks was used as an index of learning acquisition. The time an animal remained on the platform was recorded as index of memory retention. The results showed significant increase in learning ability and memory retention in females than males in both the control and experimental. The study suggests that the antioxidant vitamin C, improves learning and memory and that cognition is better developed in the female than male rats.

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DIABETIC AND INSULIN RESISTANCE IMPAIRMENT OF SPERMATOGENESIS IN ADULT RAT TESTIS: CENTRAL MECHANISM Vs LOCAL MECHANISM

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The paucity of studies addressing the effects of diabetes mellitus on human male reproductive function and the conflicting nature of existing data have resulted in a distinct lack of consensus as to the extent of the problem. Despite this obvious fact, data from animal models strongly suggest that diabetes mellitus affect semen parameters and impairs spermatogenesis in male rats (Arikawe et al. 2006). Adult male Sprague-Dawley rats (120 – 140gm) were randomly divided into 7 groups. Group 1 > control group; fed on normal rat pellets. Group 2 > Type 1 diabetic untreated group; received a single IP injection of streptozotocin 45 mg/kg BW (Guneli et al. 2010) in Na⁺ citrate buffer pH 4.5. Group 3 > Type 1 diabetic treated group; received IP streptozotocin as in group 2; treated with 0.5 – 1IU isophane insulin. Group 4 > Type 1 diabetic treated group; received IP streptozotocin as in group 2; treated with 500mg/kg oral ginger daily. Group 5 > insulin resistant diabetic untreated group; fed ad libitum on a special diet containing 25% fructose W/W (Arikawe et al. 2006). Group 6 > insulin resistant diabetic treated group; fed ad libitum on special diet as in Group 5; treated with 15mg/kg oral Pioglitazone daily. Group 7 > insulin resistant diabetic treated group; fed ad libitum on special diet as in Group 5; treated with 500mg/kg oral ginger daily. Following hyperglycaemia confirmation, blood was collected by cardiac puncture, centrifuged at 3,000 x g for 15 minutes and the plasma used for measurement of the different hormones (Insulin, Testosterone, Prolactin, LH, and FSH) using radioimmunoassay methods. Testicular testosterone, cholesterol, ACP, ALP, LDH and seminal vesicle fructose were also determined. The hypothalamo-pituitary testicular axis was impaired in the experimental groups compared to control group. However, local steroidogenesis seems to have a more impact on male reproductive dysfunction, thus diabetes mellitus and insulin resistance could predispose to male hypogonadism.

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FICUS PLATYPHYLLA PROMOTES FERTILITY IN FEMALE ALBINO RATS

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Ficus platyphylla Delile (family- Moracea) commonly called gutta percha tree is a deciduous plant found in savannah areas. It grows widely in Northern Nigeria, and is known as ‘gamji’ by the Hausas. The plant has been used traditionally to promote fertility. The present study was to validate the use of this plant to promote fertility in female albino rats using various fertility parameters. Female albino rats (150-180g) were randomly selected and divided into two major groups. Each group was subdivided into 3 treatment groups of 100, 200, 400 mg/kg of the aqueous extract. The negative and positive control groups were distilled water and clomiphene citrate respectively. Treatment of the first group was discontinued after 15 days prior to mating (pre-mating treatment group), while the other was treated continuously till delivery (continuous treatment group). At the 10th day, some female rats were sacrificed and embryos counted. Upon delivery, litter sizes were determined and the pups weighed and checked for deformities. Other reproductive indices were calculated. There was a significant reduction in the average number of embryos in the pre-mating treatment group when compared to the negative control. However, their litter sizes were similar. In the continuous treatment group, there was no statistical difference in their number of embryos while there was an increase in the litter size in the 400mg/kg group when compared to the negative control. There were no observed external deformities. *Ficus platyphylla* promotes fertility by reducing post implantation loss and by increasing litter size in female albino rats.

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THE EFFECTS OF EATING DENNETTIA TRIPETALA FRUIT ON LOCOMOTOR AND ANXIETY-RELATED BEHAVIOURS IN CD1 MICE **Daniel E. Ikpi, Agona O. Obembe and Sunday O.Bisong**

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Dennettia tripetala fruit induces a mild stimulating effect when ingested; it is used to spice foods in Southern Nigeria. It is believed to reduce social anxiety and increase sociability. The present study investigated the stimulatory effects of *D. tripetala* on locomotor and anxiety-like behaviours in CD1 mice in the open field, elevated plus maze and light-dark transition box. Thirty singly housed male CD1 mice were divided into 3 groups of 10. The Control group were fed normal rodent pellets. The Low-dose group were fed a 10% *D. tripetala* diet (10g of *D. tripetala* mixed with 90g of rodent pellets). The High-dose group were fed 15% *D. tripetala* diet (15g of *D. tripetala* mixed with 85g of rodent pellets) daily for 4 weeks before testing. Both doses of *D. Tripetala* reduced the number of line crosses and the frequency of centre square entries in the open field while the high dose reduced the number of

line crosses in the light-dark box and the frequency of rearing in the open field. The low dose of *D. tripetala* increased the time in the open arms in the elevated plus maze, while the high dose decreased the number of stretch attend posture in the light-dark box. The results indicate the chronic ingestion of *D. tripetala* reduced locomotor and exploratory behaviour in CD1 mice at both doses while the low dose may have an anxiolytic effect. Future studies will examine the effect of *D. tripetala* on motor learning, motor control and social behaviour.

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THE EFFECTS OF VITAMINS C AND E ON THE BLOOD GLUCOSE LEVEL OF HYPERGLYCEMIC RATS

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Hyperglycemic blood glucose level of > 126 mg/dl is often noted as one of the cardinal signs in the clinical diagnosis of diabetes mellitus, a metabolic disorder of glucose metabolism that presents with various cardiovascular and nervous system complications if left untreated or poorly managed. Oxidative stress caused by increased reactive oxygen species (ROS) formation in hyperglycemia has been implicated as a predisposing cause of diabetic complications. Vitamins C (Vit-C) and E (Vit-E) however, are noted for their potent antioxidant activities. Therefore, the aim of the present study is to determine the effects of Vit-C and Vit-E on the blood glucose level of hyperglycemic Wistar rats. 25 alloxan-induced hyperglycemic male Wistar rats weighing 150-200 grams, randomly allocated into five groups of 5 rats each, were used for the study. Groups I, II and III received 30 mg/kg each of Vit-C, Vit-E and Vit-C plus Vit-E respectively. Group IV received 250 mg/kg Metformin and Group V received 5 ml/kg of 0.9% normal saline all by oral routes for 7 days. Following the induction of hyperglycemia on day 0, fasting blood glucose levels were determined on days 1, 3, 5 and 7 (using Glucose-test Strips, Accu-Check Advantage II, Roche Diagnostics GmbH Germany). Analysis of variance revealed that, blood glucose levels were significantly lowered on days 3, 5 and 7 only in groups I, II III and IV with the lowest levels observed in group II on days 5 and 7. The results indicate that in addition to the antioxidant activities of Vit-C and E, the vitamins may also possess hypoglycemic properties of relevance to the clinical management of diabetes mellitus.

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EFFECT OF AQUEOUS EXTRACT OF *FICUS PLATYPHYLLA* ON ESTRADIOL VALEATE INDUCED POLYCYSTIC OVARY SYNDROME (PCOS) IN FEMALE ALBINO RATS

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Polycystic ovary syndrome (PCOS) is the commonest cause of reproductive disorder and anovulatory infertility in women of reproductive age. Injection of estradiol valerate has been shown to induce this condition in female rats. A lot of herbal remedies have been employed in the treatment of various forms of infertility. This study is to investigate the effects of *Ficus platyphylla* on estradiol valerate induced PCOS in female albino rats. Female albino rats of about 10-12 weeks old (150-180g), with regular 4-5day oestrus cycles were used. PCOS was induced in the rats with intramuscular injection of 4mg estradiol valerate in oily solution per rat. They were allowed 30 days to establish the PCO. The animals were divided into five treatment groups. The positive control group received clomiphene citrate while negative control received 5mls/kg of distilled water. The other groups received 100, 200, and 400mg/kg of the aqueous extract respectively. All the groups were dosed for 15 days except the positive control group which was dosed for 5 days. On the 16th day, the animals were sacrificed. Hormonal assays and histological studies were conducted. One of the diagnosis of PCOS is an elevated LH-to-FSH ratio, the result showed lower ratio than the clomiphene. The influence of the extract on ovarian morphology in estradiol induced PCOS model showed a marked reversal of PCO.

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THE EFFECT OF AQUEOUS EXTRACT OF LEAF OF *FICUS CAPENSIS* THUNB. (MORACEA) ON *IN VIVO* LEUKOCYTE MOBILIZATION IN WISTAR RATS

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Immune system (the body's defense system which protects the body from diseases), is subject to modification by substances to either enhance or suppress its ability to resist invasion by pathogen. *Ficus capensis* Thunb. (Moraceae), a wild fig tree, is believed by the Igala people of Kogi State, Nigeria to possess an immune boosting property, hence, forming part of most of their traditional remedies for several ailments. This study was aimed at investigating,

so as to ascertain this claim. Twenty wistar strain albino rats divided into four groups of five animals each were used. One hour prior to introduction of an inflammatory stimulus, each rat in groups A, B and C received oral administration of 100, 150 and 250mg/kg of the aqueous extract of *ficus capensis* thunb. (Moraceae) leaves respectively. The control group (group D) received tap water. After 4 hours, the animals were sacrificed and both Total and Differential leukocyte counts were performed on their peritoneal fluid. There is a significant ($p < 0.05$) dose-dependent increase in leukocyte mobilization with doses 150 and 250 mgkg⁻¹ giving total leukocyte count of $4.44 \pm 0.39 \times 10^9/L$ and $6.10 \pm 0.86 \times 10^9/L$ respectively, with neutrophil being the most mobilized. The results obtained from this study indicate the presence of active substance (s) which may be responsible for this effect and its applications in traditional medicine as an immune boosting agent.

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COMPARISON OF STREPTOZOTOCIN-INDUCED DIABETIC AND INSULIN RESISTANT EFFECTS ON SPERMATOGENESIS WITH PROLIFERATIVE CELL NUCLEAR ANTIGEN IMMUNOSTAINING OF ADULT RAT TESTIS

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The overall reproductive processes are well-defined, but the underlying molecular basis of each step, from the formation of germ cells and haploid gametes to the fertilization process, is less understood (Furnes and Schimenti, 2007). Adult male Sprague-Dawley rats (120 – 140gm) were randomly divided into 7 groups. Group 1 > control group; fed on normal rat pellets. Group 2 > Type 1 diabetic untreated group; received a single IP injection of streptozotocin 45 mg/kg BW (Guneli et al. 2010) in Na⁺ citrate buffer pH 4.5. Group 3 > Type 1 diabetic treated group; received IP streptozotocin as in group 2; treated with 0.5 – 1IU isophane insulin. Group 4 > Type 1 diabetic treated group; received IP streptozotocin as in group 2; treated with 500mg/kg oral ginger daily. Group 5 > insulin resistant diabetic untreated group; fed ad libitum on a special diet containing 25% fructose W/W (Arikawe et al. 2006). Group 6 > insulin resistant diabetic treated group; fed ad libitum on special diet as in Group 5; treated with 15mg/kg oral Pioglitazone daily. Group 7 > insulin resistant diabetic treated group; fed ad libitum on special diet as in Group 5; treated with 500mg/kg oral ginger daily. Following hyperglycaemia confirmation, animals were perfused with 4% Paraformaldehyde (PFA). Testes were isolated, weighed and fixed in 4% PFA and embedded in paraffin. 5µm thick sections were made and

mounted on poly-L-lysine coated slides. Immunohistochemistry was done using PCNA and spermatogenesis was studied at Stage VII (middle) of the spermatogenic cycle through light microscopy. Mean seminiferous tubule diameter, PCNA index and numerical density were significantly lower ($P < 0.001$ and $P < 0.05$) in all the experimental groups compared to the control group. Streptozotocin-induced diabetic and insulin resistance impair meiotic division of both 1⁰ and 2⁰ Spermatocytes into early spermatids. Germ cells proliferation rate is enhanced by insulin, pioglitazone and ginger administration.

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EFFECT OF ETHANOLIC LEAF EXTRACT OF MUCUNA PRURIENS (FABACEAE) ON LIPID PROFILE OF DIABETIC WISTAR RATS

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Diabetes mellitus is a global health burden leading to an increase in the search for herbal hypoglycemic agents as alternative to synthetic ones. The effect of diabetes on lipid metabolism is well established. This study was aimed at evaluating the effects of ethanolic leaf extract of *M. pruriens* on lipid profile levels in alloxan-induced diabetic Wistar rats. Diabetic rats were randomly divided into the following groups (n=6). Group I (normal control) received distilled water, Group II (diabetic control) received distilled water, group III, IV and V received 100, 200 and 400mgkg⁻¹ b w of the extract respectively, while group VI received 250mgkg⁻¹ b w Metformin orally once daily for 21 days. At the end of the treatment period, blood samples were collected from the animals and assayed spectrophotometrically for serum concentration of TC, TG, HDL-C and LDL-C. The study showed that there was significant reduction ($p < 0.05$) in the serum levels TC, TG, LDL-C and increased HDL-C in alloxan-induced diabetic treated groups, with a marked reduction ($P < 0.01$) of 96.86 ± 10.6 , 106.31 ± 7.5 , 48.09 ± 11.0 observed in the groups treated 400mg/kg for TC, TG, LDL-C and maximum increase of 23.01 ± 1.8 and 28.52 ± 0.90 recorded in the group treated with 200 and 400mg/kg for HDL-C. The result shows that the plant may be useful in the management of secondary complications of diabetes mellitus (dyslipidemia).

COMPARATIVE EFFECT OF AQUEOUS AND METHANOLIC EXTRACT OF MORMODICA CHARANTIA (BITTER MELON) ON ISOLATED ILUEM RING

There are claims that the plant *Mormodica charantia* could be used to treat some intestinal disorders such as constipation. Hence an in vivo experiment was designed to investigate the action of the leaf extracts (aqueous and methanolic) on gastrointestinal contractility. Preliminary phytochemical screening of methanolic extract revealed the presence of alkaloid, flavonoid, saponins, steroid, terpenoids and tannins. An isolated ileum of male rabbit was used for the experiment. Acetylcholine cause increase in strength of contraction from 38.0mv to 43.0mv and rate of contraction from 13.0 to 13.5 with 0.05ml of 100µg/ml of Ach. Adrenaline decrease the strength of contraction from 43.0mv to 16.5mv with an increase in rate of contraction from 7.8 to 8.1 with 0.1ml of 10ug/ml of adrenaline. In this present study, *Mormodica charantia* provoked a concentration dependent increase in contraction. Both the methanolic and aqueous extracts showed marked increase in strength and rate of contraction with increased volume of extract from 0.05, 0.1, 0.2 and 0.4ml of 100µg/ml respectively. Interaction of the extract with atropine blocked the effect of the extract. The strength of contraction decrease from 12.85mv to 12.2 for methanolic extract while it decreases from 17.5mv to 15.90mv with aqueous extract. Interaction of the extracts with both Nifedipine and propranolol showed increase in rate and strength of contraction. Thus, this study provides the explanation of the usage of *Mormodica charantia* in treatment of constipation in some countries in Africa.

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A PRELIMINARY STUDY ON THE EFFECT OF CASTRATION AND TESTOSTERONE ADMINISTRATION ON THE ANTI-INFLAMMATORY EFFECT OF STEM-BARK METHANOLIC EXTRACT OF ANONA SENEGALENSIS IN WISTAR RATS.

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A preliminary study was carried out to determine the effect of castration and testosterone administration on the anti-inflammatory effect of *Anona senegalensis* (Annonaceae) in Wistar rats. Twenty five mature rats with average body weight of 170.0±3.7 g were randomly allocated into five groups of 5 rats each. Methanolic extract of *A. senegalensis* dissolved in distilled water was administered per os at a dose rate of 910 mg/kg 30 min prior to induction of inflammation. Acute inflammation was

induced by injection of fresh egg albumin into the subplantar region of the right hind paw of the rats (Okoh and Akah, 2000). The inflammation was measured in terms of changes in hind paw volume (Backhouse et al., 1996) at 1hr, 2hr, 3hr and 4hr after egg albumin injection. Percentage inflammation was calculated as described by Perez, 1996. The rats were treated as follows: Group I, castrated (CAS) + *A. Senegalensis* (AS; 910 mg/kg); Group II, CAS + testosterone (TES; 400 ug/rat) + AS; Group III, CAS + distilled water (DS; 0.5mL/rat); Group IV, noncastrated (NCAS) + AS; Group V, NCAS + piroxicam (0.5 mg/rat, im.). Paw oedema volume was significantly lower ($P < 0.001$) at 1hr in groups I, IV and V (4.5 ± 0.3 mL, 4.4 ± 0.3 mL and 4.5 ± 0.1 mL, respectively) than in groups II and III (6.8 ± 0.4 mL and 6.6 ± 0.4 mL, respectively). Percent inhibition of oedema at 1hr was 56%, - 1%, 56% and 56% for groups I, II, III, IV and V, respectively. The findings of this study suggest an inhibitory action of testosterone on the acute anti-inflammatory effect of *A. senegalensis* in castrated rats.

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PROTECTIVE EFFECTS OF ALPHA LIPOIC ACID ON CARBON TETRACHLORIDE-INDUCED LIVER AND KIDNEY DAMAGE IN RATS.

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Carbon tetrachloride (CCl₄) is a well-known toxicant and exposure to this chemical is known to induce oxidative stress by the formation of free radicals. The present study investigates the in vivo effects of alpha lipoc acid (ALA) on CCl₄-induced hepatic and nephro-toxicities. 24 Sprague-Dawley rats were divided into four groups of 6 animals each, all animals were allowed food and water *ad libitum*. Group I (control) was given olive oil only. Group 2 (CCl₄ treatment) received CCl₄ intraperitoneally (i.p.) at a dose of 1.6 mg/kg as a 30% olive oil solution. Group 3 (ALA treatment) was given only ALA at a dose of 25mg/kg. Group 4 (CCl₄+ALA treatment) was given both CCl₄ and ALA, all treatment lasted for 10 consecutive days. At the end of experiment, the antioxidant status in both the liver and kidney tissues were estimated by determined the activities of antioxidant enzymes; reduced glutathione, superoxide dismutase, catalase as well as the level of lipid peroxidation via thiobarbituric reactive substance. Also, the liver and kidney function tests were performed in addition to their histopathological analyses. The result obtained showed significant adverse changes in the levels of all measured parameters in CCl₄ treated rats. However, treatment with ALA ameliorated the levels of the disturbed biochemical and oxidative parameters, in the CCl₄-induced rats. Microscopically, co-treatment with ALA remarkably attenuated the histological damage and degeneration of the liver and kidney in the CCl₄ treated group. Although the levels of the measured

indices in the ALA cotreated group were significantly different from the CCl₄ group, they were however different than the control groups profiles. The result suggest that ALA protect the liver and the kidney against CCl₄-induce stress evidence by the improve liver and kidney function probably by increasing antioxidant defence activities.

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THE EFFECT OF AQUEOUS LEAF EXTRACT OF *Tapinanthus dodoneifolius* ON RATE OF CONTRACTION OF ISOLATED RABBIT ILEUM

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African mistletoe (*Tapinanthus dodoneifolius*) is a hemi-parasitic plant used ethno- medicinally by the Hausa and Fulani tribe of northern Nigeria as a remedy for several human ailments that include diarrhea and dysentery. This study investigated the effect of aqueous leaf extract of *tapinanthus dodoneifolius* on isolated rabbit ileum. Two rabbit were used for this experiment and various concentrations of 1mg/ml, 10mg/ml and 100mg/ml of the extract were administered on the isolated ileum in an organ bath apparatus. The result were compared with the result earlier obtain through the administration of standard drugs. The result obtained shows that aqueous extract of *tapinanthus dodoneifolius* at higher dose and volume cause reduction in rate of contraction of the tissue. The rate of contraction decreased at 10mg/ml and 100mg/ml extract with statistical significance at 0.8ml of 10mg/ml and 0.4ml and 0.8ml of 100mg/ml extract.

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EFFECT OF ACTE INTAKE OF CAFFEINE ON POST EXERCISE CARDIAC DECLARATION

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Caffeine is a nitrogenous organic compound of the alkaloid group that has marked physiological effects. It is a stimulant found in many varieties of substances like tea, coffee, cocoa beverages, chocolate bars, and some soft drinks among others. The effects of caffeine on post exercise cardiac deceleration were determined in 20 healthy subjects aged 22.3±0.59 years. The pattern of cardiac deceleration was first determined after muscular exercise without caffeine (in coffee) consumption in order to serve as control. The subjects were then asked to come the following day and were then given coffee at a dose of

12mg/kg dissolved in 250ml water (at 37°C). The results showed a gradual decrease in systolic blood pressure from 131.0±2.6mmHg to 106.3±1.33mmHg (p<0.05, n=20). After ingestion of coffee the post exercise systolic blood pressure showed a decrease from 125.3±2.64 to 110.3±1.48 mmHg (p<0.05, n=20). The diastolic blood pressure followed the same pattern. Furthermore, the post exercise heart rate showed a cardiac deceleration before and after coffee ingestion. The general level of heart rate was slightly lower after coffee ingestion than before ingestion. These results may suggest that caffeine at the present dose cannot reverse the vagal influence on cardio-deceleration.

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HETEROPHILE ANTIBODIES IN THE SERA OF RESIDENTS OF CHOBA COMMUNITY IN THE NIGER DELTA REGION OF NIGERIA.

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Heterophile antibodies against sheep red blood cells were assayed in apparently healthy children (85) and adults (99) in a community in the Niger Delta region of Nigeria. The children were aged 5-12 years (49 males; 36 females) and the adults were aged 18-65 years (34 males; 65 females). The direct haemagglutination technique was used. Almost all samples (98.9%) had heterophile antibodies against sheep red blood cells. The results also showed that the mean heterophile antibodies titre was 34.82±55.73 for male children and 79.39±144.58 for female children. In the children, there is higher mean heterophile antibodies titre in females than males but the difference was however not significant (p>0.05). Adult males had a mean titre of 16.13±15.78 while the adult females had a mean females was significantly (p<0.05) higher than adult males. Children (males and females) had mean titres of 53.69±104.76 which was higher when compared to the adults (males and females) who had 34.64±66.25 in the total population. It is concluded that the environment may have been responsible for the high rate of response while female hormones may have played a role in higher titres observed in females.

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EFFECT OF SOME FACTORS ON THE AGE OF MENOPAUSE AMONG OMOKU WOMEN OF RIVERS STATES, NIGERIA

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Menopause depicts end of a woman's reproductive life. It usually occurs between ages of 40 and 60 years. Several studies have been carried out in different parts of the world to document the mean ages of menopause; however, studies from Nigeria have been relatively scanty. The aim of the present study is to determine the mean age of onset of menopause in Omoku women of Ogba/Egbema/Ndoni Local Council of Rivers State of Nigeria and further ascertain the effect of some socio-economic factors such as occupation and other factors like menarche, age at marriage etc on the onset of menopause. Following ethical approval and informed consent, 300 post-menopausal women were surveyed through detailed administered questionnaires. The data obtained were analyzed using SPSS Statistical package to determine any association between age of onset of menopause and the various factors. The result obtained showed mean age of menopause to be 48.85 ± 0.29 years with a range of 32 to 62 years. Age marriage, age at last childbirth and duration of period were found to be statistically associated with age at menopause for these women, while there were no statistical association between age at onset of menopause with menarchial age, age first childbirth, and form of birth control, occupation, number of children and regularity of period. Based on this study, mean age at onset of menopause among Omoku women of Rivers State which is 48.85 ± 0.29 years is comparable to value gotten from the Western part of Nigeria.

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LEVELS OF IMMUNOGLOBULINS IN APPARENTLY HEALTHY CHILDREN AND ADULTS IN PORT HARCOURT, NIGERIA.

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Serum Immunoglobulins (IgG, IgA and IgM) levels were determined in a total of 122 apparently healthy subjects. This included 43 children aged 5-12 years (20 males; 23 females) and 79 adults (39 males, 40 females) aged 18-65 years. The study was done using the single radial immunodiffusion techniques or Mancini method. The results obtained showed that the mean level of IgM was 971.36 ± 581.63 mg/dl and 877.15 ± 445.04 mg/dl; IgA was 22.91 ± 12.30 and 18.66 ± 10.06 mg/dl; IgM was 22.91 ± 12.30 and 18.66 ± 10.06 mg/dl for female and male children respectively. The mean levels for adults were IgG 971.36 ± 270.70 mg/dl and 799.89 ± 182.82 mg/dl; IgA was 316.70 ± 237.42 mg/dl and 596.69 ± 488.46 mg/dl; IgM was 18.29 ± 8.91 mg/dl and 21.94 ± 14.44 mg/dl for females and males respectively. There was significantly ($p < 0.05$) higher levels of IgG in female adults than male adults, the levels of IgA was significantly ($p < 0.05$) higher in male adults than female adults; no significant differences were observed for IgM. Although, the mean levels of IgG, A and M were higher in female children than male children, they

were not statistically significant ($p > 0.05$). The mean levels of IgG in female children and female adults are the same (971.36) and mean levels of IgA and IgM are the same for female and male children. Thus, age and sex appear to affect levels of immunoglobulins.

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EFFECT OF L-ARGININE SUPPLEMENTATION ON BLOOD PRESSURE RESPONSES TO CHANGE IN POSTURE AND NITRIC OXIDE CONCENTRATION IN SICKLE CELL ANAEMIA SUBJECTS.

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L-Arginine has been reported to decrease pulmonary vascular resistance in sickle cell anaemia subjects (SCAS) with little or no report on its effect on arterial blood pressure (BP). Conversely, it has been reported that L-arginine (at dose higher than 9g/day) makes the problems of low BP more severe. This study investigated the effect of a 6 week, oral, low dose, L- arginine supplementation on arterial BP responses to change in posture and nitric oxide levels (NO). 32 Non-Sickle cell anemia subjects (NSCAS, HbAA) and 28 SCAS (HbSS) age matched male and female subjects were studied. Arterial BP and heart rate (HR) were measured in supine position and immediately on standing position. 2 mls venous blood was withdrawn from each subject for NO measurement (using Cayman chemical nitrate/nitrite assay kit at 540 nm absorbance). L-arginine taken orally at a dose of 1g/day for 6 weeks was then administered to each subject. After 6 weeks, the measurements were taken again. Change in posture reduced SBP ($P < 0.05$) and DBP ($P < 0.05$) in both groups of subject and also reduced MABP ($P < 0.01$) in NSCAS and PP ($P < 0.01$) in SCAS. HR ($P < 0.01$) and ($P < 0.05$) also increased following change in posture in both groups. L- Arginine caused greater percent reduction in SBP ($P < 0.001$), DBP ($P < 0.05$) MABP ($P < 0.01$) and RPP ($P < 0.05$) in NSCAS. Percent increase in NO ($P < 0.01$) was greater in SCAS than in NSCAS. L- Arginine supplementation equilibrated decrease in SBP and PP in both groups following change in posture. Δ NO correlated positive with Δ DBP ($r = 0.07$), Δ PP ($r = 0.4$) and Δ MABP ($r = 0.5$) in SCAS. Low-dose, oral L- arginine did not produce hypotension but equilibrated the BP response to change in posture in the groups of subjects. Supplementation increases NO in both groups. Positive correlation between Δ NO and Δ MABP in SCAS suggest that NO may play a role in BP regulation in SCAS.

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**Gastric acid secretion, Mucus concentration and
Ulceration following ingestion of Cannabis sativa in
Albino Wistar rats**

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The gastrointestinal tract is the first point of contact of any ingested substance with the body. This study was therefore carried out to ascertain the effect of consumption (Ingestion) of Cannabis sativa on the gastrointestinal tract, using mucus concentration, acid secretion and ulceration indices. Three groups of 5 rats each were used. The first group was Control fed on rat chow only. The second group (LD) was fed on low dose of Cannabis sativa 0.5mg/100g body weight while the third group (HD) was fed on high dose of Cannabis sativa 0.8mg/100g body weight. The rats were fed for 28 days and were allowed free access to food and water. At the end of 28 days, the results showed that there was significant increase ($p < 0.001$) in acid secretion in LD and HD respectively when compared with control and between the test groups, the acid secretion in the HD was significantly ($p < 0.001$) higher than in LD. The mean mucus concentration on Control, LD and HD groups were 0.334 ± 0.008 , 0.094 ± 0.005 and 0.048 ± 0.004 mg/g tissue respectively. The mucus concentration in LD and HD were each significantly lower ($p < 0.01$) than Control. The mucus concentration in HD was significantly lower ($p < 0.001$) than in LD group when the two test groups were compared. The ulcer scores for Control, LD and HD groups were 7.6 ± 0.23 , 9.7 ± 0.33 and 13.4 ± 0.48 respectively. The ulcer scores were each higher in LD ($p < 0.05$) and in HD ($p < 0.001$) respectively when compared with Control. Between the test groups, the ulceration in HD group was significantly higher ($p < 0.001$) than LD group. In conclusion, ingestion of Cannabis sativa causes decrease in adherent gastric mucus, increase in acid secretion and increased gastric ulceration with high dose being more detrimental than Low dose. The liberal use of Cannabis sativa should therefore be discouraged.

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**Graded Level of Hibiscus Sabdariffa Fed to Rabbit as
feed additives: Effect on Erythrocyte Membrane
Integrity And Excitability Score**

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A study was conducted for 10 weeks with the aim of investigating the erythrocyte membrane integrity and excitability scores of rabbits fed graded level of *hibiscus sabdariffa* calyx as feed additives. Twenty weaners' rabbits were used for the study and were placed on four experimental diets which contain the following percentages of hibiscus sabdariffa L. (zobo) 0 %, 25%, 50%, 75% designated as T₁, T₂ T₃ and T₄ experimental

diets. Excitability scores were measured weekly during weighing as described by Voisnet et al. (1997). At the end of the experiment, the rabbit were sacrificed by severing the jugular vein. A Blood sample (2ml) was collected from each rabbit into sample bottles, containing Na EDTA as anticoagulant for hematological analysis. Packed cell volume (PCV) hemoglobin concentration (Hb), Total red blood cell (RBC) count, Total leukocyte count, differential leukocyte and erythrocyte osmotic fragility were determined using standard method. The result of excitability score demonstrated that rabbit on diet 1 and 2 had lower values which were significantly ($P < 0.05$) lower than rabbits on diet 3 and 4 with value of $65.5 \pm 5.0\%$ and $70.00 \pm 5.50\%$ respectively. The percentage haemolysis recorded at 0.3% to 0.8% was significantly ($P < 0.05$) higher in rabbits in diet 1 compared to the remaining 3 diets. In conclusion this study demonstrated for the first time that using of hibiscus sabdariffa as feed additives will improves haematological parameters, brain mood and function as well as maintaining erythrocyte membrane integrity.

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**Preliminary Studies of Effects of Vitamin C and Zinc
on Some Liver Enzymes in Alloxan-induced Diabetic
Wistar Rats**

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Oxidative stress has been implicated in the pathogenesis of diabetes mellitus through increased generation of reactive oxygen species and consequent decline in antioxidant defenses (Jang *et al.*, 2000). Diabetes is known to alter the levels of liver enzymes due to production of free radicals (Vijan and Hayward, 2004). The free radicals may cause hepatic injury. The current study was aimed at evaluating the effects of vitamin C and Zinc on the levels of some liver enzymes in alloxan-induced diabetic Wistar rats. Diabetes was induced in animals by intraperitoneal injection of Alloxan (150mgkg^{-1}). Diabetic rats were randomly divided into four groups ($n=5$): Group I (Normal control) received distilled water, Group II (Diabetic control) received distilled water, while Group III and IV were orally administered 100 and 50mgkg^{-1} b w of vitamin C and Zinc respectively for seven days. Blood samples collected from the animals were assayed for liver enzymes viz: serum Aspartate aminotransaminase (AST), Alanine aminotransaminase (ALT) and Alkaline phosphatase (ALP). The result showed that the activities of liver enzymes such as AST, ALT and ALP were significantly increased in the diabetic control. Oral treatment with 100mgkg^{-1} of vitamin C and 50mgkg^{-1} of zinc significantly decreased ($p < 0.05$) the concentration of serum of AST and ALT, while no significant change ($p > 0.05$) was observed

on the serum level of ALP. The results obtained from this study may suggest that vitamin C and zinc may play an important role in the prevention of hepatocellular injury that occurs in diabetes.

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EFFECT OF THYROXINE TREATMENT AND THYROIDECTOMY ON GASTRIC ULCER HEALING IN RATS

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Thyroid hormones are important for the normal functions of the gut and have been reported to protect gastric mucosa against ulcer formation; however there is no information about the effects of these hormones on gastric ulcer healing. Therefore this study aims to investigate the effects of thyroid hormones on healing of gastric ulcer. Male albino rats (160-200g) were divided into four groups viz: Control, thyroidectomised, thyroidectomised with thyroxine treatment (100ug/kg/day) and sham operated animals treated with thyroxine. Thyroidectomy was performed by surgically removing the thyroid glands. After 35 days of treatment, ulcer was induced in the stomach by serosal application of acetic acid. The following indices of ulcer healing were determined in 5 animals per group on each of days 3, 7 and 10 post-induction: ulcer area by planimetry, tissue regeneration by histology and lipid peroxidation by spectrophotometry. The rate of ulcer healing was significantly higher in thyroxine-treated ($0.8 \pm 0.0\text{mm}^2/\text{day}$) and low thyroidectomised ($0.3 \pm 0.0\text{mm}^2/\text{day}$) rats when compared with control ($0.5 \pm 0.0\text{mm}^2/\text{day}$) ($p < 0.05$) by day. Thyroxine treatment increased the rate of clearing of inflammatory cells, increase fibroblast proliferation, collagen deposition and epithelial cell proliferation while thyroidectomy delay this processes. Thyroxine significantly reduced lipid peroxidation from day 3 to day 10 ($p < 0.001$), while there was no significant difference in thyroidectomised animals ($p > 0.05$). We concluded that thyroid hormones accelerate gastric ulcer healing by anti-inflammation actions, promotion of fibroblast and epithelial cell proliferation and by inhibiting lipid peroxidation while hypothyroidism delayed these processes.

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PREVALENCE OF RESPIRATORY SYMPTOMS AMONG WORKERS CHRONICALLY EXPOSED TO WHEAT DUST IN CALABAR, NIGERIA

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Previous investigators have reported a higher prevalence of respiratory symptoms among wheat flourmill than their control subjects in Nigeria and attributed the high incidence to flour dust (Ijadunola, et al, 2004). Whether the high incidence could also be due to poisonous gases emitted from the flourmill environment or the involvement of allergy has not been ascertained. Therefore the prevalence of respiratory and non-respiratory symptoms, poisonous gases that damage respiratory system and impair respiratory function viz, hydrogen sulphide (H_2S), Nitrogen dioxide (NO_2), hydrogen cyanide (HCN) and ammonia (NH_3) emitted from flourmill environment as well as allergic response were studied. Data were collected from case-notes of 142 (113 males, 29 females) workers chronically exposed to flour dust between a period 3 months to 24 years and their controls (civil servants) who were not exposed to any known air-pollutant from case note from their civil service clinics. Environmental dust, poisonous gases (H_2S , NO_2 , HCN and NH_3) as well as indicators of allergy, namely eosinophil and globulin levels were monitored. The results showed that the mean respirable dust level in the wheat flourmill vicinity was higher than in control sites (11.00 ± 0.06 vs $0.15 \pm 0.05\text{mg}/\text{m}^3$, $P < 0.001$). Mean poisonous gas levels of H_2S , NO_2 , HCN and NH_3 were significantly higher in the flourmill vicinity than in the control sites ($P < 0.05$). eosinophil and globulin levels were significantly higher amongst the flourmill workers than in their control ($P < 0.001$). In conclusion, since the gases measured can also damage the respiratory system and impair lung function (Kocks and Scott, 1990), it is conceivable that these gases may also be responsible for the respiratory symptoms observed and the eosinophilia and hyperglobulinemia observed is suggestive of allergic reaction which may also be responsible for a lot of the observed respiratory symptoms.

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RESPIRATORY FUNCTION IN WHEAT FLOURMILLWORKERS IN CALABAR, NIGERIA

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Although respiratory symptoms amongst workers exposed chronically to wheat flour dust in Nigeria has been reported (Ijadunola et al, 2004), respiratory function in these workers has not been documented. Therefore, respiratory function of flourmill workers in Calabar exposed to wheat flour dust and their control (civil

servants) not exposed to any air pollutant was studied. Their control subjects had similar anthropometric parameters (body weight, age and height) with the flourmill workers. Forced vital capacity (FVC), forced expiratory volume in one seconds (FEV₁), forced expiratory volume in one seconds as a percentage of forced vital capacity (FEV₁%) and peak expiratory flow rate (PEFR) were used to assess lung function. Dust levels in the flour mill vicinity and oxygen (O₂) saturation and pulse rate in 142 flour mill workers and 327 control subjects were measured. The results showed that among the males, mean FVC, FEV₁ and PEFR but not FEV₁% were significantly lower among the flourmill workers than their control (p<0.001) which is suggestive of restrictive lung function impairment. Among the females, FEV₁, FEV₁% and PEFR were significantly lower in the flourmill workers than their control subjects (p<0.05) suggestive of obstructive lung function defect. Although, respiratory function indices, FEV₁, FEV₁% and PEFR of flour mill workers showed a negative correlation with their length of services, only FEV₁ and FVC among males showed a significant correlation with length of services (p<0.05). there was no significant difference between O₂ saturation and pulse rate in the flour mill workers and their control. In conclusion, chronic exposure to flour mill impair lung functions which could become worse with time.

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NEUROBEHAVIOURAL AND NEUROHISTOLOGICAL CHANGES IN WISTAR RATS FOLLOWING INHALATION OF SMOKE FROM DRY BROWN CARICA PAPAYA (PAWPAP) LEAF

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Papaya is a tropical plant that forms a member of the family Caricaceae. Documented reports showed that the pawpaw leaves are used for treatment of inflammatory conditions, smoked for asthma attack relief and as a psychoactive substances (Hernandez et al., 2007; Olley, 2007; Owoyele *et al.*, 2008). Hence, the aim of this research is to investigate a possible presence of psychoactive substance in dry brown Carica Papaya leaf. Twenty-four adult male wistar rats were grouped into four and were named Group 1 (control), group 2 (Low dose), Group 3 (Medium dose) and dry brown pawpaw leaves respectively in a locally made smoking chamber. Twenty-one (21) days after dual daily exposure, evaluations were done a spontaneous locomotor activities and exploratory behaviour using open field maze test and board hole test. Finally, amygdala was harvested in each group of investigate the histological changes. The results showed a significant increase (p<0.05; ANOVA) in mean for both locomotory activities and exploratory behaviour in the treated groups compare to the control group that was given nothing. Grooming "Self-caring" behaviour was also significantly (p<0.05; ANOVA) reduced in treated groups. Histological changes include moderate neural degeneration

and reduced nissl substance distribution in high dose group. In conclusion, increased locomotor activities and exploratory behaviour imply that the anxiety level is low in the treated groups compare to the control group. This research thus confirms that dry brown *C. papaya* leaf may possibly contain psychoactive substance (s) that become active on burning. Smoking pawpaw leaf should be however discouraged because its mechanism of action seems to include neural degeneration.

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EFFECTS OF ACUTE AND CHRONIC ADMINISTRATION OF CAFFEINE ON CANINE HINDLIMB SKELETAL MUSCLE GLYCOGEN CONTENT AND SKELETAL MUSCLE GLYCOGEN PHOSPHORYLASE a ACTIVITY

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In an earlier study, caffeine was reported to cause hyperglycemia and a significant increase in hind limb glucose uptake (Salahdeen and Alada, 2009). The present study examined the acute and chronic effects of caffeine on the hind limb glycogen level and phosphorylase a activity in similar dog experiments. The study was carried out on male fasted anaesthetized dogs divided into three groups with five dogs per group. Group I dogs served as the control and was given i.v injections of normal saline. Dogs in group II received bolus injections of caffeine (6mg/kg i.v) each and dogs in group III were given i.p injections of 6mg/kg for two weeks. Arterial and venous blood samples were obtained for glucose estimations were obtained from the right femoral artery and veins respectively. A biopsy of muscle from the right hind limb at rest was done and glycogen content and phosphorylase a activity were determined by methods of Lo et al, (1970) and Tan and Nuttall (1975) respectively. Following caffeine administration, (A-V) glucose increased from 6.25±2.4 mg/dl to peak value of 39.00±6.9 mg/dl for acute condition and peak value of 13.00±4.7mg/dl for chronic condition. There was no significant change in the muscle glycogen levels during acute and chronic experiments when compared with control. However, caffeine produced 52.5% and 41.3% inhibition in phosphorylase activity during acute and chronic experiments respectively. The result of the study seems to suggest a glycogen sparing effect of caffeine on the skeletal muscle of the hind limb of dogs.

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FACTORS RESPONSIBLE FOR ANAEMIA IN RABBITS FOLLOWING CHRONIC CONSUMPTION OF PALM OIL DIETS.

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Thermoxidised palm oil diets have been shown to cause anaemia and destruction of body tissues in experimental animals (Mesembe et al, 2004; Osim et al, 1994). This work was done to find out the factors responsible for thermoxidised palm oil-induced anaemia in rabbits as well as attempt to characterize the type of anaemia. 18 male, 5 months old rabbits were used for the study. They were divided into 3 groups of 6 rabbits each: Group 1 control (feed only); Group 2 feed + fresh palm oil (FPO diet group) and group 3 feed + thermoxidised palm oil (TPO diet group). After 6 months feeding period blood samples were taken from each animal for the experiment. The results showed that RBC count ($\times 10^6/\text{mm}^3$) for TPC group (4.45 ± 0.29) was significantly lower ($P < 0.05$) than control (5.45 ± 0.15) while FPO (5.16 ± 0.24) showed no significant difference. Hb values also showed the same pattern of significance. Platelet count for control, FPO and TPO groups was 371.67 ± 13 , 437 ± 14.09 and 283 ± 31.174 ($\times 1000/\text{mm}^3$) respectively. TPO result was significantly less than control ($P < 0.05$) and FPO ($P < 0.05$) and FPO ($P < 0.01$) while FPO was significantly higher than control ($P < 0.05$). Erythropoietin value in TPO group was significantly lower than control ($P < 0.05$) and FPO ($P < 0.01$). RBC fragility also appeared earlier and was more several in TPO. There was no significant change in total WBC, MCV, MCH and MCHC in the 3 groups. These results show that TPO causes anaemia by decreasing serum Erythropoietin levels as well as increasing haemolysis. The anaemia is normocytic, normochromic in nature.

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HEPATOPROTECTIVE EFFECT OF L-TRYPTOPHAN AGAINST CARBONTETRACHLORIDE-INDUCED HEPATIC DAMAGE IN RATS

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Tryptophan and some of its metabolites are known to have antioxidant properties (Watanabe et al., 2002; Elias et al., 2005). Therefore, this present study was carried out to investigate the liver protection effect of tryptophan against chemically induced hepatotoxicity. Twenty one adult male rats weighing $171.5 \pm 7\text{g}$ were divided into three groups (I, II and III) of 7 rats each. The first (group I) and second (group II) groups were kept on normal diet for 4 weeks. The third group (group III) were fed with 10% L-

tryptophan feed every day for 4 weeks. Rats in groups II and III were treated with 4ml/kg CCl_4 at the end of 4th week. We found statistically significant ($p < 0.01$) increase in the plasma aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphase (ALP), C-reactive protein (CRP) and lipid peroxidation marker (MDA) following administration of CCl_4 in group II rats. However, there was a statistically significant ($p < 0.5$) decrease in the plasma AST, ALT, ALP, CRP and MDA following administration of CCl_4 in group III rats compared to group II. These results suggest that L-Tryptophan has hepatoprotective effect which is based on the suppression of lipid peroxidation.

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The role of alpha and beta adrenergic receptors in cortisol-induced hyperglycaemia in the common African toad (*bufo regularis*)

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The effect of cortisol on blood glucose in frogs is well established. However, the role of adrenergic receptors in cortisol-induced hyperglycaemia is not known. The present study investigated the role of adrenergic receptors in the mechanism by which cortisol increased blood glucose in toad (*Bufo-regularis*). Two hundred and forty (240) adult toads of both sexes weighing between 70-120g were randomly selected into 5 groups, fasted and anesthetized. Groups I (control) and II received 0.7% amphibian saline and cortisol (20 $\mu\text{g/kg}$), while toads in groups III, IV, and V were pre-treated with either prazosin 0.2mg/kg, or propranolol 0.5 mg/kg or combination of prazosin 0.2mg/kg and propranolol 0.5mg/kg intravenously followed by cortisol (20 $\mu\text{g/kg}$) i.v injection respectively. Cortisol increased blood glucose from 44.4 ± 3.8 mg/dl to 71.7 ± 9.7 mg/dl. Propranolol (0.5mg/kg) caused significant reduction ($p \leq 0.01$) in cortisol induced hyperglycaemia while prazosin (0.2 mg/kg) produced no significant effect. The combination of both prazosin and propranolol completely abolished the effects of cortisol on blood glucose. The results suggest that cortisol-induced hyperglycaemia in the toad (*Bufo-regularis*) is mediated probably through β - adrenergic receptors only

PREVALENCE AND CHARACTERISTICS OF LOW BIRTH WEIGHT IN USMANU DANFODIYO UNIVERSITY TEACHING HOSPITAL SOKOTO FOR THE YEAR 2009.

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The world health organization defines low birth weight as a weight at birth less than 2.5kg. Low birth weight is a major cause of morbidity and its prevalence is higher in developing world. This study is a retrospective analysis of 2775 babies born at labour room of Department of Obstetrics and Gynaecology, Usmanu Danfodiyo University Teaching Hospital Sokoto, from January to December 2009. The objectives of this study was to establish the prevalence and characteristics of low birth weight babies in this study setting and to establish the causes and determinants of this condition. The prevalence of low birth weight was found to be 13.3% and was significantly affected by prematurity, abnormal fetal presentation (transverse), multiple birth, female sex, religion (muslim), mode of delivery (caesarean section), maternal complication (antepartum haemorrhage), babies outcome, maternal outcome and poor or non-utilization of antenatal care service, and parity. Prevention of low birth weight is cause specific and it can be achieved by direct and indirect interventions. Direct intervention includes: Control of infections e.g. malaria, early detection and treatment of medical disorder e.g. toxemia and anaemia, increase food intake, iron and folic acid supplement. Indirect intervention include family planning, improved sanitation, measures taken at improving the health and nutrition of young ladies.

ANTIULCEROGENIC AND MUCOGENIC ACTIVITY OF XYLOPIA AETHIOPICA FRUIT EXTRACT IN RAT

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Non-steroidal anti-inflammatory drugs, alcohol, irritants and stress can cause peptic ulcer. In the present investigation, the effect of indomethacin, alcohol and hypothermia induced stress on *Xylopi aethiopica*-fed rats was studied. Peptic ulcers were induced by oral administration of indomethacin (50mg/kg) or alcohol (10ml/kg) or 2-hour exposure to cold (15-20°C). The animals were anaesthetized, their abdomens opened and stomachs removed for macroscopic assessment of ulcers, and mucus secretion. The fruit extract of *Xylopi aethiopica* reduced the induced gastric ulcers caused by indomethacin and increased mucus secretion dose dependently when compared with control. Likewise, the mean gastric ulcer indexes were significantly reduced and mucus secretion increased in the ethanol induced model when compared with control. In the hypothermic stress induced gastric ulcers, the values of the mean ulcers were also reduced significantly, but mucus secretion was only significantly higher in the high dose extract-treated group than in control. These results show that consumption of the fruit of *xylopi aethiopica* could reduce incidence of peptic ulcer. The increased secretion of mucus in the test animals suggests that prostaglandins might have been produced since they are known to stimulate mucus secretion. It is concluded that the fruit extract of *Xylopi aethiopica* stimulates mucus secretion and reduced peptic ulceration in the rat.

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Effects of cotton dust on some pulmonary function parameters in textile workers in Kano state, Nigeria

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A group of 375 male cotton textile workers (CTW) and 100 non-textile workers (control) were studied for prevalence of respiratory symptoms and lung function parameters changes. Respiratory symptoms were elicited by standardized respiratory questionnaire and lung function testing and measurement of some pulmonary parameters were performed by recording maximum expiratory flow curve and peak expiratory flow rate. The prevalence of respiratory system was higher in the CTW (34.7%) than in control workers. CTW had decreased lung function parameters than non-textile workers (P<0.05) ventilator function impairment which was highly prevalent among CTW was influenced by nature of work and was related to the degree of exposure. FVC, FEV and PEFR were significantly reduced among workers in spinning, hanks, weaving, knitting and sulzer departments (P<0.05). There was a decrease in lung function parameters with increasing years of exposure to cotton dust. Workers that are exposed for > 10 years had a decrease (p<0.05) FVC and FEV₁. In conclusion, textile workers had ventilator functions impairment which depends on the degree and duration of exposure to cotton dust.

A study on the effect of aqueous methanolic stem bark extracts of *acacia polyacantha* on mounting frequency and semen characteristics in male wistar rats.

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Acacia polyacantha is widespread all over Africa. This study was designed to evaluate the effect of the graded doses of aqueous methanolic stem bark of A. polyacantha (150, 300, and 600mg/kg p.o) administered to male Wistar rats daily for 14 days on mounting frequency (mount/3hrs); sperm count (million/cell); sperm motility (%) and sperm morphology (%) using standard protocols. The preliminary phytochemical screening of aqueous methanolic stem bark extract revealed the presence of alkaloids, anthraquinone, cardiac glycosides, triterpenes, saponins, tannins, carbohydrates, flavonoids and glycosides. The oral median lethal dose (LD₅₀) in rats was found to be 3807.9mg/kg body weight. The mounting frequency, sperm count, and sperm motility were found not to be significantly different when compared with the control and standard drug, Viagra (5mg/kg). A significant increase (p<0.05) was however

seen in sperm morphology for the three extract treated groups 150, 300 and 600mg/kg (66.0 ± 2.31 , 62.6 ± 4.46 and $59.20 \pm 3.59\%$, respectively) when compared with the group treated 5mg/kg Viagra ($41.60 \pm 3.93\%$). In conclusion, stem bark extract of *A. polyacantha* shows the potent to increase normal sperm morphology in male wistar rats.

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LONG-TERM RESPONSE OF MALE AND FEMALE SPRAGUE-DAWLEY RATS (*Rattus norvegicus*) TO DIETARY GOLDEN SYRUP AND PURE NATURAL HONEY.

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Excess consumption of fructose can cause metabolic dysfunction, the prevalence of which is increasing in children (Cruz and Goran, 2004). We investigated the effects of two dietary sources of fructose in rats fed from neonatal age. Fifty-nine 7-day old male and female rats were fed natural honey (NH) or golden syrup (GS) for 13 weeks. Thereafter, they were subjected to an oral glucose tolerance test and fasting glucose (Gluc) and triglycerides (TGs) were measured. The rats' visceral fat mass, liver mass and liver lipid content were quantified. In male rats, the GS increased circulating Gluc and TGs ($P < 0.05$) but did not affect the rats tolerance of an oral glucose load. The GS also significantly increased ($P < 0.001$) visceral fat mass, and caused hepatomegaly and fatty liver in the males. The increase in metabolic substrates and visceral fat mass were neither observed in the NH-fed nor the female rats. Unlike GS, feeding rats NH from an early age did not cause diet-induced metabolic dysfunction. NH is a healthy source of sugars. Female rats were less susceptible to developing diet-induced metabolic dysfunction. Consequently extrapolation of results from studies involving male rats to females should be done with caution due to potential gender differences in response to dietary manipulations.

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Motor coordination deficits induced by sub-acute diclorvos exposure in wistar rats

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Dichlorvos (O-O dimethyl-O-2, 2-dichlorovinyl phosphate) is an organophosphate insecticide used in Nigeria to control mosquitoes and other pests (Natala and Ochoje, 2009). The aim of the present study is to investigate the toxic effect of dichlorvos on motor coordination in wistar rats. The effect of dichlorvos on coordinated gait was determined using beam walk performance before treatment (Ambali and Ayo, 2011), and on days 1, 3, 5 and 7 of administration of dichlorvos or soya oil to the rats. Five rats were administered orally with dichlorvos at the dose of 2.5mg/kg while another group of five rats was given dichlorvos at the dose of 5.0mg/kg *per os*. The control group (n=5) was given soya oil only. The exposure lasted 7 days. Rats treated with 5.0mg/kg had the highest points of slips (5.76 ± 1.26 cm) on each day of recording; this pattern was closely followed by rats treated with 2.5mg/kg dichlorvos (4.04 ± 0.83 cm) and significantly different when compared with the control. The dynamics of beam walk length showed that rats exposed to soya oil had a consistent decrease in the width at which they slipped off the beam throughout the study period, indicating an increase beam walk length. The dichlorvos-treated groups maintained a consistent increase in the width at which they slipped off the beam. In conclusion, acute exposure of Wistar rats to dichlorvos elicited short-term motor coordination deficits.

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LEUKOCYTE INDICES OF MENOPAUSAL WOMEN IN ZARIA, NORTHERN NIGERIA

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Menopause is associated with several physiological changes associated with increasing morbidity. Leukocyte indices are increasingly being utilized as a predictive index for coronary heart disease, insulin resistance, cardiovascular disease risk and all-cause mortality. Leucocyte indices of menopausal women in Zaria was studied. The study was on 165 women comprising of 88 menopausal women (>1 year ammenorrhoeic) and 77 premenopausal women. They were selected based on some inclusion and exclusion criteria. Blood (2mls) was collected via venopuncture and analysed using a haematology auto-analyser (Diatron, Junior Abacus). Menopause was associated with a significantly lower ($p < 0.05$) mean white blood cell count ($4.56 \pm 1.74 \times 10^3/\mu\text{l}$) and mean neutrophil differential count ($56.13 \pm 7.63\%$) than in the menopausal women ($5.25 \pm 1.32 \times 10^3/\mu\text{l}$ and $64.91 \pm 5.58\%$ respectively). There was a significant increase in the mean differential lymphocyte count of the menopausal women ($34.98 \pm 7.90\%$) as compare to the

menopausal women ($26.56 \pm 5.09\%$). We recommend large scale studies to determine reference ranges for Nigerian menopausal women and assessment of bone mineral density in that population considering the higher lymphocyte counts associated with postmenopausal osteoporosis.

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MALARIA- PARASITAEMIA: A POSSIBLE CAUSE OF POST-TRANSFUSION PYREXIA.

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Blood safety is a major issue of global concern in transfusion medicine especially in developing countries where blood transfusion services are inadequate. The transmission of malaria through blood transfusion was one of the first recorded incidents of transfusion-

transmitted infections. Transfusion-transmitted malaria is a potential hazard and most often neglected in many malarious areas. Malaria infection among blood donors in Usmanu Danfodio University Teaching Hospital, Sokoto, Northwest Nigeria was studied between June and August, 2011. The donors were screened for malaria parasites using Giemsa-stained thick blood film. The ABO Blood group phenotypes were classified using a haemagglutination standard test. Of the 840 blood donors analyzed for malaria parasitaemia, 621 (74%) were infected. The results based on the number of donors bled and level of parasitaemia in each month between June and August, 2011 showed no significant ($P > 0.05$) difference. The Pre-donation hemoglobin value of the donors was $14.33 \pm 1.33\text{g/dl}$.

The high prevalence of asymptomatic malaria in this area, suggest the need for careful screening of blood samples for malaria parasites. Nonetheless, no matter what strategy is adopted, it is likely that cases of transfusion-transmitted malaria may still occur, so malaria must always be considered in any patient with post transfusion pyrexia in Sokoto, Nigeria.

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