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ABSTRACTS OF THE
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HORMONAL AND NEURAL RESPONSES TO ACUTE STRESS IN AN ANIMAL MODEL OF PERIMENOPAUSE

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It is known that during perimenopause, women may over react to stressful situations. This study was designed to substantiate if this over reaction is observed in an animal model of perimenopause i.e. rats treated with 4-vinylcyclohexene diepoxide (VCD). Female rats from 28 days old were injected (SC) daily with VCD (160 mg/kg, diluted in corn oil 2.5 µl/g BW; VCD group) or Corn oil (2.5 µl/g BW, Control group) for 15 days. At 85 days of age following assessment of estrous cyclicity, external jugular vein was cannulated in the afternoon of metestrus phase and in next morning (diestrus) at 10.00 h, rats in both groups were subjected to 30 min restraint stress. Blood samples were withdrawn before (-5 min), during (2, 5, 15, 30 mins), and after (45, 60, 90 mins) restraint stress to evaluate the secretion of 3 stress responsive hormones. After the last sampling, animals were perfused and brains processed immunohistochemically for c-FOS expression in the noradrenergic neurons of Locus Coeruleus (LC) to evaluate the central response to stress. Basal secretion of prolactin, corticosterone, and progesterone was similar in both groups. Prolactin concentration was higher ($P < 0.05$) during stress (5 and 15 mins); Corticosterone concentration was higher ($P<0.05$) during recovery (45, 60, and 90 mins) in VCD rats compared to Control rats. The total amount of Progesterone secretion on the other hand, was lower ($P<0.05$) in VCD vs Control rats. The increase in the number of c-FOS/Tyrosine Hydroxylase immunoreactive neurons induced by stress was higher ($P<0.05$) in VCD compared to the Control rats.

IMMUNOHISTOCHEMICAL ANALYSIS OF APOPTOSIS AND MUCOSAL CELL PROLIFERATION IN ULCERATED RAT STOMACH TREATED WITH ARTEMISININ-BASED ANTIMALARIA DRUGS

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Apoptosis and cell proliferation play complementing roles in the maintenance of gastrointestinal mucosal integrity. We previously reported the delayed ulcer healing effect of artemisinin-based antimalarials in the rat stomach, but little is known about the underlying cellular mechanisms. In this study, we evaluated apoptosis (p53 and BCl-2) and cell proliferation (EGFR and Ki-67) in gastric ulcer healing in rats treated with artemisinin-based antimalarials. Methods: Gastric kissing ulcers were induced in forty male albino rats (150-180 g) using 0.2 ml, 50% acetic acid. Twenty-four hours after ulcer induction, rats were divided into four groups and treated once daily as follows: (1) Normal saline, (2) Artesunate-amodiaquine (4 mg/kg-10 mg/kg), (3) Artemether-lumefantrine (A-L, 2 mg/kg-12 mg/kg) and (4) Artesunate (2 mg/kg) only. A fifth group of 10 rats served as overall control with no ulcer induced. Ulcer healing was assessed on days 4 and 7 macroscopically, and paraffin sections stained with H&E, then immunostained for p53, BCl-2, EGFR and Ki-67. % Area of positive immunoreactive cells (Labeling index) was estimated quantitatively by histomorphometry using Image J analysis software. Results: A-L increased ulcer severity on day 7 by 95%, while AS-AQ exhibited 55% and 90% increase and AS, decrease by 26% and 29% on both day 4 and 7 respectively. There was an over-expression and increased labeling index of p53 (pro-apoptotic) in AS-AQ and A-L treated while AS showed a significant increase in BCl-2 (anti-apoptotic) on day 4 and 7 ($p<0.05$). Although a moderate expression was observed on day 4, the BCl-2 labeling index significantly reduced in day 7 ($p<0.05$) for AS-AQ and A-L groups. EGFR and Ki-67 labeling index was reduced significantly in the AS-AQ and A-L but enhanced in AS treated in day 4 and 7. Moreover, histopathological findings correlated with the immunohistochemistry. Conclusion: Artesunate promotes healing of acetic acid induced gastric ulcers. However, combination of artesunate with either Lumenfantrine or Amodiaquine prolongs the healing of ulcer. These effects may be mediated by alteration in proliferative and apoptotic activities of these drug combinations in the stomach.

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INFLUENCE OF ENDOTHELIUM ON THE MEMBRANE- STABILIZING EFFECT OF CALCIUM

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The decrease in membrane permeability to calcium influx caused by the increase in extracellular calcium concentration is referred to as membrane stabilization. Elevation of endothelial Ca2+ induces vasorelaxation via the release of nitric oxide. The role of the endothelium in the membrane-stabilizing effect of Ca2+ has not been previously investigated. The aim of this study was to examine the involvement of the vascular endothelium in the membrane-stabilizing effect of Ca2+Ring segments (2mm) of rabbit aorta placed in physiological salt solution (PSS) were suspended in 20ml organ bath containing PSS for recording of isometric contractions and bubbled with 95% O2 and 5% CO2 at 370C, pH of 7.4. The protocols examined were: Relaxation responses to acetylcholine following phenylephrine (PE) pre-contraction (to establish viability of the endothelium); relaxation responses of endothelium intact and denuded rings to 25mM calcium following PE (EC70) pre-contraction; relaxation responses of endothelium intact rings to 25mM calcium following 20minutes exposure to 10-6M Methylene blue. Relaxation responses are presented as mg tension as well as percentages. Statistical analyses were carried out using Microcal Origin 5.0 Software. Differences between means were assessed using Student's t test and values of $P<0.05$ were considered significant. In all experiments, increase in [Ca2+o from 5.0mM (low HCO3 PSS) to 25mM in rings with intact endothelium resulted in relaxation responses. These relaxation responses were attenuated in endothelium-denuded rings. Also, relaxation response to 25mM Ca2+ was attenuated in endothelium intact tissues treated with Methylene blue (Methylene blue is known to act by inhibiting nitric oxide synthase). In conclusion, the results of this study show that the relaxation response to high Ca^{2+} due to membrane stabilization is endothelium-dependent.

INHIBITION OF THE ACTIVITIES OF PRO-INFLAMMATORY ENZYMES BY LEAF EXTRACTS OF *STRYCHNOS SPINOSA*

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This study was undertaken with the objectives of establishing the inhibitory effect of extracts and fractions of Strychnos spinosa leaves on two mediators of inflammation nitric oxide (NO) and cyclooxygenases 1 and 2 (COX-1 and COX-2), and evaluating the toxicity of crude extracts and fractions of the plant. The extracts had significant (p < 0.05) anti-inflammatory activity in both the assay techniques. In the nitric oxide assay, with the exception of the ethyl acetate fraction which had an IC50 value of above 2250 µg/mL, all the extracts and fractions had significant nitric oxide-scavenging activity. The most active being the water fraction, chloroform fraction and the dichloromethane/methanol extract with IC50 values of 352.35 ± 0.59, 665.88 ± 0.80 and 1691.38 ± 1.79 µg/mL, respectively. The n-butanol, water and hexane fractions selectively inhibited COX- 1, with IC50 values of 14.66 ± 0.01, 15.25 ± 0.20 and 14.93 ± 0.01 pg/mL, respectively; while dichloromethane/methanol extract and methanol extract selectively inhibited COX-2, with IC50 values of 15.51 ± 0.05 and 14.47 ± 0.12 pg/mL, respectively. The alkaloid extract inhibited both COX- 1 and COX- 2 with IC50 values of 15.42±0.01 and 14.81±0.11 pg/mL respectively. All the extracts and fractions had low toxicity on macrophage U937 cell lines. Results of this investigation provided information on the potentials of extracts and fractions of Strychnos spinosa leaves as promising sources of natural anti-inflammatory agents. The results obtained showed that there was lower cellular toxicity by the extracts and fractions of Strychnos spinosa leaves. In conclusion, the results support the use of Strychnos spinosa leaves in traditional medicine for treatment of inflammation-related conditions

AQUEOUS ROOT EXTRACT OF RAUWOLFIA VOMITORIA HAS HIGH POTENTIALS IN PREVENTING NEURODEGENERATION IN A MOUSE MODEL OF ALZHEIMER'SDISEASE

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Alzheimer's disease (AD), a neurodegenerative disease which presents as dementia, is the seventh leading cause of all deaths in the United States of America and the fifth leading cause of death in Americans aged 65 and older. Based on earlier reports, it was anticipated that extracts from Rauwolfia vomitoria (RV) would help to delay the progress of Alzheimer's disease (AD) or treat the symptoms associated with the disease in mice models of this disease. Five times transgenic (5XFAD) mouse

models of AD and wild type control mice were each grouped into 3 (n=8 per group). These mice received 0.0 mg/kg RV (control), 4.0 mg/kg and 8 mg/kg RV, i.p. respectively for 5 days before testing for behavioural changes. The results in the acceleratory rotarod showed clearly improved performance in the 5xFAD mice treated with 8 mg/kg RV when compared to their untreated counterparts and those treated with 4 mg/kg RV. There was no difference among the wild type groups of mice. The comparison between the 5xFAD groups and wild type showed that the 8 mg/kg treated 5xFAD group did not differ from the wild type groups. In the Morris water maze, the swim latencies during acquisition training did not differ among the groups. However, during the reversal training day 3, the mean swim latency was shorter for the 8mg/kg RV treated 5xFAD group of mice, showing improved learning in that group. During the retention trial, the retention quadrant duration was higher in the 8mg/kg RV treated 5xFAD group of mice, as these mice spent more time in the retention quadrant which housed the escape platform. These results indicate that treatment with 8mg/kg root extract of RV decreased motor disorders associated with AD by improving manoeuvrability on the rotarod. The extract also decreased memory impairment associated with AD. With further research on the possible mechanisms, R. vomitoria may just provide a lead to delaying neurodegeneration in AD.

DECREASED EXPRESSION OF KATP CHANNEL IN DIABETIC AORTA MAY CONTRIBUTE TO ATTENUATED VASCULAR RESPONSIVENESS TO K-ATP ION CHANNEL OPENERS IN DIABETES MELLITUS

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Diabetes mellitus (DM) is a chronic metabolic disorder that is associated with cardiovascular dysfunction and impairment of potassium channel function. The current study examined the responsiveness of blood vessels from diabetic rats to K+ channel openers and explored whether KATP channel expression is altered in diabetic condition. Contractile responses were measured in aortic rings obtained from four weeks streptozotocin (65 mg/kg)-induced diabetic rats. Relaxation to levcromakalim (ATP-sensitive potassium channel KATP opener, (10–9–10–5 mol/l) and acetylcholine (10–9–10–5 mol/l) were recorded in phenylephrine-induced (1 µmol/l) pre-contracted aortic rings. Organ chamber-based isometric tension studies revealed that aortas from diabetic rats had impaired relaxation responses to levcromakalim and acetylcholine with a rightward shift in the dose–response curve. Immunoblotting revealed a marked decrease in the expression of Kir 6.1channel protein. Our studies suggest that attenuated relaxation to KATP opener may in part be contributed by decreased KATP channel expression in the diabetic vessel.

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SALIVARY GLAND MORPHOLOGY AND FUNCTION IN PROTEIN MALNOURISHED RATS

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This study was undertaken to determine changes induced by protein malnutrition (kwashiorkor) in the morphology and secretory functions of salivary glands using rats. Five weeks old 18 white male Wister rats were divided into two groups randomly (kwashiorkor and normal diet groups) and fed with normal diet and low protein diet respectively for a period of 6 weeks. Stimulated saliva samples were collected and salivary glands (parotid and submandibular) were surgically removed. Biochemical and morphometric analysis of saliva and the glands were conducted and compared. Salivary lag time, flow rate, pH, total protein and concentrations of electrolytes (Na+, K+, Ca++, Cl-, HCO2-3, PO4) were evaluated and also compared. Body weights decreased significantly in the kwashiorkor group. Weights of submandibular and parotid glands (right and left) were significantly lower in the kwashiorkor group compared to the normal diet group. The mean salivary lag time was significantly increased while the salivary flow rate was significantly reduced in the kwashiorkor group compared to normal diet group. Salivary electrolytes and total protein showed that concentration of sodium was significantly reduced while potassium and bicarbonate concentrations increased significantly in kwashiorkor group compared to the normal diet group. However, mean salivary pH levels and concentrations of calcium, chloride, and total protein did not show significant change in the kwashiorkor rats. Histological analysis of the H–E and alcian blue stained salivary glands in the kwashiorkor group exhibited moderate to severe acinar cell atrophy, increased periductal fibrosis and reduced mucin content. Findings from this study suggest that deficiency of protein caused reduction in salivary glands weights, flow rates, concentrations of sodium as well as increased salivary lag time, concentrations of salivary potassium and phosphate in rats.

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THE BLOOD PRESSURE LOWERING EFFECT OF THE AQUEOUS CALYX EXTRACT OF HIBISCUS SABDARIFFA MAY BE ACHIEVED VIA SYMPATHETIC NERVOUS SYSTEM DEPENDENT MECHANISMS

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The aqueous calyx extract of Hibiscus sabdariffa (HS) has been reported to lower blood pressure (BP) in animals1 and man2, however its hypotensive mechanisms are yet to be delineated. This study was designed to examine if the hypotensive effect of HS occurs through sympathetic nervous system dependent mechanisms. Following ethical approval and informed consent, the Harvard step test (HST) was performed in healthy subjects (n=14) to activate the sympathetic nervous system (SNS) before and after the oral administration of HS tablets at a dose of (15mg/Kg). The BP and pulse rate (PR) responses were measured. Mean arterial pressure (MAP; taken as representative BP) was calculated. Results are expressed as mean ±SEM. Paired t test was used for statistical analyses and $P<0.05$ was considered significant. HST without HS resulted in a significant rise in MAP and PR (112.6 ± 2.7mmHg and 97.7 ± 2.5/min) from the basal values (98.5±2.3mmHg and 76.6±2.0/min; $P<0.05$ respectively). In the presence of HS, HST-induced changes (ΔMAP=14.2±2.6 ΔPR= 11.4±3.5) were significantly dampened compared to its absence (ΔMAP= 24.1±2.5 ΔPR= 20.1±3.1; $P<0.05$ respectively). The HST -induced increases in BP and PR suggest SNS activation. These increases were significantly attenuated in the presence of HS suggesting that its hypotensive effect may occur through the inhibition of the SNS.

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EFFECT OF HYPOTHYROIDISM AND EXOGENOUS THYROXINE ON GASTROINTESTINAL ORGANS AND INTESTINAL TRANSFER CAPACITY IN RAT

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This study was conducted to evaluate the effect of hypothyroidism achieved by thyroidectomy and thyroxine (T4) on some gastro intestinal organs. Twenty rats were thyroidectomised (TX) then ten were given 10ug/100g/d/ bw of T4 for five weeks to become euthyroid. Another twenty rats were sham operated then ten were given 10ug/100g/d/ bw of T4 for five weeks to become hyperthyroid. 10mg/kg b/w Ketamine was administered intraperitoneally as anesthesia for the surgeries. Upon scarifying the animals, liver, stomach and small intestine were harvested, weighted and macroscopic dimensions measured. Everted sacs were made from the small intestine for glucose transfer capacity studies and slides for histomorphometry. There was no significant difference in the weights of the liver and stomach. However, there was significant ($P<0.05$) increase in length, diameter and reduced wall thickness in the hyperthyroid small intestine while that of hypothyroid had shorter length, decreased diameter and increased wall thickness. Villi length and crypt depth was higher in hyperthyroid ($P<0.01$) and smallest in the hypothyroid ($P<0.05$). Glucose transfer was lesser in the hypothyroid but greater in the hyperthyroid intestine. These findings show that hypothyroidism modifies the physical and structural properties of the small intestine in other to reduce its glucose transfer capacity while thyroxine increases it.

SEROPREVALENCE OF HEPATITIS B AND HEPATITIS C AMONG ANTENATAL PATIENTS IN WARRI, DELTA STATE, NIGERIA

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Viral hepatitis especially hepatitis B virus (HBV) and hepatitis C virus (HCV) infections are endemic in many regions of the world including Africa, Asia and Western Pacific. This study was carried out to determine the seroprevalence of HBV and HCV positivity among antenatal patients (pregnant women) attending antenatal clinic at Lily hospital (Private), Warri, Delta State, Nigeria. This study was a retrospective study based on review of records of pregnant women admitted to antenatal clinic of Lily hospital, Warri from June 2006 to June 2010. A total of 803 pregnant women with no previous history of liver disease, diabetes and pre-eclamptic toxaemia were included in this study. Patients were screened for HBV and HCV by immune chromatographic techniques device. Those found positive on screening test were confirmed by ELISA. ABO and rhesus blood, and haemoglobin genotype were also determined. The seroprevalence of each viral infection (HBV and HCV) was determined from the proportion of seropositive individuals in the total population under consideration and expressed as percentage. Chi-square test was also employed and $p<0.05$ was considered statistically significant. The prevalence of HBV and HCV was 2.6% and 0.1% respectively. No co-infection between HBV and HCV was seen and the study also showed no association between ABO, rhesus blood group and haemoglobin genotype with HBV and HCV infectivity. HBV infection among pregnant women in Warri was of intermediate endemicity and hence there is an urgent need to institute public health policies and measures to reduce the transmission of HBV infection both vertical and horizontal transmission.

EFFECT OF CAFFEINE ADMINISTRATION ON LIPID PROFILE IN RABBITS

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High levels of plasma Total cholesterol (TC) and some other blood lipids have been correlated with increased risk of cardiovascular dysfunction. Caffeine the most commonly consumed stimulant in the world is thought to alter substrate metabolism. However the effect of caffeine on plasma lipid profile is uncertain. Thus, this study was carried out to investigate the effect of caffeine administration on plasma lipid profile in the rabbit. The study was carried out on adult male New Zealand rabbits divided into 3 groups (n=5). Group I rabbits served as control and were given 0.5ml/Kg of normal saline while group II and III rabbits were administered with 2mg/Kg and 6mg/kg of caffeine respectively for 28 days. Blood samples were collected by retro orbital puncture. Lipid profile was determined using colorimetric techniques as described by Theon et al (1973).
The results indicated that 2mg/Kg and 6mg/Kg of caffeine administration altered lipid profile in the rabbit with increases in plasma TC (56.3±6mg/dl to 120.2±29.8 mg/dl and 177±24.9 mg/dl), triglyceride (103.4±7 mg/dl to 142.8±21.1 mg/dl and 144.5±11.5 mg/dl), very low density lipoprotein (20.7±1.5 mg/dl to 25±2 mg/dl and 28.9±2.3 mg/dl) and decrease in High density lipoprotein (HDL) (19.3±1.7 mg/dl to 16.9±1 mg/dl and 12.1±0.5 mg/dl) in the rabbit when compared with control (p<;0.05). However there was no significant difference in TC to HDL ratio at 2mg/Kg of caffeine administration but TC to HDL ratio was significantly increased (3±0.4 to 9.6±2) after 28 days of 6mg/kg of caffeine administration (p<0.05). This study suggests that though caffeine is capable of altering lipid profile in the rabbit it portends an increase in TC to HDL ratio.

CURCUMIN, A POLYPHENOLIC EXTRACT OF TURMERIC, ALTERS OXIDATIVE STRESS AND ACROSOMAL REACTION IN RAT SPERMATOZOA

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Curcumin, an over-the-counter supplement sold worldwide, has been shown to exhibit therapeutic potential against some chronic illnesses such as Parkinson's disease, cancer, diabetes, testicular damage etc. in which inflammation and free radicals are known to play crucial roles. However, the effect of curcumin on normal reproductive tissues has not been sufficiently studied. Therefore, the effect of curcumin on oxidative balance and acrosomal reaction in rat spermatozoa was studied. 20 adult male rats were randomly divided into four groups. The control group received distilled water, while other groups received 50mg/kg, 100mg/kg and 150mg/kg of curcumin i.p. The animals were all treated with curcumin (Cur) once daily for fourteen days after which they were sacrificed by cervical dislocation and sperm was collected from the epididymis. Lipid peroxidation, antioxidant enzymes and sperm acrosomal reaction were determined. Calcium ion concentration was also determined in the semen using colometric method. All the concentration of Cur (50mg/kg, 100mg/kg and 150mg/kg) significantly increased (P<0.05) antioxidant activities of CAT and SOD when compared with the control group. The percentage value for acrosomal-reacted sperm was also significantly increased (P<0.05) in 100mg/kg and 150mg/kg Cur-treated rats when compared with the control. Simultaneously, lipid peroxidation was significantly increased in all Cur-treated rats. This study showed that curcumin increases lipid peroxidation and antioxidant enzymes. The activities of the antioxidants might have been more than the peroxidation thus the observed enhancement of acrosomal reaction.

ARTEMISININ-BASED ANTIMALARIA DRUGS ALTER MICROVASCULAR AND MUCOUS CELL DENSITIES DURING HEALING OF ACETIC ACID INDUCED GASTRIC ULCERS IN RATS

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Artemisinin based anti-malaria drugs have recently been reported to delay gastrointestinal ulcer healing via a number of suggested mechanisms. The degree of angiogenesis within granulation tissue of the ulcer bed correlates strongly with the rate of ulcer healing in rats which may be inhibited by the antimalaria drugs. This study, therefore, assessed microvascular density (MVD) and mucous cell density (MCD) in gastric ulcer healing in rats treated with artemisinin based antimalaria drugs. Methods: Gastric kissing ulcers were induced in forty male albino rats (150-180 g) using 0.2 ml, 50% acetic acid. One day after the ulcer induction, experimental rats were divided into four groups and treated once daily as follows: (1) Normal saline, (2) Artesunate-amodiaquine (4 mg/kg-10 mg/kg), (3) Artemether-lumefantrine (A-L, 2 mg/kg-12 mg/kg) and (4) Artesunate (2 mg/kg) only. A fifth group of 10 rats served as overall control with no ulcer induced. Ulcer healing was assessed on days 4 and 7 macroscopically. Paraffin sections were stained with periodic acid-Schiff technique for mucous cell count, while CD31 and Factor VIII were evaluated immunohistochemically for microvascularity. Purple-red stained cells and brown immuno-stained area was estimated quantitatively by histomorphometry using Image J analysis software for MCD and MVD respectively. A-L showed increased ulcer severity on day 7 by 95%, while AS-AQ exhibited 55% and 90% increase and AS, decrease by 26% and 29% on both day 4 and 7 respectively. The MCD in the ulcer control was reduced by 50% and 36% on both day 4 and 7 respectively when compared with the overall control. AS-AQ and A-L

further reduced the MCD on day 4 (5.0±1.6 cells/µm2, 5.5±1.1 cells/µm2 versus 9.8±1.0 cells/µm2 ulcer control) and day 7 (7.5±1.0 cells/µm2, 8.0±1.5 cells/µm2 versus 12.9±1.2 cells/µm2 ulcer control). Moreover, MVD for CD31 and Factor VIII was reduced in the AS-AQ and A-L treated group on day 7 ($p<0.05$), though no significant difference was observed on day 4. AS enhanced MCD significantly both on day 4 and 7 by 20% and 36%, however, no significant difference was observed in MVD. Conclusion: This study underscored the gastric ulcer healing promoting effects of Artesunate, while its combination with either Lumefantrine or Amodiaquine delays the healing via impaired angiogenesis.

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EFFECT OF ORAL MAGNESIUM ON SOME MARKERS OF INFLAMMATION IN ALLOXAN-INDUCED DIABETIC RATS

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The effect of oral magnesium (Mg) administration on some haematological (WBC, haemoglobin, ESR, platelet count) and metabolic (fibrinogen, albumin, globulin, total protein) markers of inflammation was investigated in alloxan-induced diabetic rats. Male rats (200±15g) were randomly divided into 5 groups of 5 animals each as follows: Group 1 served as normal control and received 0.2ml distilled water. Groups 2,3,4 and 5 animals were made diabetic with alloxan monohydrate (120mg/kg i.p) and treated with 0.2ml distilled water (DU), Mg 100mg/kg (MGD100), Mg 250mg/kg (MGD250), and Insulin (1IU/kg) (DI) respectively for 14days. Blood samples were collected from the retro-orbital sinus and analysed for haematological and metabolic markers of inflammation. Significant increase ($P<0.05$) in total WBC count was observed in diabetic control rats (7.67±0.397x103/L) when compared to normal control (5.88±0.25 x103/L), MGD100 (5.86±0.74 x103/L) and MGD250 (5.06±0.78 x103/L). Platelet count and haemoglobin concentration was significantly decreased ($P<0.05$) while erythrocyte sedimentation rate (ESR) was significantly increased in DU rats when compared to normal control, MGD100, MGD250and DI rats. No significant difference was observed in platelet count, haemoglobin and ESR between the diabetic treated rats and normal control rats. Fibrinogen level was significantly increased ($P<0.05$) in the DU rats (0.44±0.02g/dl) compared to normal control (0.26±0.02g/dl), MGD100 (0.30±0.03g/dl), MGD250 (0.22±0.04g/dl) and DI (0.36±0.02g/dl) rats. No significant difference was observed in fibrinogen level between the diabetic treated rats and normal control rats. Total protein, albumin and globulin levels were significantly decreased in DU rats compared to normal control, MGD100, MGD250 and DI rats. No significant difference was observed in total protein, albumin and globulin levels between the diabetic treated rats and normal control rats. In conclusion, alloxan-induced diabetes mellitus caused an increase in haematological inflammatory markers and a decrease in metabolic anti-inflammatory markers. Treatment with oral magnesium exerted significant anti-inflammatory responses in alloxan-induced diabetic rats.

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SPERMATOTOXIC EFFECTS OF GALACTOSE: A POSSIBLE ROLE FOR LACTATE DEHYDROGENASE

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While numerous studies have documented the ovotoxic effects of galactose, few available studies on male gonad are of the opinion that it seems to fully escape the toxic effects galactose exerts on the ovary. The present study sought to re-investigate this claim on male sperm parameters and some reproductive hormones. Eighteen male albino rats (200-250 g) were randomly divided in a blinded fashion into 3 groups (n=6). Group A (control) received normal saline, group B received 3mg/kg of D-galactose and Group C received 22mg/kg of D-galactose through oral gavage for six weeks. The result showed that chronic administration of galactose promotes sperm toxicity by reducing epididymal sperm count, motility and percentage of morphologically normal sperm. Moreover, galactose increased luteinizing hormone but decreased lactate dehydrogenase activity and had no effect on testosterone and follicle stimulating hormones. In conclusion, the present study suggests that the male gonad may not escape the toxic effects of galactose as earlier thought as chronic administration of galactose could promote sperm toxicity. It also suggests that a reduction in lactate dehydrogenase activity could be a mechanism for the spermatotoxic effects of galactose.

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Modulatory Role of Vitamin E On Proton Pump (ATPase) Activity And Reproductive Parameters In Cadmium - Induced Testicular Damage In Wistar Rats

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Proton Pumps (ATPase) are membrane bound enzymes important in generating gradients that help in maintaining cellular ion homeostasis, cell membrane potential, water and solute transport across the cell surface. This current study investigated the modulatory role of Vitamin E on proton pump activity and reproductive parameters in cadmium-induced testicular damage. Twenty (20) male wistar weighing between 180 - 200 g rats were sorted into 4 groups of five rats each. Group I served as the control and was orally given 0.9 % normal saline, Group II rats were treated with a single dose of 2 mg/kg BW cadmium chloride intraperitoneally, Group III rats were given 100 mg/kg BW of Vitamin E orally and Group IV rats were given 100 mg/kg BW of Vitamin E orally for 30 days prior to intraperitoneal administration of 2 mg/kg BW of cadmium chloride. The rats were sacrificed by cervical dislocation 15 days after final cadmium chloride administration. Blood samples were obtained for sex hormonal analysis, cauda epididymis was dissected for sperm count, motility and morphology and the testes was homogenized for the determination of lipid peroxidation and proton pump (Na^+/K^+ ATPase, Ca^{2+} ATPase and Mg^{2+} ATPase) activity. Proton pump activity was assayed spectrophotometrically by Fiske and Subbarow method to determine the inorganic phosphate level. Histopathological changes of testis were also studied. Rat treated with cadmium showed a significant decrease ($p<0.05$) in proton pump activity (1.08±0.31, 1.63±1.20, 2.44±3.86), sperm count (14.00 ± 2.83), motility (18.00 ± 5.83) and a significant increase ($p<0.05$) in malondialdehyde level (467.75 ± 17.19) when compared with the control group (2.35±0.65, 2.79±0.59, 2.70±0.25); (66.60±1.40); (84.00±4.00) and (129.70±25.74) respectively. Cadmium was also seen to decrease testicular weight, serum hormonal levels (LH, FSH and testosterone) and cause necrosis of spermatogonia lining the seminiferous tubules. Rats treated with Vitamin E orally for 30 days prior to cadmium exposure showed improvement in proton pump activity (1.96±1.19, 4.01±1.46, and 3.86±0.39), sperm count (33.20±2.06); motility (58.00±7.35); morphology (80.00±0.00), serum LH level (0.70 ± 0.01) and decrease in lipid peroxidation level (359.82 ± 49.48) as compared with cadmium group (1.08±0.31, 1.63±1.20, 2.44±0.76); (14.00±2.83; 18.00±5.83; 74.00±5.10); (0.14 ± 0.01); (467.75 ± 17.19) respectively. Therefore, Vitamin E ameliorated the negative effect of cadmium on proton pump activity in the testes, hence improving testicular integrity and functions.
Keywords: proton pump, reproductive parameters, cadmium, vitamin E, wistar rats

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Antifertility Effect Of The Methanolic Extract Of Abelmoschus Esculentus Fruit In Male Wistar Albino Rat

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The isolation of gossypol known to cause infertility in males from okro fruit coupled with the wide range consumption of the fruit and increasing incidences of male fertility prompted the present study. The study is therefore aimed at evaluating the antifertility effect of the methanolic extract of Abelmoschus esculentus (okro) fruit using albino wistar rats as animal model. 50 adult male rats weighing 200g to 300g were weighed and divided into five groups of ten rats in each group according to their body weights. Group1 served as the control and giving water and normal rat chaw while groups 2, 3, 4 and 5 served as the test groups and were orally administered with 250, 500, 750 and 1000mg/kg of okro extract respectively after three weeks of acclimatization. following three weeks of extract administration, five rats from each group were sacrificed and their semen collected from their caudal epididymids for sperm analysis, there testes were weighed and processed for histological studies while blood sample were also collected for serum hormonal assay of testosterone, luteinizing hormone and follicle stimulating hormone. The whole procedure was repeated after six weeks of of oral administration of the extract. Results from the test groups show a significant $p\leq0.05$ reduction in the testicular weight and a significant ($p\geq0.05$) increase in the body weight of the rats when compared with the control group. There was also a significant ($p\leq0.05$) decrease in sperm count and sperm motility with a

corresponding increase in the percentage number of abnormal sperm cells. A significant ($p \geq 0.05$) increase in the serum level of T, LH and FSH were observed. The histology of the testes showed degenerating testicular tissues. From the result, we therefore conclude that okro may be destructive to the testes and as such could impair male fertility.

Effect Of Coffea Arabica On Streptozotocin-Induced Diabetes Mellitus In Wistar Rats

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The anti-diabetic effect of extracts of Coffea arabica (CA) was investigated in streptozocin induced diabetic rats. Researchers, over the years, have indicated coffee or some of its constituents as having hypoglycemic effect by different mechanisms. Twenty five albino rats (100-180g) divided into 5 groups of 5 rats each were used for the study. Group A served as Control, while groups B, C, D and E were the experimental rats induced with diabetes by a single dose of streptozotocin (55mg/kg) intravenously. Group B served as diabetic control; C and D received oral 200mg/kg and 400mg/kg CA respectively and E was given 250mg/kg Metformin orally for 21days. Results showed that blood glucose, triglycerides, total cholesterol, LDL and GSK-3 were increased in diabetic group with reduction in insulin and HDL. However, high and low doses of CA reversed these parameters to the level of control and metformin administered group. The results demonstrated that the CA extract exhibited antihyperglycemic and antidyslipidemic effects and this might be partly due to the inhibition of GSK-3.

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Anti-diabetic effect Camellia sinensis (green tea) in streptozotocin -induced diabetic rats: Role for insulin and GSK-3

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While numerous studies have reported the anti-diabetic effect of Camellia sinensis (green tea, CS), its mechanism is not yet fully understood and necessitated this study. Thirty five female albino rats (140-160) were randomly divided into 5 groups (n=7). Group 1 (control) received normal saline. Groups II-V are streptozotocin –induced diabetic rats and received normal saline, 30 mg/kg CS, 120 mg/kg CS and 250 mg/kg metformin respectively for 21 days. Result showed that diabetes increased blood glucose, triglycerides, total cholesterol, low-density lipoprotein, muscle and liver glycogen synthase kinase-3 but reduced high-density lipoprotein and insulin in female diabetic rats. However, high and low dose of CS reversed these parameters in female diabetic rats. This study showed that the anti-hyperglycemic and anti-hyperlipidemic effect of CS is insulin dependent. Moreover, increased glycogen synthase activity due to reduced inhibition by glycogen synthase kinase 3 is also speculated.

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SERUM TESTOSTERONE LEVELS AND TESTICULAR MORPHOLOGY FOLLOWING THE INGESTION OF CASSAVA (MANIHOT UTILISSIMA) COMPONENTS IN MALE WISTAR RATS

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Cassava (manihot utillissima) is one of the world's most important staple crops. It is high in carbohydrate but low in protein and fats content. Testosterone is a steroid hormone synthesized by the Leydig cells in the testes in males, the ovaries in females, and adrenal glands in both sexes. Its secretion is impaired when the consumption of protein and calorie is decreased. The effect of consumption of the different cassava components on the testosterone level and testicular morphology of Wistar rats was studied. The objective was to assess any physiological and histological changes. Male rats (n=28) with weights between 165g-260g were assigned into three experimental groups and one control group of n=7 per group. The rats in the experimental groups were given the normal rat chow with inclusion of 50% cassava components thoroughly mixed with the feeds on a daily basis for 8weeks. The control group received equal amount of normal rat chow daily without the inclusion of any cassava components for the same period. The rats were sacrificed after the 8weeks of the experiment. Blood samples were collected for the estimation of serum testosterone level. The testes were carefully dissected out for histological study. The findings indicated that rats in the experimental groups showed decreased serum testosterone level and this affected the structure of the testes relative to those in the control group. Therefore, inclusion of 50% cassava components in diet may have adverse effect on serum testosterone levels which could negatively affect the physiological functions of the body.
Keywords: manihot utillisima, serum testosterone, testicular morphology .

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Risperidone Reduces Experimental Indomethacin-Induced Gastric Ulcer In Male Albino Rats

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Patients with gastrointestinal tract diseases have also been diagnosed with depression. Depression, accompanied by psychotic and somatic symptoms, is present in most patients with gastro intestinal system ulcers (Guldahl, 1977). The present work evaluates the gastroprotective effect of Risperidone against Indomethacin-induced gastric ulcers model. The rats (n=8) were randomly assigned to control, and treatment groups (Risperidone 0.1, 0.3 and 0.5 mg/kg, p.o., for 21 days). The effect of Risperidone on Indomethacin-induced gastric ulcer, gastric mucus secretion (GMS), gastric mucus cell count (GMCC), basal and histamine-induced gastric acid secretion (GAS) and malonialdehyde (MDA) concentration were studied as means of elucidating the anti-gastric ulcer effect. Gastric ulceration was induced using Indomethacin and scored by ulcer scoring technique. GMS and GMCC were performed using spectrophotometric method and calibrated microscopy respectively. Continuous perfusion technique was used to assess GAS and its acidity determined by titration method, while MDA level was determined by measuring thiobarbituric acid reactive substances produced. Histological study of the stomach mucosa was also carried out. Data were expressed as mean ± SEM. Student's t-test and one way ANOVA were used to determine levels of significance at p=0.05. Results show that there were significant reductions in ulcer scores, GAS and MDA concentration, while GMS and GMCC showed significant increases. In this study, Risperidone showed improved gastroprotective effect on Indomethacin- induced gastric ulcer.

Performance of Acute Lead-Exposed Mice in Morris Water, Barnes and Elevated plus Mazes

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Lead toxicity on the brain especially of young individuals is a major public health concern due to persistence crude method of gold extraction in developing countries. Animals were divided into four groups of five mice each, designated I, II, III and IV and administered distilled water, 120, 60 and 30 mg/kg of lead acetate orally respectively. Assessment of the behavioral effects of lead-treated mice on learning and memory was conducted using neurobehavioral paradigms of Morris water, Barnes and Elevated plus mazes. Our results recorded a statistical significant difference in the learning and memory performance of the lead-treated groups when compared to the control on the elevated plus maze for memory (EPM) only. This may suggest the sensitivity of the EPM in the assessment of learning and memory in lead-treated animals over the other paradigms.

Pregnancy-induced Changes in Human Salivary Secretion and Composition in a Nigerian Population

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A variety of physiological changes occurring during pregnancy has been shown to affect the oral health. Saliva is critical for preserving and maintaining the health of oral tissues and has been used as a source of non-invasive investigation of different conditions in human and animal studies. This study evaluated changes in secretion and composition of saliva in pregnant women in a Nigerian population. This was a descriptive cross-sectional study using purposive sampling technique. Saliva samples were collected from 50 pregnant and age matched 50 non-pregnant women. Salivary flow rate, pH, total protein and concentrations of sodium, potassium, calcium, phosphate and bicarbonate were determined and compared using paired independent sample t test. Salivary pH, mean concentrations of salivary potassium and bicarbonate were significantly reduced while mean concentrations of salivary sodium and phosphate were significantly elevated in pregnant women compared to non-pregnant women (P < 0.05). However, there was no significant difference in the salivary flow rate, concentrations of total protein and calcium comparing pregnant women with non-pregnant women. In conclusion, salivary pH, bicarbonate and potassium concentrations were reduced while sodium and phosphate concentrations were elevated in pregnant women. These findings suggest that pregnant women may be predisposed to higher caries incidence.
Key words: pregnant women, non-pregnant women, salivary flow rate, salivary pH, total protein
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Ameliorative Capacity of Quercetin on Alcohol and Nicotine Induced Infertility in Experimental Rats

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Over the past decades the male gonad has been exposed to various substances; among these substances are alcohol and nicotine. This study was designed to investigate the effect of quercetin on alcohol and nicotine induced infertility in male albino rats. Male rats (180-200g), randomly divided into nine groups of five rats each as follow. Group 1: control, group 2: corn oil 2ml/kg bw, group 3: quercetin (30mg/kg bw), group 4: alcohol(3g/kg bw as 25%v/v), group 5: nicotine (1.0 mg/kg bw), group 6: alcohol (3g/kg bw as 25%v/v) + nicotine(1.0 mg/kg bw), group 7: alcohol(3g/kg bw as 25%v/v) + quercetin(30mg/kg bw), group 8: aicotine(1.0mg/kg bw) + quercetin(30mg/kg bw), group 9:alcohol(3g/kg bw as 25%v/v) + nicotine(1.0mg/kg bw) + quercetin(30mg/kg bw). A marked significant decrease (P<0.05) in sperm profile (motility, count, mature sperm and morphology) was observed in sperm collected from the epididymis of the alcohol, nicotine and alcohol plus nicotine treated animals. Histological examination of testis sections in male albino rats treated with alcohol and/or nicotine for 52 days respectively revealed degrees of alteration when compared to control. However, lack of offspring after mating affirms the outcome of this study and this suggests that both alcohol and nicotine have antifertility activities with probable site of action on the testis. Keywords: Alcohol, nicotine, reproductive functions, oxidative stress, infertility.

Niacin Supplementation in Mice and their Performances on Morris water and Barnes Mazes

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There is a worldwide increase in food fortification with micro-nutrients since the discovery of deficiency associated with them in the last decades. However data on the effects of excessive intake of these micronutrients on biological systems especially the nervous system, are very few probably due to lack of enthusiasm by researchers on the subject matter. The effect of excessive acute supplementation of niacin on performance of mice was investigated using two neurobehavioral models, Morris water and Barnes mazes. The results showed that niacin supplementation does not affect performance (learning and memory) of mice in Barnes maze and performance (learning) of mice in Morris water maze (P > 0.05), but do affect performance (memory retrieval) of mice in Morris water maze (P < 0.05) with a minimum effective dose of 200 mg/kg. We proposed niacin-induced behavioral profile might involve the serotonergic system.

THE COMPARATIVE EFFECT OF BEER AND PALM WINE ON ANXIETY AND FEAR IN SWISS WHITE MICE

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Beer and palm wine which are alcoholic beverages plays an important indispensable role in local ceremonies such as rituals, traditional marriages and other social life in Nigeria (Akachukwu, 2001). The long term effect of beer and Palm wine on anxiety and fear is not yet known. Following chronic consumption (4 weeks feeding) of beer and palm wine, patterns of anxiety and fear were studied in 25 Swiss white mice weighing between (15-30 g), using the elevated plus maze. Mice in the control group (n=5) were fed normal rodent chow, the palm wine-treated groups (n=10) were fed by gavage 1ml (n=5) and 2ml (n=5) of fresh palm wine respectively, while the star beer-treated group (n=10) were fed by gavage 1ml (n=5) and 2ml (n=5) of star beer respectively. All animals were allowed free access to clean drinking water and normal rodent chow. The duration in the open arm for the palm wine-treated group was significantly higher (p<0.05) as compared to beer-treated and control groups respectively. Duration in the close arm for the palm wine-treated group was significantly lower ($p<0.05$) as compared to beer-treated and control groups respectively. Center square entry duration for the palm wine-treated group was significantly higher ($p<0.05$) as compared to beer-treated and control groups respectively. Frequency of grooming for the palm wine-treated group was significantly higher (p<;0.05) compared to beer-treated and control groups respectively. These results indicate that consumption of palm wine increases anxiety and exploratory activities while beer consumption decreases anxiety and exploration in mice.

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IN VITRO LIPOXYGENASE INHIBITORY ACTIVITY AND TOTAL FLAVONOID OF STRYCHNOS SPINOSA LEAVES EXTRACTS AND FRACTIONS.

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This study was undertaken with the objectives of establishing the inhibitory effect of extracts and fractions of Strychnos spinosa leaves on the mediator of inflammation lipoxygenase (LOX), and to evaluate the total flavonoid content of the of crude extracts and fractions of Strychnos spinosa leaves. The water fraction, chloroform fraction and the n-butanol fraction were the most active with median inhibitory concentration (IC50) values of 70.75 ± 0.03, 85.27 ± 0.06 and 127.85 ± 0.06 µg/mL,respectively. The methanol, acetone, dichloromethane/methanol and the alkaloid extracts had IC50 values of 143.21 ± 0.00, 149.14 ± 0.05, 154.66 ± 0.01 and 164.03 ± 0.00 µg/mL, respectively. The least active is the hexane and ethyl acetate fractions with IC50 values of 204.02 ± 0.01 and 231.49±0.00 µg/mL, respectively. Apart from the water and chloroform fractions, the anti-inflammatory activity of all the extracts and fractions were lower than the positive controls. The nButF contains the highest level of flavonoid (128.87 ± 2.96 mg QE/g plant material), while the least amount is found in the WatF (0.20 ± 0.00 mg QE/g plant material). In the acute toxicity studies, the median lethal doses (LD50) in all the crude extracts were found to be above 5000mg/kg-1. The results obtained support the use of S. spinosa leaves in traditional medicine for the treatment of inflammation related condition.

EFFECT OF LOW DOSE LEAD (Pb) ADMINISTRATION ON TAIL IMMERSION TEST AND FORMALIN INDUCED PAIN IN WISTER RATS: POSSIBLE MODULATORY ROLE OF COBALT (II) CHLORIDE

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Lead (Pb) is cheap and there is a long tradition of its use, but its toxic effects have also been recognized. There is increased public health concern regarding the hazards of low dose Pb exposure to adults and children. Studies have shown the risks for hypertension, decrements in renal function, subtle decline in cognitive function, and adverse reproductive outcome at low blood Pb level. In this study, the possible modulatory role of cobalt (II) chloride on low level Pb exposure on tail immersion test and formalin induced pain is investigated. Twenty adult Wister rats of both sexes (weight 150g to 200g) were used. The animals were divided into four groups (n = 5) and administered Pb (5mg/kg), Pb (5mg/kg) + CoCl2 (50mg/kg) and CoCl2 (50mg/kg) orally for twenty eight days. The last group serve as control and were given distilled water only. The results were analysed using ANOVA, taking $P<0.05$ as significant. In the tail immersion test, there was no significant change in reaction time for all three groups when compared to the control. In the formalin induced pain, pain score after five and fourty five minutes also do not show significant change for all the three groups when compared to control. This work indicate that exposure to 5mg/kg Pb for twenty eight days do not significantly impair reaction time in tail immersion test and pain score in formalin induced pain in Wister rats.

Effects of vitamin E and melatonin on serum testosterone concentrations in sleep deprived Wistar rats.

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Sleep deprivation (SD) has been reported to cause reduction in low serum testosterone levels, but, the exact mechanism remains unclear. This study was designed to investigate the relationship between testicular redox status and serum testosterone concentration in sleep deprived male Wistar rats.Thirty six (36) male Wistar rats were used for this study. Animals were divided into six (6) groups (n=6). Group 1(control) were given distilled water and allowed to sleep, group 2 were sleep deprived and given distilled water, group 3 received vitamin E (200mg/kg b.w.) only, group 4 received vitamin E (200mg/kg b.w) and were sleep deprived, group 5 received melatonin only (10mg/kg b.w), and group were given melatonin (10mg/kg b.w) and sleep deprived.SD was induced by placing animals on multiple circular platforms of about 6.5cm in diameter enclosed in a glass chamber with water filled up to 1cm of the upper surfaces of the platforms. Blood was collected on Day 21 and serum was obtained for hormonal analyses. Testicular redox status was also evaluated. Histology of the testis and epididymis was carried out. Data obtained were analyzed using one way ANOVA and $p\leq0.05$ was considered significant. There was reduction ($p\leq0.05$) in sperm motility but no significant changes were observed in sperm viability and count. SD caused reduction ($p\leq0.05$) in testosterone level but did not cause significant changes in the serum LH, FSH, corticosterone and melatonin levels. SD also caused increase ($p\leq0.05$) in testicular MDA, SOD, and catalase levels ($p\leq0.05$).The reduction in testosterone level of the sleep deprived group corroborates the result from other studies. The reduction was associated with elevated testicular MDA level. Increase in MDA level has been confirmed a marker for oxidative stress. Therefore, oxidative stress may play a role in the mechanisms involved in the reduction of testosterone associated with SD in Wistar rats.

Ice Jacket Effect on Cardiovascular Responses to Treadmill Exercise in Untrained Adults

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Hyperthermia has been shown to be a limiting factor to endurance exercise performance. Pre-cooling is an approach used to combat the debilitating effect of heat stress induced fatigue. The efficacy of pre-cooling before prolonged submaximal exercise is demonstrated with a variety of pre-cooling modalities amongst which is wearing of ice jacket/vest. Most studies demonstrated an attenuated heart rate response under steady conditions during endurance exercise after pre-cooling. None of these studies examined blood pressures changes that may occur following exercise after pre-cooling. Therefore, we sought to recognize, quantify, and compare changes that may occur in blood pressures and heart rate after pre-cooling (wearing of ice jacket) following isotonic treadmill exercise. Twelve (n=12) healthy nonathletic young male adults recruited randomly, volunteered to participate in this study after obtaining written consent. The Mean ± S.E.M age, weight, height and B.M.I are 22.0±0.8 years, 60±3.0 kg, 1.7±0.2 m, and 21.0±1.0 kg/m2 respectively. On the first day of experiment, participants performed treadmill exercise to exhaustion using the Bruce Protocol. Two-reading blood pressures and heart rates were taken before exercise, at exhaustion and five minutes into recovery. On the second day, participants wore ice jacket for about 40-60minutes before exercise. Values were recorded as means± SEM compared using unpaired T test at 95% significance. Our findings revealed statistically significant reduction in the heart rate (bpm) at exhaustion (p=0.0046) from 101.3 ± 6.5 to 98.1 ± 5.7 and during recovery (p=0.0172) from 95.3 ± 5.0 to 79.4 ± 3.6 with no significant changes in the blood pressures before exercise, at exhaustion, and during recovery after pre-cooling. Thus, findings from this study revealed cardiovascular responses that may occur after pre-cooling. In conclusion, wearing of precooling jacket attenuates heart rate with no significant change in the blood pressures following isotonic treadmill exercise in untrained young male adults.

Hypoglycemic Effect of Aqueous Extract of Telfairia Occidentalis and its Phytochemical Constituents in Induced Diabetic Wistar Rats Using Alloxan Monohydrate

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This study was carried out to evaluate the effect of aqueous leaf extract of *Telfairia occidentalis* and its phytochemical constituents in an induced diabetic wistar rats using an alloxan monohydrate before and after fourteen days of administration. Diabetes was induced in the animal by intraperitoneal injection of Alloxan monohydrate dissolved in sterile normal saline in a dose of 150mg/kg body weight. After 72 hours of the injection, rat that are diabetic (indicated by hyperglcaemia) were used for the experiment. Blood samples were collected from the tail of the rats and blood glucose was determined using a glucometer. They were divided into Groups I-VI. Group I animals served as non-diabetic control and were administered 0.5ml of water daily for fourteen consecutive days. Group II and III were non-diabetic that were administered 150mg/kg body weight and 300mg/kg body weight daily of T.O extract. Group IV rats served as diabetic control and were administered 0.5ml of water daily for fourteen days consecutively while Group V and VI were diabetic rats that were administered 150mg/kg body weight and 300mg/kg body weight, daily of *Telfairia occidentalis* leaf extract respectively for fourteen days. Result showed that *Telfairia occidentalis* leaf extracts significantly (P>0.05) lowers the fasting blood glucose in alloxan induced diabetic rats in a dose related fashion, and also showed significant (P>0.05) lowering of fasting blood glucose in normal (non-diabetic) rats that receive 300mg/kg/day of *Telfairia occidentalis* leaf extract. Phytochemical study done on the *Telfairia occidentalis* extract showed it contains significant amount of alkaloids and flavonoids among other constituents that are known to have hypoglycaemic effect. The *Telfairia occidentalis* might be producing its effect via stimulation of insulin secretion from the beta cell of the islets of Langerhan or increased peripheral utilization of glucose by the cells.

The probable action of adrenergic neurotransmission and cyclo-oxygenase inhibition pathway in lipopolysaccharide-induced neuropathic pain in male Wistar rats

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The present study explored the probable action of the synergistic effects of adrenergic neurotransmission and Cyclo-Oxygenase inhibition in Lipopolysaccharide-induced neuropathic pain in male wistar rats. Rats weighing 200-250g were used, 16 groups (n = 6) each were pre-treated and post-treated for 6weeks with varying dose of sulindac sulfide, yohimbine, naphazoline and Lipopolysaccharide. Group1: (negative control) received 0.5ml/kg of distilled water, group2: LPS only (positive control) received 250μg/kg LPS,

group3: received 100µg/kg of sulindac sulfide, group4: received 0.2mg/kg of yohimbine, group5: received 0.2mg/kg of naphazoline, group6: received sulindac sulfide (100µg/kg)+yohimbine (0.2mg/kg), group7: received sulindac sulfide (100µg/kg)+naphazoline (0.2mg/kg), group8: received sulindac sulfide (100µg/kg)+naphazoline (0.2mg/kg)+yohimbine (0.2mg/kg). Neuropathic pain was assessed by neurobehavioural indices (Escape time latency, Distance covered and Swimming speed) using Morris water maize model. The animals were sacrificed by cervical dislocation and brain tissues were collected for histolological analysis using Nissl staining techniques and biochemical assay. The result of the LPS only showed a significant ($p \leq 0.05$) increased when compared to control. These increased was significantly alleviated by the co-administered standard drugs of which the synergistic effects of the sulindac sulfide + yohimbine and sulindac sulfide + yohimbine +naphazoline was observed to be more effective in both pre-treatment and post-treatment group of the learning and test trial. The result of the LPS only showed a significant decreased in protein, GSH, SOD concentration and increased in MDA level when compared to control. However, drugs co-administered were shown to significantly ameliorate the decrease in antioxidant defence. Histology shows that the damage caused by LPS to the brain neurons was markedly reduced by the administration of the synergistic action of the adrenergic receptor pathway and COX inhibition pathway. These findings suggest that the synergistic action of both pathways might be beneficial in the management of neuropathic pain.

Anti-inflammatory potentials of kolaviron (a biflavonoid) of *Garcinia kola* (*guttiferae*) on lipopolysaccharide-induced neuroinflammation in laboratory rodents

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The prevalence of neurodegenerative diseases has rapidly risen during the last decade to a bothersome state of finding a way - to manage this problem. Experimental evidence implicates oxygen and nitrogen-derived free radicals, in the pathogenesis of several neurodegenerative diseases including Alzheimer's disease (AD). Kolaviron (a bioflavonoid) from *Garcinia Kola* has been reported to show anti-inflammatory and antioxidant properties. In this study, the anti-inflammatory potentials of kolaviron on neuro-inflammation were explored to define new targets for amelioration and/or treatment of neuro-inflammatory disorders.
Neuro-inflammation with memory impairment was investigated using lipopolysaccharide (LPS). Wistar rats (225–250) g was used for this study. The effects of kolaviron on the cognition and learning processes were accessed using the Morris water maze model. Biochemical assays and hematological indices were measures, used to assess the therapeutic potentials of kolaviron (50mg/kg, 100mg/kg and 200mg/kg) on neurodegeneration. Peripheral administration of LPS was showed to reduce cognitive and locomotor process. There were reduction in the temperature, RBC indices, PCV, SOD, and CAT levels, with increase in GSH, NO_2, MDA, and WBC. Kolaviron was able to ameliorate the level of SOD and CAT by causing a significant increase while it caused a significant reduction in the level of NO_2, GSH, and MDA. Kolaviron was able to reverse the effect of leukocytosis causing a significant reduction of the WBC and a significant increase in the PCV and RBC indices. In this present study, kolaviron has considerable anti-inflammatory and immunomodulatory potentials, reducing lipopolysaccharide activation of macrophages. The memory-enhancing activity of kolaviron was comparable to Sulindac sulfide (a non-steroidal anti-inflammatory drug).

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Effect Of Methanol Extract Of *Chrysophyllum Albidum* Stem Bark On Mitochondria Membrane Permeability Transition Pore In The Liver Of Male Diabetic Wistar Rats

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Diabetes mellitus is an endocrine disorder characterized by sustained elevated blood glucose which results to complications that affect almost all the systems of the body. Many drugs used in the management of diabetes mellitus have various side effects.
Many plant alternatives used in the management of diabetes mellitus had proven to have beneficial effects but their mechanisms of action remain poorly

elucidated. This study verified the hypoglycemic effect of methanol extract of *Chrysophyllum albidum* stem bark *C. albidum* and its effect on Mitochondria Membrane Permeability Transition Pore (MMPTP).

48 adult male Wistar rats (200g) were divided into four of twelve rats each. Group A (control) had free access to food and water. Groups B and C were made diabetic (IP 100mg/kg b.w alloxan). Groups B and D were treated with 500mg/kg b.w of the extract for four weeks while Group C animals were not treated. Six animals were used for in vitro studies on MMPT and lipid peroxidation using the liver. 3ml of blood samples were collected from each animal for lipid profile assay.

Results showed that the extract did not generate MMPTP opening nor lipid peroxidation in vitro and in vivo and the blood glucose was significantly reduced ($p \geq 0.05$). There was significant reduction ($p \geq 0.05$) in serum triglycerides and total cholesterol and significant increase in HDL-cholesterol. The extract showed characteristics similar to Thiazolidinediones-a classical group of insulin sensitizers. The extract showed great potential as possible source of safe antidiabetic agent.

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