DEPARTMENT OF PHYSIOLOGY
UNIVERSITY OF MEDICAL SCIENCES
ONDO CITY, ONDO STATE

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THE PHYSIOLOGICAL SOCIETY, UK

Book of Abstracts

(A 2-DAY PHYSIOLOGY CONFERENCE)

Theme:

ADVANCING PHYSIOLOGICAL RESEARCH AND INNOVATIONS FOR BETTER HEALTH AND WELL-BEING

18TH – 19TH FEBRUARY, 2025

PHYSIOLOGY PROGRAMMES

- Bachelor of Science (B.Sc) in Human Physiology
- Master of Science (M.Sc) in Physiology
- Master of Philosophy (M.Phil) in Physiology
- Master of Philosophy / Doctor of Philosophy (M.Phil/PhD)
- Doctor of Philosophy (PhD)

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2-Day

Physiology Conference

University of Medical Sciences

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18TH – 19TH FEBRUARY, 2025

PROGRAMME & ABSTRACTS

Keynote Speakers

Prof. A. O. Naiho, Department of Physiology, University of Delta, Agbor, Nigeria
Prof. O.I Ajayi, Head of Physiology, University of Global Health Equity, Rwanda
Dr. A.P. Arikawe, Department of Physiology, University of Lagos, Nigeria

DEPARTMENT OF PHYSIOLOGY
UNIVERSITY OF MEDICAL SCIENCES
ONDO CITY, ONDO STATE

2-Day Physiology Conference

18TH – 19TH FEBRUARY, 2025

theme:

ADVANCING PHYSIOLOGICAL RESEARCH AND INNOVATIONS FOR BETTER HEALTH AND WELL-BEING

SUB-THEMES:

- Molecular Mechanisms in Health and Disease
- Advances in Neurophysiology and Mental Healt
- Cardiovascular and Vascular Physiology: From Bench to Bedsid
- Reproductive and Endocrine Physiology: Insights and Innovations
- Environmental and Exercise Physiology: Adapting to Change
- Advances in gastrointestinal and Renal Physiology
- Integrating Physiology into Clinical Practice and Diagnostics

PROF. ADESEGUN
OLAYIWOLA
FATUSI
(BSc, MBChB, MPH, PhD, MD, FWACP, FNAMed, FAS)
VICE CHANCELLOR
(CHIEF HOST)

PROF. ROSEANGELA
IFEYINWA
NWUBA
(Bsc, MSc, PhD)
DEPUTY VICE-CHANCELLOR
(ACADEMICS)

PROF. I. O. ADEWALE

DEAN, FACULTY OF BASIC MEDICAL SCIENCES

(B.Sc, M.Sc., Ph.D)

(HOST)

Dr. V. O. EMOJEVWE

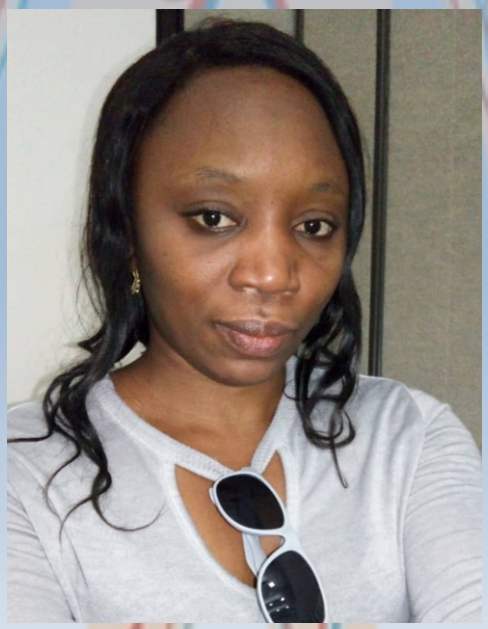
HEAD, DEPARTMENT OF PHYSIOLOGY

(BSc, MSc, PhD)

(HOST)

CONFERENCE ORGANIZING COMMITTEE (COC)

Dr. O. I. Adeyomoye
Chairman



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Welfare

Mr. E. O. Ogunmiluyi
Fundraising

Mr. E. O. Ademilusi
Media and Publicity

Mr. G. N. Aitokhuehi
Media and Publicity

ORDER OF PROGRAMME

DAY 1 – Tuesday 18th February, 2025		
Time	Event	Anchor(s)
09:00 - 09:30	Registration	
09:30 – 09:35	Anthems (National & UNIMED)	
09:35 – 09:40	Opening Remarks	Dr. O.I. Adeyomoye COC Chairman
09:40 – 09:45	Welcome Address	Dr. V.O. Emojevwe HOD Physiology
9:45-9:55	Dean's Remarks	Professor I.O. Adewale Dean, FBMS
09:55 – 10:05	Vice-Chancellor's remarks and opening declaration	Professor A.O. Fatusi Vice-Chancellor
10:05 – 10:15	Group Photograph	PRO Unit
10:15 – 11:00	**Keynote Address**	Professor O.I Ajayi
11:00 - 12:00	Break	
12:00 – 12:15	Student Exhibition 1	Students
12:15 – 13:45	Plenary Lecture 1	Professor A.O. Naiho
13:45 – 14:15	Lunch break	
14:15 – 15:45	Plenary Lecture 2	Dr. A.P. Arikawe
15:45 – 16:00	Interactive session (Panel discussion)	Moderator Dr B.O. Omolaso
DAY 2 – Wednesday 19th February, 2025		
10:00 - 10:30	Registration Continues	
10:30 - 11:00	Student Exhibition 2	Students
11:00 - 13:00	**Oral Presentation 1** **OP: 1-9**	Chairman: Dr. E.S. Uhunmwangho Rapporteur: Dr. A.O. Akinola
13:00 – 13:30	Refreshment	
13:00 – 14:00	**Poster session**	Chairman: Dr A.J. Salemcity
14:00 – 16:00	**Oral Presentation 2** **OP: 10-18**	Chairman: Dr. O.M. Ijomone Rapporteur: Dr. Eunice Ogunwole
16:00 – 16:05	Closing Remark	Dr. V.O. Emojevwe
16:05	Departure	

Welcome Address by Dr. Victor Oghenekparobo Emojevwe, the Ag. Head, Department of Physiology Faculty of Basic Medical Sciences, University of Medical Sciences (UNIMED), Ondo, at the 2025 Physiology Conference

Distinguished guests, esteemed colleagues, members of the Physiological Society, faculty, students, and all participants,

On behalf of the Department of Physiology, University of Medical Sciences, Ondo, and the Physiological Society, it gives me immense pleasure, as the Acting Head of the Department and one of the Representatives of the Physiological Society in this institution, to welcome you all to this 2-day Physiology Conference! My name is Dr Victor Oghenekaprobo Emojevwe, and I am truly honoured to be your host.

We are thrilled to have such a distinguished gathering of physiologists, researchers, students, and experts with us today and tomorrow. This conference, centered on the theme "**Advancing Physiological Research and Innovations for Better Health and Well-Being**," is a crucial platform for us to share knowledge, discuss emerging trends, and forge collaborative partnerships that will propel our field forward.

The theme reflects our collective commitment to leveraging the power of physiological understanding to address pressing health challenges and improve the quality of life for individuals and communities. Over the next two days, we have a packed program filled with insightful presentations, stimulating discussions, and networking opportunities. I encourage you to actively participate, engage with your colleagues, and contribute your unique perspectives to the conversations that will unfold.

Beyond the formal sessions, I would also like to encourage you to take some time to explore the facilities here at the University of Medical Sciences, Ondo. We believe that exploring our facilities can spark ideas for future collaborations and potentially unlock new avenues for your research endeavours. We offer opportunities in areas like: *Neurophysiology, Cardiovascular Physiology, Endocrinology, etc*. Please don't hesitate to reach out to any of our faculty members if you have any questions or are interested in exploring potential collaborations.

Finally, for those of you who are passionate about physiology but are not yet members of the Physiological Society, I urge you to visit the designated registration stand during the conference. Membership in the Physiological Society offers a wealth of benefits, including access to cutting-edge research, networking opportunities, and professional development resources. It's a fantastic way to stay connected, contribute to the advancement of the field, and become part of a global community of like-minded individuals.

I am confident that this conference will be both informative and inspiring. I wish you all a productive and enjoyable experience over the next two days. Let us work together to advance physiological research and innovation, ultimately contributing to a future of better health and well-being for all.

Thank you, and welcome once again!

PROFESSOR OLUTAYO IFEDAYO AJAYI

Professor Olutayo Ifedayo Ajayi was born on the 17th of July, 1968 at Akure (his home town), Ondo state. He had his Primary and secondary education at St Joseph's Catholic primary school and Anglican Grammar School, Igbara-oke in Ondo state of Nigeria respectively between 1973 and 1984. He proceeded to study Medical Laboratory Science at the University of Benin Teaching Hospital between 1987 and 1991 where he obtained the Associateship Diploma in Hematology/Blood Transfusion science. He later completed his postgraduate fellowship Diploma in Chemical Pathology from the same institution in 1997. He obtained his M.Sc. and Ph.D. degrees in Human Physiology from the University of Benin in 2000 and 2009 respectively. He joined the services of University of Benin in September 1994 as a Medical Laboratory Scientist and later got appointed as Lecturer II in October 2003 where he rose through the ranks. He was promoted an Associate Professor in October, 2014 and became a full professor in October, 2017. Prof. O.I. Ajayi was appointed on contract as a full Professsor of Physiology at the University of Rwanda in July, 2022 and the Chair of the department of Medical Physiology of the University. He joined University of Global Health Equity, Butaro, Rwanda as Head of Physiology in January, 2025. He has his research interests in circulatory system Physiology and Reproduction with special bias in Cellular membrane mechanisms, Hemorheology and vascular mechanisms as well as Hemostasis and Hematological associations in sickle cell, cardiovascular disorders and mechanisms of altered reproductive processes. He has published over 60 articles in well reputed and high impact academic journals and has presented over 80 papers at seminars and conferences around the world. He has many national and international academic laurels on his research and academic activities, such as: YOUNG SCIENTIST TRAVEL AWARD: International Society of Clinical Haemorheology Travel Award 2002, Antalya, Turkey; BEST YOUNG SCIENTIST AWARD: European Society of Clinical Haemorheology and Bulgaria Society of Biorheology. Varna. Bulgaria, 2003; BEST YOUNG PRESENTER AWARD: Nigerian Society of Haematology and

Blood Transfusion 31st annual conference. Benin City. Nigeria, 2003; YOUNG SCIENTIST TRAVEL AWARD; European Hematology Association. 9th congress, Geneva, Switzerland. 2004.; 4TH ICOH FELLOWSHIP AWARD, Univ. of California, Irvine, California, USA, 2005; XVI ISBT TRAVEL FELLOWSHIP AWARD; Regional congress, BANGKOK, THAILAND, 2007; TRAVEL AWARD WINNER: European Hematology Association. 16th Congress, London, UK. 2011, 2ND PRIZE IN THE Nigerian Universities Commission organized RESEARCH FARE IN LIFE SCIENCES AND MEDICINE, Minna, Nigeria, 2012; REACH THE WORLD TRAVEL AWARD WINNER: 60th ISTH meeting, Milwaukee, WI, USA June, 2014, BEST SENIOR PRESENTER IN HAEMATOLOGY at the 50th annual conference of Association of Medical Laboratory Scientists of Nigeria conference, Akure, 2014; University of Benin 1st annual Research Competition – OVERALL BEST IN THE FACULTY AND COLLEGE OF MEDICAL SCIENCES RESEARCH. 2015, POSTGRADUATE FELLOWSHIP IN MOLECULAR METHODS, Texas Southern University, 2015, INDIAN OCEAN RIM LABORATORY HEMATOLOGY TRAVEL AWARD, Singapore, 2017, INNOVATIVE DRUG DISCOVERY ON SICKLE CELL REVERSAL, ADVANCING HEALTHCARE INNOVATION IN AFRICA. Organized by Emory University, Atlanta, USA at Johannesburg, South Africa, July, 2019 to mention a few. Prof. Ajayi has recently trained and graduated over fifty M.Sc. and ten PhD students in Human Physiology and Haematology. **HE IS MARRIED WITH CHILDREN**

PROFESSOR ALEXANDER OBIDIKE NAIHO

Professor Naiho Alexander Obidike is a medical practitioner, a Professor of Neuroendocrine and Reproductive Physiology at the University of Delta, Agbor. He is the pioneer Dean of Faculty of Clinical Sciences of University of Delta, Agbor. He has served as Chairman of several Senate Committees.

He belongs to a number of professional bodies. They include Member, Nigerian Medical Association, Physiological Society of Nigeria, Physiological Society of UK; Anatomy and Physiology Society USA and African International Biomedical and Biotechnology Society.

He had his first degree in Anatomy (Unical) MSc in Physiology (Uniben), PhD in Physiology (DELSU) and MBBS (AAU).

Prof. Naiho is an erudite scholar and researcher. He is widely published and has read papers at both National and International Conferences. Prof NAIHO is a serious minded academic who believes in hard work and diligence. He is a devout Catholic and married with five children.

He is an astute Professor, a prolific writer, a conscientious researcher, a deeply religious and family man, Professor Naiho Alexander Obidike is the founder and Chairman of Naiho Igabari foundation and scholarship scheme that promotes education and academic excellence in Delta State.

DR. ADESINA PAUL ARIKAWE

Dr. Adesina Paul Arikawe is an Associate Professor (Clinical and Neuroendocrine Physiologist), Department of Physiology, Faculty of Basic Medical Sciences, College of Medicine of the University of Lagos with over 15 years teaching and research experience in Nigerian and foreign universities.

He has a BSc (Hons.) in Medical Physiology and MB.BS degrees from College of Medicine, University of Lagos; MSc and PhD degrees in Human Physiology from the College of Medical Sciences, University of Benin. A little over a decade ago he won the prestigious FAPESP Postdoctoral Fellowship award in Brazil. His research from this fellowship showed that neurons of the central components of the stress system are overactive and that during perimenopause overreaction of noradrenergic neurons of locus coeruleus (LC) is due to lower plasma progesterone levels and therefore a decrease of β-endorphin inhibition of LC neurons. He will take up a Visiting Researcher/Professor position at the Universidade de Sao Paulo, Faculdade de Medicina, Riberao Preto Campus, Sao Paulo, Brazil later in 2025.

He heads a research unit (Aging, Behavioural, and Neuroendocrine group) at the Department of Physiology, College of Medicine of the University of Lagos. This unit collaborates with colleagues in Physiology, Pharmacology, Neurology, and Community Medicine. He has researched extensively into perimenopausal transition in animal models with a focus on how hormones and neurotransmitters interact during stress and also how therapeutic interventions could be utilized in these models.

He has 47 publications in peer review journals and has presented his research findings at national and international scientific meetings. He has supervised 59 BSc project works; 24 Masters research works; and 2 PhD theses. He is currently supervising 5 PhD students. He has won numerous national and international research and travel grant awards. His present research interest is on how Nigerian women cope with stressful living during perimenopause.

He is happily married with two lovely children

ORAL PRESENTATION

OP-1

Sugar Intake Disrupts Some Reproductive Functions In Female Wistar Rats

Ogunwole Eunice*[1], Jo-Amadi Harmony Homahinuchi[2], Johnson Dorcas Ariyo[2].

[1]University of Medical Sciences, Ondo, Ondo State. [2]Department of Physiology, College of Health Sciences, Bingham University, Karu, Nasarawa, Nigeria.

Abstract

The increasing rate of infertility has raised a lot of concern. Studies show that lifestyle and dietary factors affect reproductive functions. Sugar, a universal sweetener in the diet has been linked with metabolic syndrome and disruption of male reproductive functions. The objective of the current study is the assessment of the effects of sugar on some reproductive functions of female Wistar rats. Twenty (20) adult female Wistar rats (180-200 g) randomly divided into four (n= 5), received 10 mL/Kg distilled water (group 1-control), 6.25, 20, and 64 mg/Kg Sugar (groups 1, 2, 3) daily by oral gavage for three (3) weeks, respectively. Parameters evaluated were fasting blood glucose, estrous cycle, histology and relative weights of reproductive organs, follicle-stimulating hormone (FSH), luteinizing hormone (LH), and estradiol hormone levels. Sugar significantly decreased ($p< 0.05$) fasting blood glucose level and relative weights of ovary and uterus compared to control. It also significantly reduced the frequency of estrus and diestrus phases but caused significant increases ($p< 0.05$) in the metestrus phase of the estrous cycle and FSH level in comparison with the control. There were anomalies in the histology of the ovary and uterus. Therefore sugar disrupted the estrous cycle, altered the weights and cytoarchitecture of the ovary and uterus. Sugar consumption has harmful effects on some reproductive functions of female Wistar rats.

Keywords: Rats, Ovary, Sugars, Estrous cycle, Infertility

OP-2

Assessment of the Toxicity Profile of the n-Hexane Fraction of Uvaria chamae

Bamimore V. O.

Drug Research And Production Unit, Faculty Of Pharmacy, Obafemi Awolowo University, Ile-Ife

Abstract

Background: Uvaria chamae (Annonaceae) has demonstrated significant in-vivo activity against Trypanosoma brucei by increasing the survival time of infected mice. However, a comprehensive toxicity profile is essential for any potential anti-trypanosomal substance, highlighting the importance of this study. Materials and Methods: Acute and sub-chronic toxicity studies were conducted on the n-hexane fraction of Uvaria chamae leaves. Acute toxicity was assessed using the method described by Lorke (1983). For the sub-chronic toxicity study, serum and liver homogenates were analyzed for biochemical parameters, including aspartate aminotransferase (AST), alanine aminotransferase (ALT), total cholesterol (TCHOL), and triglycerides (TG). Additionally, histopathological analysis was performed on selected tissues. Results: Acute toxicity testing revealed an LD50 value of >5000 mg/kg. However, sub-chronic administration showed significant differences ($p<0.05$) in AST and ALT levels in both liver and serum homogenates, with changes observed in a dose-dependent manner. Histopathological examinations also revealed morphological alterations distinct from the control group, consistent with those typically observed in damaged tissues. Conclusion: Although the n-hexane fraction of Uvaria chamae exhibited no acute toxicity at high doses, prolonged administration is not recommended due to significant biochemical and morphological changes observed during sub-chronic testing.

Keywords: Uvaria chamae, n-hexane fraction, Toxicity, Biochemical parameters, Histopathological changes

OP-3

Deleterious Effects of Caffeine Consumption on Reproductive Functions of Female Wistar Rats

Eunice Ogunwole, Victor Oghenekparobo Emojevwe, Hannah Bolutife Shittu, Iyanuoluwa Elizabeth Olagoke, Favour Omolewami Ayodele

Department of physiology, University Of Medical Sciences, Ondo State

Abstract

Objective: The deleterious effects of caffeine consumption on reproductive functions of female Wistar rats were investigated in this study. Methods: In this experimental study, 35 female Wistar rats (180-200g) were divided into 7 groups: Control, II-IV received oral caffeine (10, 20, and 40mg/kg/day respectively) for 21 days. V–VII received similar caffeine doses for 21 days, followed by a 21-day withdrawal period. The ovaries, fallopian tubes, and uteri were assessed for levels of malondialdehyde (MDA), nitric oxide (NO), reduced glutathione (GSH), superoxide dismutase (SOD), and catalase activity using spectrophotometry. Serum luteinizing hormone (LH), follicle-stimulating hormone (FSH), and estradiol levels were measured by ELISA. Organ histology was performed using microscopy. Statistical analysis employed ANOVA with significance at $p<0.05$. Results: Caffeine caused dose-dependent increases in MDA, NO, and catalase activity in the ovaries, fallopian tubes, and uteri which decreased upon withdrawal. GSH levels in the ovary and fallopian tubes decreased with caffeine intake but recovered during withdrawal. Caffeine reduced estradiol levels in a dose-dependent manner, its withdrawal led to reductions in serum LH at 20 and 40mg/kg/day and FSH at 40mg/kg/day. Histology revealed dose-dependent alterations in ovarian architecture with congested connective tissues. Caffeine caused sloughing of plicae in the muscularis of the fallopian tubes, degenerated epithelial layer in the uterus, and severe inflammation of the myometrial stroma cells that persisted during caffeine withdrawal. Conclusions: Caffeine consumption adversely impacted the female reproductive functions of rats, altering hormonal balance and organ structure which persisted even after caffeine withdrawal.

Keywords: caffeine, infertility, oxidative stress, reproductive hormone, rats

OP-4

A Pilot Study of Macromorphometric Brain Changes in Bipolar Disorder: Focus on Prefrontal Cortex and Limbic Structures

Oluwafunmbi Ebenezer Ogunmiluyi[1], Joan Mutahi[2], Jean Baptiste Fankam Fankam[3]

[1]Department of Physiology, University of Medical Sciences, Ondo city, Ondo State, [2]Department of Psychology, Aga Khan University, Nairobi, Kenya, [3]Department of Chemistry, University of the Witwatersrand, Johannesburg, South Africa.

Abstract

Introduction: Structural brain imaging aims to elucidate bipolar disorder (BD) neuropathology, but MRI studies using region of interest analysis and voxel-based morphometry (VBM) have shown inconsistent findings. Thus, clear evidence for core cortical/subcortical structural abnormalities in BD is lacking. Despite this, research suggests involvement of regions critical for cognition, emotion, memory and stress. This pilot study investigates gray matter volume (GMV) in prefrontal cortex (PFC), hippocampus, and amygdala, and cortical thickness in medial/lateral orbitofrontal cortices in BD versus controls. **Methods:** We analyzed a dataset from the UCLA Consortium for Neuropsychiatric Phenomics LA5c Study (OpenNeuro). Structural MRI scans of 21 BD patients (11M, 10F; 21-35 years) and 21 matched controls were analyzed. The focus on this age is due to the early onset of BD. Data preprocessing was conducted using Brainlife.io, including FSL Anat for alignment, FreeSurfer for parcellation, and the Multi-Task tool for atlas application. Gray matter volumes (mm^3) of the PFC, hippocampus, and amygdala, as well as cortical thickness (mm) of the medial and lateral orbitofrontal cortices were extracted. Group differences were assessed using unpaired t-tests via GraphPad Prism (9.5.1). **Results:** Significant group differences emerged in left and right lateral orbitofrontal cortex, with a similar trend in medial orbitofrontal cortices. No significant differences ($p > 0.05$) were found in amygdala/hippocampus GMV. For cortical thickness, significant differences occurred in right hemispheric lateral/medial orbitofrontal cortices, with BD patients showing reduced thickness ($p < 0.05$) compared to controls. **Conclusion:** This pilot study provides preliminary evidence of altered orbitofrontal cortex structure in BD, potentially related to impaired emotional regulation.

OP-5

Antiurolithiatic Activity of the Leaf extract of Brassica oleracea L.var. Capitata in Ethylene glycol induced rat model

*Fayehun Opeyemi O., **Lajide Labunmi, ##Ololade Zaccheus S., & *#Bamimore Victoria O.

*Department of Chemistry, Medicinals and Organic Chemistry unit, University of Medical sciences Ondo **Department of Chemistry, Medicinals and Organic Chemistry unit, University of Medical sciences Ondo ##Department of Chemistry, Medicinals and Organic Chemistry unit, University of Medical sciences Ondo *#Department of Pharmacognosy, Faculty of Pharmacy, University of Medical sciences Ondo

Abstract

Objectives: The phytochemicals in the Brassica oleracea have been connected to therapeuti c or preventive qualities against several illnesses including inflammation which is typical of urolithiasis. Therefore, this study evaluated the effect of Brassica oleracea on ethylene glycol-induced Wistar rats. Methods: A total of 30 male rats were divided into 5 groups (A, B, C, D, E). Group B served as negative control and administered water containing 1% v/v ethylene glycol for 28 days while group C is positive control. Ethyl acetate/methanol extract of B. oleracea was administered at 50 mg/kg and 100 mg/kg body weight along with ethylene glycol in the test groups D and E. Biochemical parameters were measured using a UV Spectrophotometer and histopathology was analysed using Nanozoomer digital pathology. Data were reported as mean±SEM in triplicates using Graph Pad Prism Software, $P < 0.05$ was considered to be statistically significant. Results: The mean values of serum urea and creatinine revealed significant differences ($p<0.05$) between group B (Induced group) and other treatment groups (groups C, D and E). The levels of creatinine at 50 mg/kg (0.68±0.02) and 100 mg/kg (0.59±0.01) and urea at 50 mg/kg (26.27±0.62) and 100 mg/kg (25.08±0.54) were also affected when compared to the induced group (0.78±0.02) for creatinine and urea (18.62±1.11). The histology of the kidney showed a reduced glomerular size and tubular enlargement in the rats of the induced group. In contrast, the treated group with the standard drug (grp C)and B. oleracea treated group at 100 mg/kg exhibited normal kidney histology compared to the negative control. Conclusions: This study reveals the promising potential of Brassica oleracea extract in mitigating kidney damage, improving biochemical and histological parameters associated with ethylene glycol-induced urolithiasis. Future studies are recommended to isolate and characterize the active compounds and explore their mechanisms of action elaborately.

Keywords: Creatinine, Histological analysis

OP-6

Cardiac Effects of *Ficus exasperata* and Its Potential Impact on CRP, ACE, P-Selectin, and eNOS Expression in Diabetic Wistar Rats

Olorunsola Israel Adeyomoye [1,*], Juliana Bunmi Adetunji [2], Olugbemi Temitope Olaniyan [3], Charles Oluwaseun Adetunji [4],Ogunmiluyi Oluwafunmbi Ebenezer, [5] Uwejigho Eguono Raphael[6]

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[2] *Department of Biochemistry, Osun State University, Osogbo, Nigeria*
[3] *Department of Physiology, Kwara State University, Malete, Nigeria*
[4] *Department of Microbiology, Edo State University Uzairue, Iyamho, Nigeria*
[6]*Department of Anatomy, University of Medical Sciences, Ondo City, Nigeria*

Abstract

Cardiovascular complications are a significant concern in diabetes mellitus. *Ficus exasperata* Vahl leaf has been traditionally used for diabetes management, yet its impact on cardiovascular gene expression in diabetic conditions remains unexplored. This study evaluated the effects of methanol extract of *Ficus exasperata* (MEFE) on cardiac biomarkers and gene expression in diabetic Wistar rats. Twenty Wistar rats were divided into four groups (n=5/group): control, diabetic untreated, diabetes + MEFE (200 mg/kg), and diabetes + insulin (0.3 IU). Diabetes was induced with alloxan monohydrate (150 mg/kg), and treatments were administered orally for 28 days. MEFE was subjected to Gas Chromatography-Mass Spectrometry (GC-MS). Antioxidant enzyme activities (Glutathione peroxidase (GPx), Glutathione reductase (GR), Superoxide dismutase (SOD), Catalase, malondialdehyde and 8-hydroxy-2'-deoxyguanosine), Cardiac biomarkers (Na^+/K^+ ATPase, Ca^{2+} ATPase, Creatinine kinase-myocardial band (CK-MB), Troponin I, Troponin T, and Lactatete dehydrogenase), and gene expression of CRP, ACE, P-Selectin, and eNOS were evaluated. Data were analyzed using One-way Analysis of Variance, expressed as Mean ± SEM, and $p < 0.05$ was considered statistically significant. GC-MS analysis revealed 23 compounds in MEFE with kaur-16-ene (-8.2 Kcal/mol) and cycloisolongifolene 8,9-dehydro- (-9.1 Kcal/mol) having the highest binding affinity with cardiovascular receptors. Diabetic group treated with MEFE (200 mg/kg) significantly increased Ca^{2+} ATPase, SOD and glutathione reductase activities compared to diabetic untreated. However, malondialdehyde and 8-OHdG levels decreased significantly in diabetes+MEFE (200 mg/kg) compared to diabetes untreated. CK-MB levels increased significantly in diabetes+MEFE (200 mg/kg) compared to diabetic untreated. MEFE reduced ACE and P-Selectin expression in diabetes+MEFE (200 mg/kg) compared to diabetic untreated, indicating potential antihypertensive and anti-thrombotic effects. However, it increased CRP levels compared to control, suggesting an inflammatory response. MEFE significantly reduced eNOS expression compared to diabetic untreated, suggesting impaired vascular function. These findings suggest that while *Ficus exasperata* has some beneficial effects, its impact on inflammatory and cardiac biomarkers necessitates further research to fully understand its therapeutic potential and safety.

Keywords: Diabetes mellitus, *Ficus exasperata,* Cardiovascular biomarkers, Antioxidant enzymes, Gene expression, Inflammation.

OP-7

Anti-Depressant Potentials Of Methanol Extract Of Artocarpus Altilis (Breadfruit) On Lipopolysaccharide-Induced Depression In Mice

[1]Ajah Austin, [2]Aitokhuehi Nimedia Gideon, [3]Abayomi Mayowa Ajayi, [4]Onasanwo Samuel Adetunji,

[1]Neurophysiology Unit, Department of Physiology, University of Port Harcourt, Port Harcourt, Nigeria [2]Department of Physiology, University of Medical Sciences, Ondo, Nigeria.[3]Department of Pharmacololy and Therapeutics, University of Ibadan, Nigeria.[4]Neurosciences and Oral Physiology Unit, Department of Physiology, University of Ibadan, Ibadan, Nigeria

Abstract

This study evaluates the Anti-depressant potentials of Artocarpusaltilis (Breadfruit) in lipopolysaccharide (LPS) induced depression in mice. A total of 36 mice weighing 25-30g, randomly categorized into six groups of six mice each were used for the study. Group 1 (control) received vehicle only (Normal Saline). Groups 2-4 were treated with MEAA (50, 100 and 200 mg/kg b.w. p.o, respectively) while Group 5 received imipramine (10mg/kg b.w.i.p) as the reference drug. The test groups and group 6 received LPS (0.5mg/kg i.p) 30 minutes after treatment with MEAA and IMP respectively. Test was carried out 24 hour after respective treatment of mice.The anti-depressant potentials of bread fruit on LPS-induces depression was studied using Open Field Test (OFT) and Forced Swimming Test (FST)experimental proceduresand by means of brain neurochemicals evaluation. Depression-like behaviors such as line crossing (OFT)and duration of time spent immobile (FST) were observed. The test groups were compared with the control and LPS groups in both studies. The amount of protein, nitrite, reduced glutathione (GSH), Thiobarbituric acid reactive species (TBARS) and superoxide dismutase (SOD) were also evaluated. The result showed that oral administration of MEAA and imipramine (10mg/kg b.w.i.p) caused significant ($p< 0.05$) increased line crossing and reduces immobility time in mice. It also increased the level of GSH, SOD, and NO while it decreased TBARS when compared to the groups 6 animals treated with LPS (0.5mg/kgb.w.i.p) alone.In conclusion, MEAA, similarly to imipramine, has antidepressant effects in LPS-induced animal model of depression. This further implies that fruits of Artocarpusaltilis can induce an Anti-depression like effects.

Keywords: ArtocarpusAltilis, Forced Swim Test, Open Field Test, Lipopolysaccharide, Anti-depressant

OP-8

Effects of Ethanol Extract of Talinum triangulare (Jacq.Wild) Leaves on Lead Acetate-Induced Reproductive Toxicity in Male Wistar Rats

[1,2] Alade D.D., [2] Akinsanya Y.S., [2] Akano O.P. and [2] Akinsomisoye O.S

[1]Department of Physiology, Elizade University, Ilara-Mokin, Ondo State, Nigeria.
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Abstract

This study determined the effects of ethanol extract of Talinum triangulare leaves (EETT) on lead acetate-induced reproductive toxicity by assessing relative testicular and epididymal weights, sperm parameters and histological analysis of male Wistar rats. Forty-five male Wistar rats (8-10 weeks) were divided into 9 groups consisting of 5 rats each. Group 1 received 1 ml/kg distilled water, group 2, 60 mg/kg lead acetate; groups 3 and 4, 60 mg/kg lead acetate together with 200 and 400 mg/kg of EETT for 28 days; groups 5 and 6, 60 mg/kg lead acetate for 28 days followed by 200 and 400 mg/kg of EETT for another 28 days, groups 7 and 8, 200 and 400 mg/kg of EETT for 28 days, group 9, 60mg/kg lead acetate for 28 days and 1 ml/kg distilled water for another 28 days. The treatment was done orally. The results showed that lead acetate induced significant reduction in relative testicular weight, epididymal weight and sperm parameters. Moreover, lead acetate induced alterations in the histological structure of the testis and epididymis weights but it was reversed in rats administered with lead acetate followed by the extract (groups 5 and 6) and extract alone (groups 7 and 8). This study concluded that ethanol extract of Talinum triangulare was able to reverse the damaging effect of lead acetate on the testis, epididymis and sperm parameters of Wistar rats.

Keywords: Talinum triangulare, Reproductive toxicity, Lead acetate

OP-9

Impact Of Quercetin On Single Prolonged Stress Induced Neurochemical Changes Via Oxido-Inflammatory And Apoptotic Mechanism In a Rat Model Of Posttraumatic Stress Disorder

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Abstract

Background: Posttraumatic stress disorder (PTSD) is a debilitating condition characterized by neurochemical imbalances and behavioral disruptions. Emerging evidence suggests that quercetin, a naturally occurring flavonoid, may possess neuroprotective properties. This study investigates the potential effects of quercetin on neurochemical dynamics associated with PTSD in a rat model. Objectives: To evaluate the impact of quercetin administration on key neurochemical markers (e.g., neurotransmitter levels, neuroinflammatory markers) in a rat model of PTSD induced by single prolonged stress (SPS). Methods: Male Sprague-Dawley rats were subjected to the SPS protocol to induce PTSD-like symptoms. Following SPS exposure, rats were randomly assigned to either a quercetin treatment group or a vehicle control group. Neurochemical analysis including assessment of neurotransmitter concentrations (e.g., serotonin, norepinephrine, dopamine) and inflammatory markers (e.g., TNF-α, IL-1β) in relevant brain tissues was performed post-treatment. Behavioral assessments were also conducted to correlate neurochemical changes with PTSD-like symptoms. Results: Preliminary findings suggest that quercetin treatment, particularly at 20 mg/kg dosages, resulted in a partial modulation of neurochemical dysregulation related to PTSD. Specifically, quercetin administration attenuated the stress-induced alterations in neurotransmitter levels and decreased markers of neuroinflammation in the studied brain regions compared to the control group. These changes were associated with improvements in some behavioral measures. Conclusion: Quercetin demonstrates a potential to ameliorate the neurochemical imbalances associated with PTSD in a rat model. Further research is warranted to confirm these findings and explore the precise mechanisms of action, as well as the therapeutic potential of quercetin in individuals with PTSD.

Keywords: Posttraumatic Stress Disorder, PTSD, Quercetin, Neurochemistry, Neurotransmitters, Neuroinflammation, Rat Model, Single Prolonged Stress, Stress, Flavonoid

OP-10

Prolonged Flunitrazepam Use Impaired Penile Erection Via Disruption Of The NO/CGMP/PKG Pathway And Acetylcholine Activities.

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Abstract

The increased use of recreational drugs to prolong sexual acts among male accounts for the increase cases of drug abuse and flunitrazepam had been reported to induce sexual dysfunctions via suppression of the hypothalamic-pituitary-testicular axis. This study aims to examine the effect of prolong flunitrazepam use on the erectile functions and biochemical changes in the penile of rat, Sixteen (16) male Wistar rats weighing 200-220g were grouped into two groups namely control and flunitrazepam of n = 8 and subjected to the following daily oral treatment of 0.5 ml of distilled water and 0.35 mg/kg of flunitrazepam respectively for fifty-six (56) days to allowed for the assessment of penile functions. Increase flunitrazepam use significantly ($p<0.05$) decreased the basal, peak, plateau intracavernous pressure (ICP) deduced from the ICP recordings, the erectile function index (ICP/MAP), penile concentration of the NO, nNOS, eNOS and iNOS, serum testosterone, dopamine and cGMP concentration and significantly ($p<0.05$) increased serotonin, acetylcholinesterase and PDE-5 concentration. Conclusion: The results have shown that prolonged flunitrazepam use impaired erectile function via destruction of the NO/cGMP/PKG pathway acetylcholine activities in the penile smooth muscles cells.

Keywords: Flunitrazepam, Penile, Erectile functions, Nitric oxide, Nitric oxide synthase

OP-11

Effect of Phytol on Antioxidant Status of Liver and Kidney of Testosterone -Induced Benign Prostatic Hyperplasia (BPH) in Male Uncastrated Rats

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Abstract

Benign prostatic hyperplasia (BPH) is a common urological disorder in ageing males, characterized by prostate enlargement and associated oxidative stress.Conventional treatments such as the use of 5-alpha-reductase inhibitors and surgery are effective but still have adverse effects and limitations such as bleeding and infection. Phytol, a naturally occurring diterpene alcohol, has been shown via in silico studies to possess activities which may potentially be useful in managing various diseases such as diabetes, cancer and BPH. However, the current literature lacks sufficient evidence regarding the effect of phytol on BPH. Therefore, this study was designed to investigate the antioxidant effect of phytol on testosterone-induced BPH in the liver and kidney of male uncastrated rats. Forty adult male Wistar rats weighing 90-100g were obtained and allowed to acclimatized for one week and were divided into five groups (n=8) as follows: normal control, BPH-induced group (testosterone-treated with 5mg/kg), two phytol-treated BPH rats administered doses of phytol (50mg and 100mg/kg) following testosterone administration and finasteride-treated BPH rats(1mg/kg). The phytol-treated rats were pre-treated for four weeks and BPH induction occurred via subcutaneous injection of 5mg/kg testosterone propionate for another four weeks alongside phytol administration. After treatment, biochemical markers of oxidative stress, including superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx), reduced glutathione (GSH), and malondialdehyde (MDA), were assessed in liver and kidney samples using spectrophotometry. Results indicated a significant increase in antioxidant enzyme activities (SOD, CAT, GPx) and GSH levels in the liver and kidney of BPH-induced rats, along with a marked decrease in MDA levels, compared to BPH rats. Phytol effectively mitigates oxidative stress and enhances antioxidant defense mechanisms in the liver and kidney of testosterone-induced BPH rats in dose-dependent manner. These findings suggest that phytol could be a potential therapeutic agent for managing oxidative stress-associated BPH condition.

Keywords: Phytol, BPH, Testosterone, Uncastrated Rats

OP-12

Effects of Aqueous Extract of Solanum macrocarpon L (AESM) Leaves on Lead Acetate -Induced Reproductive Toxicity in Male Wistar Rats

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Abstract

Lead exposure is a significant environmental concern known to impair male reproductive function. This study evaluated the protective effects of aqueous extract of Solanum macrocarpon L. (AESM) leaves against lead acetate-induced reproductive toxicity in male Wistar rats. Forty young adults male Wistar rats (200 g – 250 g) were randomly assigned into eight groups (n = 5). Group 1 received 1 ml/kg distilled water (control), while Group 2 was administered 60 mg/kg lead acetate. Groups 3, 4, and 5 received 60 mg/kg lead acetate alongside 250 mg/kg, 500 mg/kg, and 750 mg/kg AESM, respectively. Groups 6, 7, and 8 were treated with 250 mg/kg, 500 mg/kg, and 750 mg/kg AESM alone. All administrations lasted for 28 days and was done orally. Lead acetate exposure significantly reduced body weight, reproductive organ weight, luteinizing hormone, follicle-stimulating hormone, testosterone, glutathione levels, sperm motility, and sperm count, while increasing the percentage of sperm cells with abnormal morphology. Histological analysis revealed degeneration in the testicular and epididymal architecture. Co-administration of AESM with lead acetate mitigated these toxic effects, demonstrating dose-dependent improvements in hormonal balance, sperm parameters, and antioxidant levels. Additionally, AESM preserved the histo-architecture of the reproductive organs, suggesting its protective potential against lead-induced reproductive toxicity. In conclusion, AESM exhibits promising protective effects against lead acetate-induced reproductive damage, highlighting its potential as a natural therapeutic agent for male reproductive health. Further studies are warranted to elucidate its mechanisms of action and clinical relevance.

Keywords: Lead Acetate, Solanum macrocarpon, Hormones, Histology, Reproductive Toxicity.

OP-13

Effects of Methanol Extract of *Ficus exasperata* on Kidney Function and Expression of KIM-1, NGAL, Cystatin C, and Paraoxonase in Diabetic Male Wistar Rats

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Abstract

Diabetic nephropathy, a major complication of diabetes mellitus and a leading cause of end-stage renal disease (ESRD), has limited therapeutic options, necessitating the search for alternative treatments. *Ficus exasperata*, widely used in African traditional medicine, contains bioactive compounds with therapeutic potential. This study investigated the effects of the methanol extract of *Ficus exasperata* (MEFE) on kidney biomarkers in diabetic rats. *Ficus exasperata* leaves were collected, air-dried, powdered, and extracted using 99.9% methanol. Thirty-six Wistar rats were assigned to four groups (n=9/group): control, diabetic untreated, diabetes + MEFE (200 mg/kg), and diabetes + insulin (0.3 IU). Treatments were administered for 28 days. Kidney biomarkers were analyzed using spectrophotometry, ELISA, and qPCR, while *in silico* docking studies explored receptor-ligand interactions. Data were analyzed using one-way ANOVA with Tukey's post-hoc test ($p < 0.05$). Docking studies revealed strong binding affinities of MEFE constituents, particularly Kaur-16-ene and Eudesma-4(15),7-dien-1β-ol, with renal targets such as RAGE, AT1, TGF-β, and IR. MEFE (200 mg/kg) significantly improved body weight, renal biomarkers (urea, creatinine, β2-microglobulin, TIMP-2, IGFBP-7), glucose levels, and antioxidant enzyme activities (SOD, GPx, TAC) compared to diabetic untreated rats. Electrolyte imbalances were corrected, with enhanced sodium and bicarbonate levels. Additionally, MEFE downregulated kidney injury markers (KIM-1, NGAL, Cystatin C, and paraoxonase) at the mRNA level, indicating reduced oxidative stress and inflammation. These findings highlight the nephroprotective potential of *Ficus exasperata*, suggesting it as a promising therapeutic option for managing diabetes-induced renal injury.

Keywords**:** Diabetic nephropathy, *Ficus exasperata*, Kidney biomarkers, Antioxidant enzyme activities, Nephroprotective therapy

OP-14

Evaluation of Prevalence and Risk Factors for Pregnancy-induced Hypertension among Antenatal Women

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Abstract

Pregnancy-induced hypertension (PIH) is one of the most leading causes of maternal and fetus mortality. This study aimed to evaluate the prevalence of PIH and associated risk factors among pregnant women attending antenatal clinic in Adeoyo Maternity Hospital, Ibadan. A cross-sectional study involved 200 pregnant women. Data collected with questionnaires and analysed with IBM SPSS version 21.0. Frequency and bar charts were used to summarize the variables. A p-value less than 0.05 in all statistical tests were considered significant. The prevalence of PIH was 18.0%. In this study, 97% had normal pulse rate. About 88% had GA within 7-8 months. More than half (55%) were obese. About 61% tested negative of the protein urine test. Most (67%) were between ages 25-34 years. Half (50%) had their educational level up to secondary school. Only 45% are primigravida. History of hypertension in first degree relative (31%). Only 12% had prior history of miscarriage, and 7% had prior history of stillbirth. Only 8% are diabetic. The most important risk factors for PIH in this study are; obesity [adjusted odds ratio (OR) = 1.52, 95% confidence interval (CI): 0.134– 9.135], positive protein urine test [aOR=1.14, 95% CI: 0.84–2.56], secondary level of education [aOR=2.1, CI: 0.94–5.93], positive history of hypertension in first degree relatives [aOR=3.32, CI: 0.78–6.38], positive history of diabetes [aOR=3.49, CI: 0.49–7.39]. This study noted PIH is more prevalent in obese pregnant women with positive protein urine test, secondary level of education, positive history of hypertension in first degree relatives, and positive history of diabetes. Timely antenatal checkups and health education may reduce the severity of PIH.

Keywords: pregnancy-induced hypertension, prevalence, risk factors, antenatal, gestational age

OP-15

Ameliorative Potential of n-Hexane Extract of Anacardium occidentale Nut Kernel on Adolescent Mice Model of Autism Spectrum Disorder

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Abstract

Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition often characterized by difficulties in social interaction, communication, and repetitive behaviors. Recent studies suggest that inflammation in the brain may play a significant role in the development of ASD. This study aimed to explore the ameliorative potential of n-hexane extract of Anacardium occidentale (HEAO) on vaproic acid-induced ASD in Swiss mice. Thirty male Swiss mice were randomly assigned to 5 groups (n=6). On post-natal day (PND) 14, animals in group 2 to 5 were administered 200 mg/kg of VPA dissolved in normal saline subcutaneously while group 1 animals were administered normal saline only. Groups 3-5 subsequently received HEAO treatment (50, 100 and 200 mg/kg respectively) by oral gavage from PND 21 to PND 42 after which they were sacrificed. Neurobehavioural tests were conducted from PND 37 TO PND 40 to assess social interaction, repetitive behaviors, and memory. The brains of the animals were harvested after sacrifice and sectioned (prefrontal cortex and hippocampus). Oxidative stress and proinflammatory markers were assayed using brain homogenates. All data were expressed as mean ± SEM and analyzed using one-way ANOVA. Administration of VPA on PND 14 caused impairment in social interaction, repetitive behaviour, memory impairment and anxiety. It also caused significant changes in oxidative stress markers in the brain, as well as severe glial activation leading to elevated proinflammatory cytokine levels. When compared to the VPA group, HEAO treatment significantly ($p<0.05$) improved social interaction, repetitive behaviour, memory, and anxiety. It also ameliorated the elevated oxidative stress and proinflammatory cytokine levels in the mice brain. The n-hexane extract of Anacardium Occidentale nut kernel has significant ameliorative potential against valproic acid induced autism spectrum disorder in mice by reducing proinflammatory cytokine levels in the brain.

Keywords: Anacardium occidentale, Neuroinflammation, Autism spectrum disorder, Valproic acid, oxidative stress.

OP-16

Prevalence and effect of menstrual disorders on the quality of life of female undergraduate students in Federal University of Lafia, Nasarawa State, Nigeria.

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Abstract

Background: Menstrual disorders are conditions that affect a normal menstrual cycle. They are common among females of reproductive age. As such, these disorders can impact on the quality of life of female university students. Despite the prevalence of these conditions, there is limited research on this subject, particularly among undergraduates. Objectives: This study aimed to assess the prevalence of menstrual disorders and their impact on the quality of life of female undergraduates at the Federal University of Lafia, Nasarawa State, Nigeria. Methods: A cross-sectional survey was conducted involving 367 female students aged 16-28 years. Participants were selected through stratified random sampling. Data were collected using a structured questionnaire that included demographic information, menstrual health details, and the details to evaluate quality of life adopted from WHO-QOL. Data were analysed using statistical package of social science (SPSS) version 2023. Data were analyzed using frequency, percentages, chi-square test and independent t-test and a $p<0.05$ was considered to be statistically significant. Results: The findings revealed a prevalence of 86.2% for dysmenorrhea, 8.7% for amenorrhea, 1.4% for menorrhagia and 71.3% for premenstrual syndrome. The results also indicate that menstrual disorders had a negative impact on the quality of life of students; dysmenorrhea ($P< 0.001$), amenorrhea ($p = 0.004$), menorrhagia ($p = 0.045$) and premenstrual syndrome ($p < 0.001$). Results also showed a significant association between age and dysmenorrhea ($\chi^2 = 57.034$, $p < 0.001$), menorrhagia ($\chi^2 = 11.682$, $p = 0.009$) and premenstrual syndrome ($\chi^2 = 82.528$, $p < 0.001$) but there was no significant association between age and amenorrhea. Conclusion: The study highlights the need for enhanced menstrual health education and support services within educational institutions to mitigate the adverse effects of menstrual disorders on the lives of female students. Keywords: Menstrual disorders, prevalence, Lafia, students.

Keywords: Prevalence, menstrual disorders, Lafia, students

OP-17

Melatonin and Chondroitin Sulphate Mitigate Chondrocytes Damage and Degeneration caused by Diabetes-Osteoarthritis in Male Wistar Rats

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The concept of "diabetes-induced-osteoarthritis" (DOA) phenotype was proposed, indicating that oxidative stress and inflammation predispose people with Diabetes mellitus (DM) to Osteoarthritis (OA). The main pathologic features in DOA results from chronic hyperglycemia, enhanced advanced glycation end-products (AGEs), resulting to cartilage degeneration and subchondral bone sclerosis. This study is aimed to investigate the effect of melatonin (MEL) and chondroitin sulphate (CHS) on chondrocytes damage and degeneration in DOA-induced male Wistar rats. Forty-two male Wistar rats (175-200g) were randomly divided into seven groups (n=6) which are control, sham, DOA, and treated groups (CHS, MEL, CHS & MEL, metformin). After 21 days of treatment, blood samples were obtained via retro-orbital collection and the synovial fluid was collected and they were used for biochemical analysis. Data were presented as mean ± S.E.M, values were statistically significant at the level of $p<0.05$. The result revealed a significant ($p<0.05$) decrease in the antioxidant enzymes and collagen type-2 as well as a significant increase in insulin resistance, inflammatory markers, matrix metalloproteinase-13 (MMP-13), and a disintegrin and metalloproteinase with thrombospondin motifs (ADAMTS-5) in DOA group compared to the control group. However, these were significantly reversed in the treatment groups, and more potently in the combination group. The combination of CHS and MEL proved to be better than single administration of either CHS or MEL as treatment option in DOA. This validates combination of pharmacological methods as therapeutic option for OA due to its multi-factorial nature of etio-pathogenesis

Keywords: Diabetes-osteoarthritis; Melatonin; Chondroitin sulphate; Insulin Resistance; Hyperglycemia

0P-18

Nigella Sativa Oil Protects against Aluminium Chloride-Induced Alzheimer's Disease via Modulation of Cholinergic level and Brain Neurotransmitter

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Abstract

Alzheimer's disease (AD) is a neurodegenerative condition characterized by progressive degeneration of the hippocampal and cortical neurons, leading to impairment of memory and cognition. Neurodegenerative diseases, such as Alzheimer's disease, are a growing burden worldwide due to their high prevalence yet poor treatment. Although the pathophysiology of AD is unknown, loss of cholinergic neurons is one of the main features of AD neuropathology. This study aims to determine the modulatory role of Nigella sativa oil on cognitive impairments in aluminium chloride-induced Alzheimer's disease in Wistar rats. Twenty-four Wistar rats were randomized into four groups of six animals each. Group I received 1 ml/kg of distilled water. Groups II, III and IV received 100 mg/kg of AlCl3 orally; meanwhile, groups III and IV were co-administered Nigella sativa oil (1 ml/kg and 2 ml/kg) respectively for 42 days. On day 43, neurobehavioral tests (Morris water maze and Y-maze) were carried out. After that, animals were sacrificed and the whole brains were harvested and prepared for acetylcholinesterase and glutamate assays. Aluminium chloride significantly impaired long-term spatial learning and memory and decreased percentage alternation. It also increased acetylcholinesterase level, and glutamate concentration, However, Nigella sativa oil (1 ml/kg and 2 ml/kg) significantly improved long-term learning ability and spatial memory, and increased percentage alternation in the Y-maze test. Nigella sativa oil also significantly decreases acetylcholinesterase levels and glutamate concentration. This study showed that Nigella sativa oil can improve cognitive, spatial learning, and memory functions via modulation of cholinergic level and brain neurotransmitter.

Keywords: Alzheimer's disease, Nigella sativa, Learning and memory, Acetylcholinesterase, Glutamate

POSTER PRESENTATION

PP-1

Hepatic And Reproductive Toxicity Of Sub-Chronic Exposure To Dichlorvos And Cadmium On Male Wistar Rats

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Abstract

Objective: To investigate the hepatic and reproductive toxicity of dichlorvos and cadmium on male Wistar rats. Methods: Fifteen adult male Wistar rats (160-180 g) were randomly divided into three groups with 5 rats in each group. Group 1 received 0.5 mL distilled water orally and served as the control, groups 2 and 3 were orally treated with 2 mg/kg body weight (b.w.) dichlorvos and 2 mg/kg b.w. cadmium respectively for 35 days. Epididymal sperm profile, serum follicle stimulating hormone (FSH), luteinizing hormone (LH), testosterone concentrations, 17β-hydroxysteroid dehydrogenase activity (17 β-HSD), aspartate aminotransferase (AST), alanine aminotransferase (ALT), oxidant and antioxidant enzymes were evaluated using standard methods. Data were analyzed using analysis of variance at $p<0.05$. Results: Sperm count, 17β –HSD, catalase activity and MDA concentration were significantly reduced in cadmium treated group compared to control ($P<0.05$). Sperm fast motility and sperm viability were significantly reduced in dichlorvos treated group compared to control ($P<0.05$). Serum testosterone levels and SOD activity were significantly reduced in dichlorvos and cadmium treated groups compared with control group ($P<0.05$). Non-motile sperm was significantly increased in dichlorvos treated group compared to control ($P<0.05$) while AST activity was significantly increased in cadmium treated group compared to control ($P<0.05$). Conclusions: The reproductive and hepatic toxicity activities of dichlorvos and cadmium in male Wistar rats are similar.

Keywords: Dichlorvos, Cadmium, Sperm parameters, Pituitary testicular axis

PP-2

Anti-Ulcerogenic, Antioxidant And Mucogenic Effects Of L-Cysteine In Gastric Tissue Of Wistar Rats

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Abstract

Background: N-acetyl cysteine (NAC), a metabolite of sulphur-containing amino acid, is used as an antioxidant and a mucolytic agent. Cimetidine is a histamine H_2 receptor antagonist. Nonsteroidal anti-inflammatory drugs (NSAIDs) often cause gastrointestinal complications such as gastric ulcers and erosions. Recent studies on the pathogenesis have revealed that NSAIDs induce lipid peroxidation in gastric epithelial cells by generating superoxide anion in mitochondria and prostaglandin deficiency. Therefore, this study aims at investigating the gastroprotective effect, anti-inflammatory and anti-ulcerative effects of NAC at different doses (100 mg/kg, 300 mg/kg and 500 mg/kg) and cimetidine alone (50 mg/kg) against indomethacin induced gastric ulcer.**Methods:** Fifty male Wistar rats were used for this study and were randomly divided into two study groups of twenty-five (25) animals each. The first sub-group was used for the anti-ulcer studies; antioxidant enzymes (SOD and MDA), Nitric oxide (NO), mean ulcer score and gastric blood flow (GBF), while the second sub-group was used for the gastric mucus secretion study. Each sub group was divided into five groups (n=5/group): ulcer control, Lcysteine (100 mg/kg, 300 mg/kg and 500 mg/kg), cimetidine (50 mg/kg). Results were analysed using ANOVA at $p<0.05$. **Results:** The results of this study showed that L-cysteine (100 mg, 300 mg, and 500 mg respectively) pretreatment significantly reduced mean ulcer score (9.5±1.9; 7.5±1.5; 4.5±0.9) and MDA level (7.2±0.23; 7.49±0.3; 6.54±0.55), and increased SOD activity (10.69±0.1; 10.12±0.29 ,14.76±0.07) when compared with the mean ulcer score, MDA and SOD in the ulcer control group (39.5±7.9; 10.62±1.11; 5.02±0.74). NO level (10.8±0.44; 10.37±0.18; 8.41±0.06), gastric mucus secretion (0.92±0.008; 0.94±0.001; 0.99±0.001) and GBF (2.08±0.02; 2.11±0.06; 2.11±0.01) were significantly ($p<0.05$) higher in the L-cysteine pre-treated animals when compared with NO, mucus secretion and GBF in the ulcer control (7.86±0.09; 0.82±0.01; 1.02±0.01). **Conclusion:** This study shows that L-cysteine pre-treatment has anti-ulcer potential which might be mediated through increased antioxidant enzymes, increased mucus secretion and enhancing gastric blood flow.

Keywords**:** Cysteine, Cimetidine, Gastric ulcer, Wistar rats

PP-3

Complimentary Effects Of Yoghurt With Loperamid On Neem Oil Induced Diarrhea In Male Wistar Rats

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Abstract

Background: Yogurt is a fermented diary product which can be gotten from both animal source and plant source. It is selected for its ability to enhance the gut microflora and it has powerful anti-pathogenic and anti-inflammatory properties. This study investigated the therapeutic effect of pre-treatment with yoghurt in Neem oil induced diarrhea in male Wistar rats. **Method:** Forty (40) male Wistar rats were assigned to five groups (n=8/group). Groups 1 received distilled water *ad libitum,* group 2 was administered neem oil (3 mls) to induce diarrhea after 14 days, groups 3 and 4 received yoghurt 100% orally (2 mls/kg) and Loperamide (3 mls/kg) respectively for 14 days pre-treatment. Group 5 received 100% yogurt (2 mls/kg) combined with Loperamide (3 mls/kg) orally for 14 days. There after, diarrhea was induced with neem oil (3mls) orally via oral cannula to group 3-5 . The rats were euthanized by cervical dislocation after 4 hours of neem oil administration. The stomach and intestine were carefully dissected out and used for biochemical assays (MDA, mucin content, Colon weight/length ratio, gastric emptying, IgG, GSH). Blood was collected and used for (Tumor Necrosis Factor Alpha, Total Anti-oxidative Capacity). **Results:** Neem oil administration resulted in severe diarrhea of the gastrointestinal tract as well as significant decrease in MDA level in the group pre-treated with yoghurt + loperamide. There was an increase in the anti-oxidative parameters (TAC, GSH) in the group pre-treatment with yoghurt alone but shows more significant increase in the group pretreated with yogurt + loperamide. In the immunoglobulin assay, IgG in the yogurt+loperamide group was significantly increased compared to yogurt and loperamide alone group which shows a more therapeutic effect of both yogurt + loperamide together. In the gastic emptying analysis, the result shows a delayed time of emptying in the yogurt group compared to loperamide and control group and a more delayed time of emptying in the YG+LP group compared to the three other groups. The stomach mucin content shows a significant increase in the yogurt group and a more significant increase in the YG+LP group. **Conclusion:**Therefore, a combined effect of yoghurt and loperamide should be encouraged in the treatment of diarrhea.

Keywords: Diarrhea, neem oil, Yoghurt, loperamide, Rats, Pre-treatment

PP-4

The Modulatory Influence Of Humic Acid On Cognitive Impairment And Neurobehavioral Changes Induced By Colitis In Adult Male Wistar Rats

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Abstract

Ulcerative colitis (UC) is a chronic infammatory disorder that affects any part of the colon. UC often coexists with neuropsychiatric symptoms like anxiety, depression, and cognitive impairment. Current drugs for managing UC have adverse effects and are ineffective against these comorbid conditions. While recent studies suggest humic acid may offer novel benefits, there is a notable gap in the literature on its effects on colitis-induced neurobehavioral impairments. This study was conducted to investigate the role of humic acid (HA) in attenuating neurobehavioral disorders caused by dextran sulfate sodium–induced ulcerative colitis in male Wistar rats. Methods Twenty male Wistar rats were randomly assigned into groups (n=5). Group 1 [control group]; group 2 [5% dextran sulfate sodium (DSS) without any additional treatment]; group 3 [5% DSS followed by administration of humic acid (30 mg/ kg)]; group 4 [5% DSS followed by administration of sulfasalazine (200 mg/kg)]. The behavioral patterns of the rats were assessed pre-colitis induction, immediately after colitis induction on day 5, and immediately after drug treatment for ulcerative colitis (post-treatment). The disease activity index (DAI) for colitis was obtained on days 1, 3, 5, and 10 of the experimental duration. Thereafter, the brains were harvested for biochemical assays. Data were analyzed using ANOVA at $p<0.05$. Results Treatment with humic acid signifcantly attenuated anxiety, depression-like behavior, and cognitive impairment triggered by DSS-induced ulcerative colitis, with a decrease in the progression of DAI. A signifcant decrease in hippocampal and striatal MDA and nitrite levels, an increase antioxidant (SOD, catalase, GSH, and GST) levels, and a significant reduction in acetylcholinesterase (AChE) activity levels were also observed. Conclusion The present study demonstrates that humic acid suppresses the cognitive and behavioral changes caused by DSS-induced ulcerative colitis via its modulations of nitro-oxidative stress, brain enzymatic antioxidants, and neurochemicals.

Keywords**:** Brain-gut axis, Humic acid, Neurobehaviour, Antioxidants, Ulcerative colitis

PP-5

Neuroplasticity And Cognitive Activities Of Vernonia Amygdalina In Scopolamine Induced Memory Impairment In Mice

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Abstract

Memory impairment refers to a condition where an individual experiences difficulty in remembering information or events. Neuroinflammation and amnesia are common features of neurodegenerative and neurological disorders. Bioactive phytochemicals in certain edible leaves and seeds have been shown to possess neuroprotective properties. Vernonia amygdalina leaves are used in folkloric medicine for managing nervous disorders, but this claim is yet to be validated. Hence, this study was designed to evaluate the therapeutic potentials of Methanol Extract of Vernonia amygdalina leaves (MEVA) ameliorate cytokines, BDNF and Acetylcholinesterase activities in Scopolamine induced memory impairment in mice. Vernonia amygdalina was purchased within Ondo town, the leaves were pulverized and cold extracted with methanol was carried out. Thirty (30) male mice (18-22g) were divided into six experimental groups(n=5), Group 2 to 5 were pre-treated with MEVA (10mg/kg) orally and Group 6 was pre-treated with 5 mg/kg donepezil and the control group received distilled water (10ml/kg) for 7 days. Scopolamine (SC) 3mg/kg was post-treated intraperitoneally an hour after the pre-treatment of MEVA (100mg/kg) in the mice for 7 consecutive days from group 2 to 6. Memory enhancing activities were accessed using Novel Recognition Test and Y-maze test. Data were analyzed using ANOVA at $P<0.05$. The MEVA (100mg/kg alone, 100mg/kg+scopolamine and donepezil significantly increase the alternate percentage of arm entering in Y-maze. The Novel recognition test showed significant increase in the treated groups: 100mg/kg+scopolamine, 100mg/kg alone when compared to scopolamine (3mg/kg) treated group. There was significant increase in Acetylcholinesterase and Tumor Necrosis Factor-alpha (TNF-α) when compared with scopolamine and there was significant decrease in BDNF (Brain-Derived Neurotrophic Factor) when compared with the scopolamine. Vernonia amygdalina might show a natural remedy for mitigating memory impairment induced by scopolamine in animal models. Its potential mechanisms of action include modulation of cytokines, enhancement of BDNF levels, and inhibition of AChE activity.

Keywords: Neuroplasticity, Memory impairment, Vernonia amygadalina, Scopolamin