FEDERAL UNIVERSITY DUTSE

FACULTY OF BASIC MEDICAL SCIENCES

BOOK OF ABSTRACTS

1ST "FBMS-FUD-iCISH 2024" SCIENTIFIC CONFERENCE INTERNATIONAL CONFERENCE ON INTERDISCIPLINARY SCIENCES FOR HEALTHCARE IMPROVEMENT

4th – 5th November, 2024

THEME:

Connecting the Dots through Interdisciplinary Sciences to Improve Health Care System in Nigeria

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PROGRAM OF EVENT

- 9:00 AM – 10:00 AM
  Attendance & Arrival of Guests

- 10:00 AM – 10:10 AM
  Opening Prayers, National Anthem and FUD Anthem

- 10:10 AM 10:15 AM
  Welcome Address: Vice-Chancellor and Opening of the Ceremony (Chief Host)

- 10:15 AM 10:20 AM
  Welcome Speech: Provost College of Medicine and Allied Medical Sciences (Host).

- 10:20 AM 10:25 AM
  Opening Remarks: Dean Faculty of Basic Medical Sciences.

- 10:25 AM -10:40 AM
  Keynote Speech: Prof. Hadiza Galadanci
  Topic: The role of Healthcare Policy in managing Antimicrobial Resistance: Lessons from High Burden Regions

- 10:40 AM -11:10 AM
  Keynote Speaker 2: Professor Barnabas Danborno (15 Minutes)
  Artificial Intelligence in Academia: Transforming Research and Teaching Practice

- 11:00 AM-12:00 AM
  PLENERY SESSION

- Speaker 1 : Professor Yamuna Kani (15 Minutes)
  Integrating Basic Medical Research into Clinical Practice, Bridging the Gaps in Obstetrics and Gynecology

- Speaker 2: Prof. Hadiza Nuhu (15 Minutes)
  Integrating Traditional and Alternative Medicine in Modern Healthcare: Opportunities and Challenges

- Speaker 3: Professor M. I. Jawa (15 Minutes)
  Treatise on the four Elements, Temperaments and Humors within the Context of African Traditional Medicine

- 12:00 AM-12:10 PM
  Closing Remarks and Vote of Thanks: Dr Salihu Ibrahim Ismail, Dean Faculty of Basic Medical Science

- 12:10 PM-12:20 PM
  Closing Prayers
  A group photo with dignitaries, staff, and students

- 12:30 PM- 1:30 PM
  Lunch break

- 2:00 PM - 4:00 PM
  Technical Session

- BREAKOUT SESSIONS
  Department of Medical Biochemistry
  Department of Human Physiology

- VIRTUAL SESSION
  FBMS Digital Recreation Center

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Relationship of Some Anthropometric Parameters, Socio-Economic Status and Academic Performance Amongst Secondary School Students in Zaria

A.S Adebisi*[1]., A.N Agbon[2]., L.H Adamu[3]., R.O Shona[4]., S.O Ajibi[1]., M.O Sulieman[3]

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Abstract

The study of intelligence quotient (IQ) is important clinically (mental), academically and in social economic life. The aim/objectives of the study were to assess intelligence quotient in relation to anthropometric parameters and parental social economic status among secondary school students of high profile and low profile schools in Zaria. Subjects (students) from Demonstration secondary school Ahmadu Bello University, Zaria was regarded as the high profile school and Government Secondary School Muchia, Zaria was regarded as the low profile school. The study considered several anthropometric parameters (age, height, weight, body mass index, head circumference, and cephalic index), parental socio-economic factors (parents level of education and parents' occupation). Five hundred and forty-one (541) subjects, male and female between the ages of 13-17 years from both schools were employed for this study. A structured questionnaire type was used to collect various socio-demographic factors, IQ test was conducted using standardized Wechsler children intelligence scale (WCIS) for the subjects, Stadiometer was used to measure height and weight to get the BMI, Spreading caliper was used to measure head length and breadth to get the cephalic index, while a non-stretchable tape was used to measure the head circumference. Collected data were analyzed using SPSS version 21.0. Results showed that there was no relationship between anthropometric parameters and IQ levels, but there was a significant relationship between parental socio-economic status and IQ levels of subjects, which explains why students from high profile school perform better than those from low profile school. Sex (male and female) have no correlation with IQ levels. In conclusion, there was no relationship between anthropometric parameters and IQ levels, but there exist a significant relationship between socioeconomic status and IQ.

Keywords; BMI, Cephalic Index, Head Circumference, Intelligence quotient

Cytotoxic Effect on Nigeria Northern *Echis Spp*: Implications for Immunomodulation and Therapeutic Application

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Abstract

Background: "Toxin arsenal" is a term mimicking a handful of harmful substances consisting of bioactive molecules with potentials of therapeutic activity. This study investigates the cytotoxic effect of Northern *echis ocellatus* venom on PBMCs and HepG2 exploring its immunomodulatory and anticancer properties. **Objectives:** To evaluate the cytotoxicity of Northern *echis ocellatus* venom on Hepatocellular carcinoma (HepG2) and Peripheral Blood Monocyte Cells (PBMCs) cell lines. **Method:** The (3-(4,5-dimethylthiazol2-Yl)-2,5-diphenyltetrazolium bromide assay was used as a screening tool to determine the approximate cell viability and the half-maximal inhibitory (IC50) respectively. The venom was screened using HepG2 and PBMC cell lines. **Result:** Viability was assessed following exposure to a series of concentrations showed cytotoxicity of values ranging from 0 to 500µg/mL and 0 to 200µg/mL. The IC50 was 14.54µg/mL and 25.70µg/mL for HepG2 and PBMC respectively. Apoptosis was observed in concentration-dependent manner. **Conclusion:** Nigeria Northern *echis ocellatus* venom exhibits increased cytotoxic effect on HepG2 compared to PBMC cell lines; thus apoptotic effect is more on the carcinoma cells compared to the normal blood cell line. This is suggestive of *echis ocellatus* venom as a potential immunotherapy and cancer treatment.

Keywords: Northern *echis spp* venom, PBMCs, HepG2, immunotherapy, cancer, Apoptosis

Utilization of E-Learning among Students at Nursing Schools in North Western Nigeria

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Abstract

This study investigates the utilization of e-learning among nursing students in North Western Nigeria, particularly in the context of advancements in educational technology following the COVID-19 pandemic. An analytical cross-sectional descriptive design was employed, collecting data from three nursing schools across three states. A total of 307 nursing students were recruited using a multi-stage sampling technique, and data were gathered through a structured self-administered questionnaire, which was validated for reliability prior to distribution. The analysis revealed that the mean age of participants was 25 years, with 63% being female. Notably, 83.6% of respondents were single, and 65.9% possessed a Secondary School Certificate Examination (SSCE), while 57.4% reported no formal computer training. The findings indicated a high level of e-learning utilization at 62%. However, several technological challenges were identified, including inadequate e-learning facilities (mean score: 2.83), lack of functional computer laboratories, insufficient training opportunities, and a shortage of instructors (mean score: 2.78). A statistically significant relationship was found between students' perceptions and their e-learning utilization ($p = 0.003$).In conclusion, while nursing students exhibit a high level of e-learning utilization, addressing the identified technological barriers is essential. Recommendations include enhancing ICT resources in schools and promoting ongoing computer skills education for both students and educators.

Keywords: E-learning, Nursing education, North Western Nigeria, Utilization

Modulatory Role of Rutin Administration on Body Weight in High-Fat-Diet Fed Wistar rats

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Abstract

Background: Chronic inflammation of body tissues is strongly correlated to energy imbalance, utilization and regulation that leads to insidious excess body weight linked to numerous health complications. Micronutrients taken continuously aid in mitigating adverse effect of macro energy substrates. Modulatory effect of rutin given as supplement to high fat diet fed Wistar rat is been studied. **Method;** Twenty eight (28) wistar rats were grouped into four (4) groups n=7. Group I allowed access to normal rat feed and water ad libitum. Groups II, III and IV were fed with high fat diet for 12 weeks, concurrently Group II was treated with distilled water 2ml/kg/daily, group III with 200mg/kg/daily and group IV with 400mg/kg/daily. Animals length, and weight were taken weekly for body mass index (BMI) calculation, data generated were statistically analyzed using SPSS version 23.0. **Results**: Significant increase ($P<0.05$) in BMI was observed in group II after the treatment period, while a significant ($P<0.05$) decrease in BMI was revealed in Group III and IV when compared with the BMI of Group II at the end of treatment. **Conclusion**: Rutin revealed protective effect against development of abnormal BMI that can lead to obesity.

Keywords: Rutin, High fat diet, BMI

Bio-assessing the Efficacy of Locally Formulated Ready-to-Use Therapeutic Food (RUTF) on Low-Protein-induced Malnourished Albino Rat Models

[1,2*]Babandi, A., [2]Nassarawa, R.A., [2]Sagir, H.H., [2]Yakasai, H.M. [1,2]Murtala, Y., [2]Shehu, D., [3]Salihu, I., [3]Muhammad, A., [1]Abubakar, N., [2]Mashi, J.A. and [2]Babagana, K.

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Abstract

Introduction: Malnutrition arises from insufficient or improper nutritional intake, leading to changes in body composition that result in decreased physical and mental function, higher mortality and morbidity rates, and poor clinical outcomes, particularly in children under five. Ready-to-use Therapeutic Food (RUTF) is a nutrient-rich product designed to provide a complete diet to malnourished children and support their recovery. **Objectives:** This study aims to assess the impact of consuming various RUTFs formulated from locally sourced ingredients on low-protein induced malnourished rats' model. **Methodology:** Locally formulated RUTFs were created using maize, soybeans, vegetable oil, and sugar, all readily available in Kano State, Nigeria. The formulations tested include A (the UNICEF standard RUTF recipe), B, C and D (high, moderate & low-protein diet, respectively), and E (standard chow). Their effects on body weight, serum protein, glucose, and lipid profile levels were evaluated using standard methods. **Results:** The study results demonstrated a significant decrease in the rats' weight during the low-protein diet phase ($p<0.05$), with weight increasing significantly after RUTF administration. Additionally, serum total protein, glucose and lipid profile levels were markedly lower in rats on a low-protein diet ―D‖ compared to those on the formulated RUTFs ―A‖, ―B‖ and ―C‖ ($p<0.05$). However, no significant differences were observed in serum total protein, glucose, or lipid profile between the rats fed formulated RUTFs and those in the control group ―E‖ ($p>0.05$). **Conclusion:** These findings suggest that locally formulated RUTFs have the potential to treat malnutrition in albino rats and could be effective in rehabilitating malnourished children.

Keywords: Formulation, Lipid profile, Low-protein diet, Malnutrition, RUTF

Effects of Aqueous *Allium sativum* Bulb Extract on Monosodium Glutamate-Induced Renal Toxicity in Guinea Pigs

Aliyu Sabo Aliyu*[1], Awan Stephen Kasham [1], Nana-Asmau Hassan [1], Idris Abdu Tella [1]
Abdullahi Gudaji [1], Rilwanu Bello [2], Ali Bala Umar [3]

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Abstract

Background: Monosodium Glutamate (MSG) is one of the most widely used food additives. MSG sold under brand name AJI-NO-MOTO is a sodium salt of naturally occurring (non-essential) L-form of glutamic acid routed into the body with absolutely no limits in hundreds of food items daily. Therefore, its toxicological effects, are of major public health challenge. This research aimed to investigate the effects of aqueous *Allium sativum* bulb extract on MSG-induced renal toxicity in Guinea pigs. **Methodology** In the present study, 25 Guinea pigs were divided into 5 groups, named and treated as follows; Group A (Control) received normal saline. Group B received MSG (150 mg/kg bwt). Groups C, D, and E received 150 mg/kg of MSG with 500 mg/kg, 1000 mg/kg, and 1500 mg/kg of aqueous *Allium sativum* bulb extract respectively. All administration was via oral route and lasted for 21 days. Twenty four hours (24) after last administrations experimental animals were sacrificed via cervical dislocation and kidneys were harvested for histological studies, while blood was collected for biochemical studies. **Results** In MSG-treated Guinea pigs, examined sections revealed degenerated lumen, shrunken glomeruli with widening of capsular spaces, tubular dilations and shortening of tubular epithelium. Additionally, MSG caused significant increase in urea and creatinine levels. Notably, these changes were restored by *Allium sativum* bulb extract. **Conclusion:** The study showed MSG caused distortions on renal tissue, which can impair the kidneys functions as corroborated by urea and creatinine levels. However, *Allium sativum* (Garlic) protected against MSG-induced renal toxicity by its antioxidant properties.

Keywords; Monosodium glutamate, glutamic acid, *Allium sativum*.

Fingerprint White Line Variation and its Predictive and Discriminative Potentials in Fulani and Higgi Tribes of Michika, Nigeria

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Abstract

Introduction: Human identification and authentication in biometrics and forensic sciences have been key processes particularly with the advent of smart technology. Fingerprint is crucial in this regard. **Aim:** This study aimed to determine fingerprint white line variation and its predictive and discriminative potentials in Fulani and Higgi tribes of Michika, Nigeria. **Methodology:** 511 participants of 5 to 19 years were recruited. These constituted both Fulani and Higgi male and female. Fingerprints of all ten digits were captured using live scanner device and white line count were determined. Data were expressed in mean ± SD, frequency and percentages. Sexual dimorphism and ethnic differences were determined using independent sample t test. Age–developmental stage differences were analysed using oneway ANOVA. Binary logistic regression analysis was used to discriminate sex, age–developmental stage and ethnicity from fingerprint white line count. SPSS version 26.0 statistical software was used for statistical analysis and $p < 0.05$ was set as the level of significance. **Results:** White lines (WL) showed significant sex differences in both ethnicities with females displaying more WL than males. Fulani displayed more WL in both sexes and on both hands than Higgi. The number of WL increases significantly from childhood to pre adolescence and decrease slightly to adolescence in Fulani female and Higgi male. These suggest that FWLC might be used to estimate the age of an individual and can thus be good in geriatric studies. **Conclusion:** fingerprint WL are good predictors of age developmental stage, sex and ethnicity.

Keywords: Fingerprint, White-line, Michika.

Potency of Chloroform Flower Extract of *Azadirachta Indica* (Neem) Against Clinical Isolates Associated With Eye Infection

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Abstract

A study on the phytochemical and antibacterial effects of Chloroform Flower Extract (CFE) of *A. Indica* against some clinical isolate associated with eye infection namely: *Staphylococcus aureus, Kleibseilla species, and Pseudomonas aeruginosa*, was carried out using agar diffusion and broth dilution methods. Physicochemical properties showed that CFE was dark brown in colour, pungent in smell and dry in texture. Phytochemical screening revealed the present of reducing sugar, Tannins, Steroids, Flavonoids, Saponins, Phalabactanins, and Alkaloids while Resins and Anthraquinonoid were absent. The result of the antibacterial activities obtained showed that CFE possessed the highest antibacterial activity against *Pseudomonas aeruginosa* with inhibition zone of 16mm followed by *Kleibseilla species* with inhibition zone of 15mm and *Staphylococcus aureus* with inhibition zone of 13mm at the concentration of 5000µg/ml respectively. The minimum inhibitory concentration (MIC) of the CFE was 156.26 µg/ml against *Staphylococcus aureus* and *Kleibseilla species* ,312.5µg/ml against *Pseudomonas aeruginosa*. The Minimum Bactericidal Concentration (MBC) of CFE was 625µg/ml against *Kleibseilla species* and *Pseudomonas aeruginosa*,312.5µg/ml against *Staphylococcus aureus.*

Keywords: Antibacterial activities, *Azadirachta indica*, Phytochemical Screening, Chloroform, Eye Infection MIC, MBC.

GC-MS and FTIR Analysis of the Methanolic Leaves Extract of *Telfaria Occidentalis* Leaves.

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Abstracts

The current analysis was carried out to determine the chemical components in the leaves of Telfairi Occidentalis. The GC-MS analysis of methanolic leaves extract of Telfairia Occidentals indicate the presence of 12 compounds. The prevailing compounds of T. Occidntalis leaves were Oxirane, tetramethyI-, Ethanimidic acid, ethylester, ITridecanamine,N,N – dimethyI-, CyclohexanemethyI propanoate, Nonanoic acid, Hexadecanoic acid, methylester, n-Hexadecanoic acid, 9, 15-Ocatadecadienoic acid (Z,Z)-, ICylohexylnonene. These compounds have antibacterial, antifungal, antioxidant, hemolytic, insecticidal, and lubricant activity. Fourier transform infra-Red Spectroscopy (FTIR) leaf analysis of Telfaria Occidentalis shows the present of various probable functional groups with different type of vibrations such as, amide, amine, alkane, alkene, alkyne, ester, carboxylic acid, aliphatic amine and alkylhalide. The present study revealed that T. Occidentalis leaves present various types of bioactive compounds. Hexadecanoic acid as 5 alpha reductace inhibitor, Octadecenoic acid as (anti-imflammatory and antileukotriene-D4, 9,12-Octadecadienoic acid) as (5-Alpha Reductase-inhibitor, antialopecic, Antiarteriosclerotic, Antiarthritic, Anticoronary, Antifibrinolytic, Antihistaminic, Antiinflammatory, Antileukotiene-D4, Antimenorrhagic, Antiprostatitic, cancerpreventive, carcinogenic, Comedolytic, Hepatoprotective, Hypocholesterolemic, Immunomodulator, nHexadecanoic cid with antioxidant, hypocholesterolemic nematicide, pecticide and antiandrogenic flavor hemolytic, 9,15-Octadecadienoic acid and 9, 12 Octadecadienoic acid shows anti-inflammatory, hypocholesterolemic cancer preventive, hepatoprotective, nematicide, antihistaminc, antieczemic, antiacne, 5-Alpha redustase inhibitor, antiarthritic, anticoronary and insectifuge activity.

Keywords: T. Occidentalis, Bioactive, Extract, FTIR

Effects of Cigarette Smoking on Nutritional Status Among Youths Cigarette Smokers (A Case Study of Unguwa Uku Kumbotso LGA, Kano State, Nigeria)

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Abstracts

This research project examined relationship between nutritional status and cigarette smoking. It has shown that smoking have significant adverse impact on nutritional status through interfering with appetites and increasing requirement of nutrients. Hence, smokers are at risk of both micro and macro nutrients deficiency manifesting by their physical appearance such as appearance of ribs, moon face, thinness and fatness some of the main key points presented were the cause of their smoking and mostly their feelings which contributes more to their smoking habit.

It was observed that cigarette smoking among youths have effect on their health and nutritional status. Hence, additional effort is needed to help reduce the level of cigarettes smoking among the youths.

Keywords: Malnutrition, Nutritional status, Smoking, Appetite, Deficiencies, Nutrients

EPAC Activation Reduces Transendothelial Migration of Undifferentiated Neuroblastoma Cells and this Effect is Further Amplified in Differentiated Neuroblastoma Cells

***Inuwa Rabiu Fage[1,2], Diana Moss[1], John Quayle[1] and Rasha Swadi [3]**

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Abstract

Introduction: Neuroblastoma, a malignancy arising from primitive sympathoadrenal neural precursors, is the most common solid extracranial tumor in children. Despite advancements in pediatric oncology, it remains responsible for approximately 15% of cancer-related deaths in this population. The prognosis is particularly poor for patients with metastatic disease, where high mortality persists even with aggressive treatments. Metastasis in neuroblastoma involves the migration of tumor cells across the endothelial barrier, a critical step in disease progression and resistance to therapy. Research suggests that increased levels of cyclic adenosine monophosphate (cAMP) can strengthen endothelial cell adhesion, potentially inhibiting metastatic infiltration. This study aims to investigate the effect of Epac activation on transendothelial migration of both undifferentiated and differentiated neuroblastoma cells in vitro. **Methods:** Our investigation began with an initial evaluation of cAMP, a critical regulator of endothelial permeability, on the proliferation, migration, and invasion of neuroblastoma cell lines in vitro. SK-N-BE2C and SK-N-AS cells were used as experimental models. Migration was analyzed using scratch assays, proliferation was measured with MTT assays, and invasion was assessed through matrigel cell spheroid invasion assays, conducted over 48 hours. Cells were exposed to cAMP agonists and antagonists for 24 hours to observe their effects. Next, we established co-cultures of both undifferentiated and differentiated neuroblastoma cells with Human Dermal Microvascular Endothelial Cells (HDMEC) to study transendothelial migration. The impact of Epac agonists and antagonists on transendothelial migration was evaluated over a 12-hour period using the Cell IQ machine. **Results:** Preliminary results indicate that neither cAMP agonists nor antagonists significantly affected the migration, invasion, or proliferation of SK-N-BE2C or SK-N-AS cells during the 24-hour treatment period. However, treatment with Epac1 agonists led to a notable reduction (~52%) in transendothelial migration of both SK-N-BE2C and SK-N-AS cells after 12 hours of exposure. This effect was further enhanced in differentiated neuroblastoma cells, demonstrating an even greater reduction in migration. **Conclusions:** Our result indicate that Epac1 agonists can significantly inhibit the transendothelial migration of neuroblastoma cells, likely by strengthening the endothelial cell barrier. This suggests that Epac1 agonists could potentially serve as an effective adjuvant therapy for high-risk neuroblastoma patients.

Keywords: Neuroblastoma, Epac, Transendothelial migration, Proliferation, Invasion.

Association of Prostate Cancer Incidence with Grilled Meat Consumption among Elderly People: A Cross-Sectional Study

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Abstract

Background: Prostate cancer is one of the most common cancers among elderly men globally, with various dietary factors potentially influencing its occurrence. Recent studies have suggested a link between high consumption of grilled meats, particularly those containing heterocyclic amines (HCAs) and polycyclic aromatic hydrocarbons (PAHs), and an elevated risk of prostate cancer. However, the relationship between grilled meat consumption and prostate cancer incidence remains underexplored in elderly populations. **Objectives:** This study aims to investigate the association between grilled meat consumption and the incidence of prostate cancer among elderly individuals, particularly focusing on those aged 65 and above. **Methodology:** A cross-sectional study was conducted among 500 elderly men aged 65 years and above, randomly selected from five urban and rural communities. Data on dietary habits, including the frequency and amount of grilled meat consumption, were collected using structured food frequency questionnaires. Prostate cancer diagnosis was confirmed through medical records. Statistical analysis was performed using chi-square tests and logistic regression to assess the association between grilled meat consumption and prostate cancer incidence, adjusting for potential confounders such as age, family history, and lifestyle factors. **Results:** The study found that 30% (150/500) of the participants had been diagnosed with prostate cancer. Among those diagnosed, 65% reported high grilled meat consumption (≥4 times per week), while only 25% of the non-cancer group reported similar consumption patterns ($p < 0.01$). Logistic regression revealed that high grilled meat consumption was associated with a 2.5-fold increased risk of developing prostate cancer (OR 2.5, 95% CI 1.8–3.4). **Conclusion:** The findings suggest a significant association between frequent grilled meat consumption and increased prostate cancer incidence among elderly men. These results highlight the need for dietary modifications and further research to explore the basic mechanisms of this association.

Keywords: Prostate cancer, grilled meat, heterocyclic amines, elderly, dietary risk factors.

Ethnomedical Utilization of Herbal Medicine in Management of Climatic Changes Seasonal Fever, in the Northern Nigeria, Kachako Town as a Case Study.

***Yakubu Maigida Kachako (TMP)[1], Abdullahi Ismail (TMP)[1], Abdulkadir M Hassan (TMP)[1]**

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Abstract

As in 1992 WHO regional office for the western pacific invited a group of experts to develop critic and general principles to guide research work on evaluating herbal medicines (WHO, 1993). This group recognized the importance of Herbal Medicines to the health of many people throughout the world. Majority of people in Africa also use plant based traditional medicines for their health care. Ethno medical Utilization of Herbal Medicine in the Management of Seasonal Fever involves the Traditional practices and indigenous knowledge of using herbs to treat fever that occurs seasonally, often due to climatic changes and environmental conditions. Kachako Town, located in Takai Local Government Area, Kano State, Nigeria. Kachako, with a 2015 population of 248,166, has a rich history of using Traditional Herbal Remedies to treat common ailments such as fever. Ethno medicine relies on locally available plants with therapeutic properties that have been passed down through generations. *The presentation is basically on climatic changes Seasonal fever, how to identify, diagnose and treat it within the context of traditional medicine. Seasonal Fever is commonly known to most of our people in Hausa as "ZAZZABIN YANAYI" regardless of what causes it,*

Keywords: Ethnomedicine, Fever, Climate change.

Evaluation of Leadership Style of Nurse Managers on Nurses' Job Satisfaction in Tertiary Healthcare Facilities of Jigawa State, Nigeria

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Abstract

The leadership styles could create a conducive work atmosphere for job satisfaction, and nurses' job satisfaction could improve the performance of quality care services and patient outcomes. This study aimed to evaluate the leadership styles used by nurse managers, determinants of leadership style choice, and relationship with levels of nurses' job satisfaction, and to determine relationships among the variables and suggest ways for improvement. A descriptive cross-sectional study design was employed, using a mixedmethod approach. A sample of 199 was recruited. Two standardized questionnaires were adapted for leadership style and job satisfaction, an in-dept interview guide was developed. Quantitative data was collected, organized, and analyzed with SPSS 24. The overall nurses' job satisfaction revealed that nurses were strongly dissatisfied with their work with a mean score of X=0.65 and a standard deviation of ±0.5. For the qualitative data, interview sessions were recorded, transcribed, and analyzed using thematic content analysis. Two main themes emerged; are leadership styles and determinants of choice of leadership style. The determinants of the choice of leadership style include the leader, subordinates, and workplace situations. The choice of leadership styles was associated with the Leaders' behaviours, the

Subordinates' behaviours and Workplace situations. It is concluded that the role of the head nurse was found to be of paramount importance in reducing stress and enhancing job satisfaction among nurses. It is recommended that; nurse managers need leadership training for the development of requisite leadership competencies sensitive to the needs of nurses that will promote job satisfaction.

Keywords: leadership style, nurses, job satisfaction

Child Feeding Practice and Prevalence of Diarrheal Disease among Children Under Five (A Case Study of Air Force Hospital Kano State, Nigeria)

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Abstract

The research work was conducted in Air Force Hospital local government area. The aim of the research was to investigate the feeding practices and prevalence of diarrheal diseases among under five admitted in the hospital. The research was descriptive cross-sectional study where 50 Questionnaire were prepared and distributed, the participant include mothers 15-49 year old. The result shown that minority of the Respondent (12%) had primary school education while 32% have secondary Education and 48% have tertiary education and agreed that nutrition play a vital role in child feeding while 15.5% of the respondents strongly agreed. That child feeding play a vital role on growth and development of a child While 10% disagreed. Upon analysis the result shown strong association between poor feeding practices and maintenance of hygienic practices by the mothers in occurrence of diarrhea in their children. Some of the specific factors found to contribute include poor exclusive breastfeeding, early introduction of complementary foods, preparation of practices, poor hand washing practices before child feeding, used of artificial teats and bottle instead of spoons in feeding and use of prelacteal feeds and other traditional concoction and herbs in early days of lactation. In conclusion, a strong association has been found between poor feeding practices and incidence/prevalence of diarrheal diseases among underfive in air force hospital Kano and therefore, strong effort should be given in improving child feeding practices of lactating women and other caregivers through health education, environmental hygiene and provision of adequate diet and safe food and water supply.

Keywords: Malnutrition, Diarrhea, Feeding Practice, Prevalence, Incidences, Underfive, Health Education

Influence of Serum-Clot Contact Time on Renal Function Parameters Among Healthy Participants in Sokoto, Nigeria

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Abstract

Background: Clot contact time is an optimum time interval between sample collection and separation of serum from the clot. It is often difficult in laboratory practices not to have delay in serum separation from red cells for quite some reasons. **Objectives:** To observe whether the stability of renal function parameters are affected in serum kept in contact with clot over time. **Methodology:** This is a cross-sectional study design involving fifty healthy adults enrolled to establish maximum acceptable delay time for renal function parameters. Venous blood specimens were collected and aliquoted into plain plastic tubes. The first clotted samples were centrifuged and the harvested sera serve as baseline sample (0 hr). The 2nd, 3rd, and 4th clotted samples were centrifuged after 4 hr, 8 hr and 12 hr respectively at room temperature for renal function tests. Data analysis was with Repeated Measures ANOVA Tool in Graph Pad InStat Software. **Results:** Serum kept in contact with clot for 4 hours at room temperature significantly increased in sodium and creatinine values. Increase in urea and potassium with decrease in chloride ion within 4 hours was also observed compared to 0 hour. Bicarbonate concentration increased significantly within 8 hours compared to the base line value and decreases after 8 hours. **Conclusion:** This study suggests that for optimum clinical utility, serum specimens for should be separated immediately from clots for renal function test. However, the acceptable delay period for potassium, chloride, bicarbonate and urea is within 4 hours at room temperature.

Keywords: Clot Contact, Serum, Temperature, Sokoto

Impact of Mining on the Farmland Soil and Water in Gujeni and Tsohon Birnin Gwari Areas of Kaduna State, Nigeria.

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Abstract

The present work was conducted on Gujeni and Tsohon Birnin Gwari Areas of Kaduna State, Nigeria to examine the levels of heavy metals contamination of water and farmland soil in the communities as a result of artisanal and illegal mining activities going on in the areas. Water and Soil samples were collected and subjected to acid digestion. The solution was subjected to Atomic Absorption Spectrophotometer, Model Varian AA240FS for the metal analysis. The concentration of metals in the water samples ranged Pb (0.21± 0.05- 0.26± 0.006)mg/l, Fe(0.04±0.002-0.13±0.011)mg/l, Zn(0.04±0.01- 0.79±0.03)mg/L and Cu(0.003±0.02- 0.008±0.01)mg/L. The metal analyzed were within WHO and SON limits of Fe (0.3), Zn (3.0) and Cu (2.0) mg/L except Pb which above the limit of Pb(0.01) mg/L in all the samples. The level of soil contamination were assessed by Geo-accumulation Index (Igeo) and Contamination factor (Cf). The Geo-accumulation studies show that the soil was moderately polluted by Pb (0.67), Fe(0.87), Zn(0.74) and Pb(0.67),Fe(1.0) and Zn(1.17) for both Gujeni and Tsohon birnin Gwari respectively. The contamination factor show that Gujeni soil was moderately contaminated by Pb(0.13),Fe(0.34), Zn(0.26) while Tsohon Birnin Gwari was considerably contaminated by Zn(4.80) and moderately contaminated by Fe(1.59) and Pb(0.13). Also, the geochemical distribution of the metals in the soil samples were revealed by three steps sequential extraction method which show that 99% of the metal concentrations were found in the residual fractions. This indicates high levels of metal concentration in the soil samples due to anthropogenic activities such as mining activities going on in the communities.

Keywords: Contamination factor, Geo-accumulation Index, Heavy metal and Tsohon Birnin Gwari

Sociocultural Perspectives on Body Donation for Anatomical Education: A Survey of Anatomist in Nigeria.

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Abstract

Background: Body donation is essential for anatomical education and research, yet sociocultural factors, particularly religious beliefs, culture and Dissection experience, can significantly influence individuals' attitudes toward donating their bodies for such purposes. This study explores the perspectives of individuals on body donation for educational purposes within a sociocultural context. **Methods**: A cross-sectional survey was conducted among individuals from diverse educational and religious backgrounds. The survey captured demographic data, religious affiliations, perceptions of religious support, and personal attitudes towards body donation for anatomical education. Participants' experiences with cadavers in anatomy labs and their willingness to donate their own bodies for educational purposes were also assessed. **Results**: A total of 140 participants responded. A significant number of participants indicated that their religious, cultural norms do not encourage body donation, with many unsure if their beliefs aligned with the practice. Despite this, most respondents had a positive view of cadaver use in educational settings, citing its importance for medical training. **Conclusion**: The study highlights the complex interplay between religious beliefs, educational experiences, and personal attitudes toward body donation. While cadaver use in anatomy education is widely accepted, religious and sociocultural factors remain significant barriers to body donation. Addressing these concerns through community engagement and education may improve donation rates.

Keywords: Body donation, anatomy education, religious beliefs, cadaver use.

Comparative Histomorphorlogical Analysis of Lung and Tracheal Alterations Due to Particulate Matter Exposure in Rural and Urban *Columbidae*

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Abstract

Background: Air pollution is regarded as the major global problem, in both developed and developing countries. This issue has been receiving much attention because both in developed and developing countries there has been an increase in urbanization due to higher activities in transportation and industrialization. This research aims to identify structural changes in airways of *Columbidae* and establish potential relationships between particulate matter exposure and respiratory health. **Methodology** The present study involves procuring 12 pigeons from urban and rural areas (the progeny), each bird was euthanized using ketamine hydrochloride at (50mg/kg BW). The birds were then de-feathered and placed on dorsal recumbency. A mid-ventral incision was made from the point of keel bone to caudal 1/3rd of the abdominal cavity to expose the abdominal content. The lungs were then carefully extracted using thumb forceps and Scalpel blade measuring morphometric parameters, extracting organs, and conducting tissue processing and histological analysis. **Results** The findings indicate significant ingestion of carbon particles by macrophages in the lung parenchyma of urban *Columbidae*, suggesting a higher level of air pollution exposure compared to their rural counterparts. **Conclusion:** This study revealed that the urban group of *Columbidae* had ingested carbon particles through their macrophages as seen in the lung parenchyma histologically In contrast the lungs and trachea of the rural group of *Columbidae* seemed to be relatively clean as compared to it's urban counterpart, this highlight the impact of air pollution in both urban and rural communities.

Keywords; *Columbidae*, Particulate Matter, air pollution

Isolation and Sensitivity Pattern of Tinea Capitis Among Some Children Attending Informal School in Wudil Local Government, Kano State Nigeria.

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Abstract

Tinea capitis is a dermatophyte infection of the scalp and hair that affect a large number of people worldwide. The disease commonly affects children in Nigeria, the burden of *Tinea capitis* is worrisome affecting over 15,000,000 school age children. The study aim is to isolate and identify sensitivity pattern of *tinea capitis* among children attending informal school in Wudil local government Kano State. The population of the study was 100 informal schools children from three different schools areas were screened and 34% were diagnosed to have *tinea capitis* after mycological culture and microscopy out of 34 positive samples 10 (29.41%) were found positive for microsporum canis, 8(23.52%) were also positive for trichophyton rubrum and 6(17.64%) shows positive for microsporum audouinis, 5 (14.70%) were positive for *trichophyton soudanense* other dermatophyte such as *aspergillus fumigatus* were positive, 3 (8.82%) *beauveria bassiana* show positive 2 (5.88%). The findings from the study show that improper sanitation, taking bath regularly, unhygienic environmental plays a vital role in the transmission of dermatophytes. The school children should be treated with oral antifungal such as griseofulvin, terbinafine, itraconazole, ketoconazole, fluconazole, government should be visiting the informal schools regularly and be providing them with adequate food stuffs, shelter and they should be advised that personal items, hats, combs and pillows should be washed frequently and disinfected where possible, to prevent re-infection of infection.

Keywords: *Tinea capitis*, dermatophyte, sensitivity, informal school, antifungal.

Impact of Malaria Prevention and Control Measures on Malaria Parasitemia among Pregnant Women Attending Some Clinics in Kano Metropolis

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Abstract

Malaria infection during pregnancy can have adverse effect on both mother and foetus. Adequate knowledge of malaria prevention and control can help in reducing the growing burden of malaria among pregnant women. This study was aimed at determining the impact of malaria prevention and control measures on malaria parasitemia among pregnant women attending some clinics in Kano metropolis. A total of 450 pregnant women from 2 different secondary hospital: Waziri Shehu Gidado General Hospital (n=150) and Mariya Sunusi General Hospital (n=300) were enrolled in the study. Antenatal details were obtained from either the antenatal card or the register of the centre with the assistance of a midwife which included: history of using antimalarial drugs during pregnancy, parity, gestational age. A structured questionnaire was administered to women to document socio-demographic data and fever history. Malaria status and parasite densities of the subjects were detected microscopically using Giemsa stained blood films. Packed cell volume were detected using automated hematology analyser and blood grouping using antisera agglutination test kit. Subject follow up was conducted on subsequent antenatal visit for malaria parasite detection in view to compare with the prevention control measures used. The result obtained from the study shows the occurrence of malaria to be 30.7% for WSGH and 28% for MSGH. Malaria parasite densities were found to be 4007.29±1471.38 and 1423.78±1020.88 for symptomatic and asymptomatic subjects with $P< 0.05$. Malaria was found to be more common among age group 21-25years (38.8%), rural settlers (55.7%), Primigravidae (33.13%). Malaria in pregnancy was found to be not significantly associated with western education level. PCV level was also observed to be associated with the incidence of malaria in pregnant women. Blood group (A+-) was observed to be strongly associated with incidence of malaria in pregnant women. Among the malaria prevention/control behaviours adopted, pregnant women using insecticide and insecticide treated net record the lowest malaria incidence (0%) both followed by subjects using prophylaxis with (20.5%) occurrence. Also highest mean parasite density was observed among those using no malaria control measure and lowest among those using prophylaxis. On subject follow up, insecticide treated net, spraying insecticide and malaria prophylaxis were found to be the most effective control measures. This study reveals that some factors such as age, gestational age, parity number settlement can predispose pregnant women to have malaria infection. Among all the control measures employed by the pregnant women, insecticide treated net prophylaxis and spraying insecticide were observed to be effective malaria prevention control measure among the pregnant women.

Keywords: Malaria, Pregnant Women, Control, Parasitemia, Prophylaxis

Screening of Methanol Extract of *Picralima nitida* Seeds for α-Amylase and α-Glucosidase Inhibitors via In Vitro and Molecular Docking Analysis

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Abstract

Activities of α-amylase and α-glucosidase have been implicated in postprandial hyperglycaemia, which, if not properly controlled, may lead to diabetes mellitus. Diabetes mellitus is a metabolic disorder characterised by persistent hyperglycaemia resulting from the inability to produce or effectively use insulin by the body. If this condition is not properly managed, it may lead to many complications such as cardiovascular disease, nephropathy, neuropathy, retinopathy, and an increased risk of infections. Synthetic drugs used to treat this serious condition have been found to have harmful effects on the kidneys, heart, and liver functions in some patients. As a result, there is a need to find natural products with minimal side effects to manage this disorder. In this study, various fractions of methanol extract from Picralima nitida seeds were examined for their ability to inhibit α-amylase and α-glucosidase through in vitro and molecular docking analysis. The extract of Picralima nitida was subjected to column chromatography, analytical and preparative thin-layer chromatography and IC 50 of each fraction against α-amylase and α-glucosidase determined. The most potent fraction was subjected to LCMS analysis to fractionate further, and the base peaks (m/z) generated were run through a database library to identify the tentative compound. The investigation revealed that the pooled fraction 6 (PF6) from column chromatography is the most potent, with the least IC 50 of 48.17±1.61 and 25.32±1.81 µg/mL against α-amylase and α-glucosidase, respectively. Subfraction 4 (SF4) obtained from PTLC of PF6 showed the highest potency with an IC 50 of 52.48±6.54 and 30.20±2.02 against α-amylase and αglucosidase, respectively. In comparison, the standard drug acarbose exhibited IC 50 values of 25.34±1.22 and 22.28±2.03, making it more potent than the fractions and subfractions against the two enzymes. FTIR analysis revealed the following functional groups: C=O, O-H, C-O, C=C, C-N, Ar-CH, C=S, Ar-O-C, CH 2, and CH 3 . LCMS analysis using a database library tentatively identified the presence of genipin, genistein, cirantin, bezafibrate, and usnic acid in SF4. Molecular docking analysis showed that cirantin and genistein are the most potent inhibitors for α-amylase and α-glucosidase, with docking scores of -7.9928 and -8.8359 kcal/mol, respectively. In comparison, acarbose exhibited scores of -9.0021 and 8.3366 kcal/mol against the two enzymes. The compounds tentatively identified have shownstrong molecular docking interactions with α-amylase and α-glucosidase, indicating that they could effectively inhibit these two enzymes. In conclusion, further research should be conducted on these compounds, particularly cirantin and genistein, as they show potential for use as antidiabetic agents due to their inhibitory effects on carbohydrate digestive enzymes.

Keywords: Picralima nitida; alpha amylase; alpha glucosidase; molecular docking; diabetes mellitus

Finger print Pattern and Digital Ridge Count in Patients with Tuberculosis Disease are Different from those of Healthy Volunteers.

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Abstract

Background The gold standard for diagnosis of the disease is the actual isolation of the disease causing organism, Tubercle bacilli, although treatment for members of the population with high clinical index of disease suspicious is the norm. **Aim** The aim of the current study was to assess the relationship between some anthropometric measures and print patterns of the fingers among TB patients diagnosed using a molecularly validated tool and Healthy volunteers (HV). **Methodology** The study was conducted at an Infectious Disease Hospital (IDH), with a total of 100 patients and 100 HV recruited in a case control paradigm. Digit length and finger print pattern data were captured using standard equipment, and all the data generated were analyzed using SPSS software version 25 with a p value of 0.05 or less considered to be statistically significant. **Results** The mean ridge densities of the left second digit (L2D) (DR-TB cases (17.08±0.72): HV (17.29±0.77), right fourth digit (R4D) (DR-TB cases (17.06±0.71): HV (17.29±0.77)), right middle digit (RMD) (DR-TB cases (17.05±0.72): HV 17.29±0.77)) and right little digit (RLD) (DR-TB cases (17.06±0.72): HV (17.29±0.77)) were significantly lower among DR-TB. Patients when compared to healthy volunteers. In both the right and left thumbs, the arch finger print pattern was significantly more frequent among TB patients. **Conclusion** In conclusion, fewer ridge counts on the right (ring, little and middle) digits as well as the arch finger print pattern on the right and left thumbs were more commonly observed among DR-TB patients.

Keywords: Anthropometry, Tuberculosis, Finger print, Digit Ratio.

Effects of Some Classes of Insecticides on *Clarias gariepinus* Juveniles

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Abstract

Using insecticides in huge amounts in agriculture leads to contamination when these insecticides accumulate in soil or water including wild life, fish or other aquatic invertebrates. Thus, the fact that insecticides become a part of food chain and bioaccumulation of insecticides along these chains create serious problems in the ecosystem. The experiment was conducted to assess the histopathogical and behavioural changes associated with DDVP (organophosphate) and Cypermethrin (pyrethroid) on juveniles of African Catfish, *Clarias gariepinus*. Fish samples divided into 8 groups in containers after which a range finding test was done. Following the range finding test, 0.013, 0.02 and 0.033 ml/l of diluted DDVP and 0.02, 0.033 and 0.046 ml/l of diluted cypermetrin were used as test concentrations while 2 blanks served as control. Acute toxicity test was conducted for 96 hours. Results of behavioural changes showed erratic swimming, sluggishness and the fish sinking to the bottom of the container. In addition, histopathological observations revealed the skin and gills of *C. gariepinus* juveniles had degeneration of skin tissue and hyperplastic of primary and secondary lamellae of the gills respectively following exposed to DDVP and Cypermethrin with no effect on the control. However, the liver was unaffected. DDVP has proven to be more damaging than Cypermethrin as changes were observed at core as low as 0.013ml/L. It can be concluded that these insecticides induced damages to the skin and gills of *C. gariepinus* juveniles which calls for concern on public health impact due to presence of these chemicals in fish tissues.

Keywords: C. gariepinus, Insecticide, Cypermethrin, DDVP

Antibiotic Resistance of Heavy Metal Tolerant Bacteria Isolated From Majema Tannery Effluents in Kano State, Nigeria.

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Abstract

The present research works to determine the concentration of heavy metal in tannery effluent, sediment, and the antibiotic resistance of heavy metal tolerant bacteria isolated from local tannery effluents in urban Kano, Kano State, Nigeria. The effluent, and sediment, samples were analyzed for some heavy metal concentrations (As, Cr, Cu, Pb, Hg, Zn, and Cd). Tannery effluent was cultured on nutrient agar. The resultant isolates were purified by subculturing on fresh nutrient agar following gram staining and biochemical tests to identify the probable organisms. The antibiogram profile was determined using the agar diffusion method, selection of antibiotics was based on popularity and frequency of use in Nigeria. The concentration of some of the heavy metals in the effluents sample that was above the permissible limit are, Site A As(1.54 ± 0.00^{a}), Cr(3.51 ± 0.00^{a}), and Hg(0.11 ± 0.02^{a}), Site B As(0.65 ± 0.00^{b}),Cr(2.44 ± 0.05^{b}), Pb (2.04 ± 0.00^{b}) and Hg (0.13 ± 0.00^{b}) and C is As(1.31 ± 0.01^{c}), Cr(1.66 ± 0.01^{c}), Pb, (3.16 ± 0.00^{c}) and Hg(0.23 ± 0.00^{b}), the sediment site A As(0.63 ± 0.00^{a}) and Cr(2.51 ± 0.00^{a}) site B As(0.12 ± 0.00^{b}), site C As(0.12 ± 0.00^{b}), and Hg(0.10 ± 0.00^{c}) are above the permissible limit of NESREA standard 2007. *P. mirabilis, Klebsiella aerogenes, Staphylococcus epidemis, Klebsiella pneumoniae, Escherichia coli, Enterococcus faecalis, Bacillus subtilis, Staphylococcus aureus, Serratia macescens and Staphylococcus albus.* were suspected organisms across the three-sampling site of the tannery effluent and some of this isolate were found to be resistant to some of the antibiotics**.** *Klebsiella pneumonia* and *Klebsiella aerogenes* having the highest MAR of 0.43 which are above the MAR indices 0.2, *Serratia macescens*, and *Enterococcus faecalis* with the least MAR 0.14. Tannery workers are in great risk of exposure of this heavy metal which result to the resistant to some of the antibiotics. Therefore, further studies should be carried out to determine the hazard quotients.

Keywords: Heavy Metals, Tolerant Bacteria, Tannery Effluent, Antibiotic Resistance

Nursing Undergraduates' Perceptions of Learning Style Influence on Medical-surgical Nursing Psychomotor Performance in North-west, Nigeria.

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Abstract

Background: Students' learning styles can influence their psychomotor performance in medical-surgical nursing. Medical-surgical nursing is considered to be the backbone of nursing theory and practice for undergraduate nursing students. Therefore, the style of learning medical-surgical nursing among students should be given profound attention. **Aim:** This study was aimed to explore nursing undergraduates' perceptions of learning style influence on their medical-surgical nursing psychomotor performances in North-west, Nigeria. **Methodology:** A qualitative design was employed. Overall, 13 students were interviewed in the study. A purposive sampling technique was applied during the recruitment of the participants. The data was transcribed verbatim and analyzed manually. Resultant themes associated with the codes were interpreted and presented in a thematic form. **Results:** The result of this study revealed that Auditory, Visual, and Read and write learning styles were mostly applied by the students in learning medical-surgical nursing. The students perceived their psychomotor performance in medical-surgical nursing as very good. A positive influence of learning style on students' medical-surgical nursing psychomotor performance was reported. **Conclusion:** The study concluded that the learning style of undergraduate nursing students in Northwest Nigeria has significant influence on their psychomotor performance in medical-surgical nursing. Recommendations: Additional time should be assigned to the practical aspect of medical- surgical nursing, there is a need to carry out an interventional study to further verify the findings of this study.

Keywords: Learning Style, Psychomotor Performance, Undergraduate Nursing Students, Medical-Surgical Nursing Course, Perception,

Carbonic Anhydrase Inhibition: A Predictor of Changes in Lactate and Insulin Level in Diabetic Rats

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Abstract

Targeting Carbonic anhydrase can be an important strategy for managing diabetes. Hyperglycemia is the hall mark of type II diabetes, if left untreated could lead to complications by promoting insulin resistance and kidney dysfunction. The present study aimed to determine the relationship between carbonic anhydrase, glucose, lactate and insulin level. Diabetes was induced by intraperitoneal injection of 50 mg/kg bw Streptozotocin. Both normal and diabetic positive control rats received Acetazolamide (Carbonic anhydrase inhibitor) 250mg/kg bw for 28 days. The result showed a decrease in blood glucose and an increase in blood lactate level after carbonic anhydrase inhibition in both normal and diabetic animals treated with Acetazolamide. An inverse relationship between lactate and insulin level was observed where the higher the lactate value the lower the insulin level and vice versa. A different expression between normal and diabetic control. We demonstrated that inhibition of Carbonic anhydrase leads to increase blood lactate level, and found out that lactate has an inverse relationship with glucose and insulin level.

Keywords: Diabetes Lactate Insulin Glucose Carbonic Anhydrase

Toxicological Assessment of Ethyacetate Fraction of *Acacia nilotica* Pods Administered in Wistar Rats

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Abstract

Acacia species have been reported to play positive role in ethnomedicine in treating many microbial infections. Little information is available on its side effect. Therefore, the study aimed to investigate the toxicity potential of ethylacetate fraction of *Acacia nilotica* pods administered at different doses in Wistar rats. The limit dose of over 5,000 kg / body weight of the rat was first determined in Wistar rats which all the rats survived. Then, various concentrations / doses (250, 500 and 1000 kg) of ethylacetate fraction of *Acacia nilotica* pods were administered orally in Wistar rats, with six rats each placed in three different groups 2, 3, and 4 respectively while animals in group 1 (control group) received only water and feed / pellet. Organization for Economic Co-operation and Development (OECD) guidelines was employed for the assessment via acute toxicity assessment then sub-acute toxicity assessment which lasted for 24 hrs (1 day) and 28 days respectively. After 28 days, the animals were sacrificed and were examined for hematological, biochemicals and histopathological parameters. The results obtained showed that *Acacia nilotica* pods were moderately toxic at various doses. Antibacterial activities of *Acacia nilotica* pods were confirmed in ESBL MDR clinical bacterial isolates in our previous findings.

Keywords: *Acacia nilotica*, OECD, acute/sub-acute toxicity

Antibacterial Activity of *Zizhipus mauritiana* Against Multi-Drug Resistant *Staphylococcus aureus*: *In-Vitro* and *In-Silico* Studies.

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Abstract

Background: Antimicrobial Resistance (AMR) considered a significant threat to the public health systems not just in developing countries but throughout the world. As antibiotic resistance towards antibiotics becomes more common, a greater need for alternative treatments arises. **Objective**: The objective of the study is to determine the antimicrobial efficacy, phytochemical constituent, and gas chromatography mass spectrometry (GC-MS) analysis of *Ziziphus mauritiana* against *Staphylococcus aureus*. **Methodology**: Phytochemical analysis was performed to determine the present of bioactive compound in the extract using GC-MS) analysis. The extracts obtained were tested in vitro for antimicrobial efficacy against *Ziziphus mauritiana* using agar well diffusion procedure. Molecular docking was performed using AutoDock v4.2. **Results**: The findings showed phytochemical screening indicates the presence of compounds such as alkaloids, tannins, sterols, terpenoids and flavonoids in the extracts. Antimicrobial screening revealed that the extracts exhibited little effect against *Staphylococcus aureus* with zones diameter between 1-6mm. A total of thirtynine (39) compounds were identified using GC-MS analysis which were later screened out using physiochemicals and pharmacokinetics analysis based on Lipinsik five rule, ADMET and Ergan tool. Out of the 39 compounds only ten (10) compounds were then docked with pbp protein gotten from multidrug resistant *Staphylococcus aureus*. The docking analysis revealed ten compounds CID-101171, CID-13760785, CID-537118, CID-319211683, CID5364533, CID-5367644, CID-12760132, CID-56634694, CID-13760785, CID-5283646 with good docking score. **Conclusion**: Extract of *Ziziphus mauritiana* revealed bioactive compounds, hence the compounds can be considered as a potential inhibitor for multidrug resistance *Staphylococcus aureus.*

Keywords: Antibiotic resistance, Medicinal plants, *Ziziphus mauritiana*, *In-silico, In-vitro*

Comparative Study on The Anti-Parasitic Activities of *Securidaca Longepedunculata* and *Senna Occidentalis* Root Extracts Against *Trichomonas Vaginalis*

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Abstract

Trichomoniasis is a sexually transmitted disease caused by the parasitic protozoan (*Trichomonas vaginalis*). *Trichomonas vaginalis* resistance to conventional antibiotics justifies the need to explore more alternative remedies from medicinal plants since they represent a rich source of antiparasitic agents. The research was aim to determine the efficacy of two medicinal plants (*S. longepedunculata* and *S. occidentalis)* used to treat parasitic infections amongst the tribes of northern Nigeria. The extracts of the plants were obtained using maceration method, and their growth inhibitory activities against *Trichomonas vaginalis* evaluated *in vitro*. The extracts from the two plants revealed varied antiparasitic activities against the test organisms. The aqueous root extracts of the plants demonstrated higher growth inhibitory activity at 50 and 25mg/ml concentrations, while the least activity of the extracts were at lower concentration of 3.125mg/ml. The maximum antiparasitic activity recorded for the aqueous root extract of *S. longepedunculata* and *S. occidentalis,* synergistically against *T. vaginalis,* (Growth inhibition = 99.15%GI) at 50mg/ml. Findings from the statistical analysis, the result revealed significant difference ($P<0.05$) between *S. longepedunculata* and *S. occidentalis*. The result revealed significant difference ($P<0.001$), between the groups of the aqueous root extracts with the negative control. The result presents the basis for which these plants have been used for treatment of *Trichomonas vaginalis* infections in traditional medicine. This research also were suggested that further on-station and field studies are needed, and should focus on other STI of medical importance such as *Gonorrhea*, Syphilis, etc, and Conservation of *S.longepedunculata* and *S. occidentalis* should also be an important aspect to ensure sustainability and availability of the plant.

Keywords: Anti-parasitic activities, *Securidaca longepedunculata, Senna occidentalis, Trichomonas vaginalis.*

Dengue *Versus* Presumptive Malaria: A Report From a Multicenter Study in Kano, Northwestern Nigeria

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Abstract

Background: In most malaria endemic zones, the epidemiology of dengue is difficult to ascertain because most of the cases are often misdiagnosed as presumptive malaria. This study investigated the prevalence of dengue and determined the circulating serotype of the Dengue virus among febrile patients in Kano, Nigeria. **Materials and Methods:** This was a multicentered hospital-based cross-sectional study conducted in Murtala Muhammad Specialist Hospital, Muhammad Abdullahi Wase Teaching Hospital, and Sheik Muhammad Jedda General Hospital, all situated in Kano metropolis, located at latitude $12^{0}3'$ north and longitude $8^{0}31'$east, in northwestern Nigeria. Kano state is the second largest industrial and commercial center, with a large migrant worker population, making it one of the most crowded cities in Nigeria. A cohort of 200 individuals with fever (temp $\geq 37.5^{O}$ C) were recruited and their sera were investigated for dengue by NS1 ELISA technique. All positive samples were subjected to Nested RT PCR using serotype-specific primers (I, II, III, and IV). Standard microscopy was employed to diagnose malaria and hematological indices were evaluated using a hematology auto analyzer. **Results:** The median age of the study participants was 30 years; the minimum was 2 years and the maximum was 78 years. Overall, dengue seroprevalence was 11% (22/200), of which 10/22 (45.45%) were confirmed as Dengue virus serotype-II. Malaria was diagnosed in 36.5% (73/200) and dengue/malaria coinfection was 3.5% (7/200). Interestingly, we found fever and muscle pain as cardinal features of dengue ($P = 0.016$; 0.032). Complete blood count analysis revealed that patients with Dengue had lower total white blood cell count, neutrophils, and haemoglobin concentration and the differences were statistically significant ($P < 0.05$). **Conclusion:** This study confirmed the emergence of the Dengue virus in Kano, Nigeria, and depicts the significance of screening for dengue virus infection in all patients with febrile illnesses. It further discourages presumptive diagnosis and treatment of malaria, and re-affirmed the role of complete blood count analysis as a screening tool. It is recommended that more robust studies be conducted to inform diagnostic and management decisions on dengue in the future.

Keywords: Dengue, Emerging infection, Kano, Malaria, Nigeria, Presumptive diagnosis.

Transforming Clinical Diagnostics: The Role of Nanotechnology in Malaria Prevention, Detection, Management, and Treatment

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Abstract

Introduction: Malaria remains one of the most prevalent and life-threatening diseases globally, especially in low-resource settings. Traditional methods of diagnosis, prevention, and treatment face challenges such as drug resistance, delayed detection, and poor accessibility. Recent advancements in nanotechnology present a promising frontier in transforming the landscape of malaria management. **Objectives**: This paper explores the role of nanotechnology in malaria prevention, detection, management, and treatment. It aims to highlight how nanomaterials can improve diagnostic accuracy, drug delivery, and vector control, potentially revolutionizing clinical outcomes. **Methodology**: A review of recent literature was conducted to evaluate the application of nanotechnology in malaria diagnostics and therapeutics. The study focused on nano-based biosensors, nanocarriers for drug delivery, and nanomaterials used in vector control. Comparisons were made between conventional methods and nanotechnological approaches to assess efficiency, cost-effectiveness, and accessibility. **Results**: Nanotechnology has enhanced the sensitivity and specificity of malaria detection through the development of nanoscale biosensors, enabling rapid and accurate diagnosis. Nanocarriers facilitate targeted drug delivery, reducing side effects and overcoming drug resistance. Additionally, nanoparticle-based insecticides have shown significant efficacy in controlling malaria vectors. **Conclusion**: Nanotechnology holds transformative potential in addressing the key challenges in malaria management. By improving early detection, targeted treatment, and prevention strategies, it can significantly reduce malaria morbidity and mortality, particularly in endemic regions. Continued research and investment in this field could lead to more accessible and effective solutions to combat malaria globally

Keywords: Biosensors, Malaria, Mosquitoes, Nanotechnology, *Plasmodium*, Resistance

Evaluation of Heavy Metal Concentrations on Some Selected Herbal Medicinal Preparations Marketed in Bauchi State, Nigeria

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Abstract

Nigerians use a lot of herbs because of their availability and potential medical benefits. The purpose of this study was to ascertain the level of heavy metal residues in the commonly sold traditional medicinal herbs in some L.G.A's of Bauchi State, Nigeria. This is to evaluate, using the World Health Organization standard limit as a basis, their relative safety and possible health concerns to the local population. A total of ten (10) powdered samples of medicinal preparations were purchased from the local markets the Local Government areas in Northern part of Bauchi State. The levels of lead, chromium, cadmium, and mercury in the samples were determined. After the samples were digested, the concentration of heavy metals was measured using atomic absorption spectroscopy (AAS). Metals found to be present varied in concentrations in the herbal samples. The presence of heavy metal ranges as follows: 0.21-9.22mg/kg for cadmium, 0.22-6.70mg/kg for chromium 0.42-5.21mg/kg for mercury and 2.50-14.23mg/kg for lead. However, the content of lead was not detected in some samples. The findings of the study conclude that the values of cadmium appeared to be of highest concentration exceeding W.H.O limits in sample H which is used as a remedy to treat diarrhea, thus making the sample highly contaminated amongst others. The value of Lead (pb) was not detected in four of the samples and where it appeared, it was below the limits set by World Health Organization, except for sample I used as a remedy for ulcer whose value exceeded the limit thus making the nine samples free from lead contamination.

Keywords: Traditional Medicine, Heavy Metals, Permissible Limits, Contamination.

Adoption of Herbal Medicine in the Management of Sickle Cell Anemia through Ethnomedicines Practices.

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Abstract

Sickle Cell Anemia (SCA) is a genetic disorder characterized by the production of abnormal hemoglobin, leading to deformed red blood cells that block blood flow and cause chronic pain, organ damage, and anemia. In many African communities, including rural Nigeria, traditional Herbal medicine plays a crucial role in the identification, diagnosis, and treatment of SCA, offering an accessible alternative to modern healthcare. This paper explores the role of ethnomedicine practices in managing SCA, focusing on how indigenous healers identify symptoms, make diagnoses, and administer herbal remedies. Diagnosis typically involves the observation of recurrent pain crises, jaundice, stunted growth, and a family history of similar symptoms, often. Treatment incorporates herbal preparations from plants which help alleviate pain, improve blood function, and boost immunity. Traditional practices also involve lifestyle advice and dietary adjustments, variability in preparation. This study emphasizes the importance of documenting traditional knowledge to preserve these practices while exploring synergies between traditional and modern healthcare for safer and more effective SCA management.

Keywords: Sickle Cell, Anaemia, Herbal, Traditional Medicine

Proximate Composition and Hydrocyanic Acid Content Determination in Three Varieties of Cassava Sold in Gaya Town.

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Abstract

This study was conducted to obtain comprehensive data on the nutritional composition and hydrocyanic acid content of three cassava varieties in Gaya, which can be used for nutritional evaluation, food processing, safety and to focus on the future development of the food product with an excellent health benefit. The cassava varieties were analyzed for their proximate composition and hydrocyanic content, the results showed that, the starch cassava variety had a moisture content higher than the sweet and bitter cassava variety and all the values were higher than the recent recommended moisture content limits by WHO/FAO. Also, starch cassava variety had a higher ash and fat content than the bitter and sweet cassava variety. The carbohydrate content determined for sweet cassava was higher than the starch cassava and bitter cassava variety. These values were within the recent recommended limits by WHO/FAO. The bitter cassava variety had a protein content higher than the sweet cassava and starch cassava variety. The total hydrogen cyanide present in the cassava samples shows that the bitter cassava Variety had more hydrogen cyanide with a mean value of 0.552±0.011 mol/dm3, while the sweet cassava variety had a value of 0.304±0.023 Mol/dm3 and the starch variety had a value of 0.248 ±0.011. These values were higher than the recent recommended hydrogen cyanide content limits by WHO/FAO. This shows that these three Cassava varieties cultivated at Gaya local government can easily be contaminated by fungi and might pose a significant health risk due to the elevated content of HCN.

Keywords: Proximate, Hydrocyanic Acid, Cassava, Nutritional

Mainstreaming of Traditional Medicines into the National Healthcare System in Kano State, Nigeria

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Abstract

The integration of traditional medicine into national healthcare systems is a global concern, with varying levels of engagement across different countries. This study aimed to evaluate the effectiveness of the methodologies employed by Kano State in integrating traditional medicine into its modern healthcare system. A mixed-methods approach was utilized, combining quantitative and qualitative data collection. Structured questionnaires were administered to traditional medicine practitioners to gather quantitative data, while in-depth interviews were conducted with stakeholders in the states' health services to explore government policies and regulatory procedures for the practice and practitioners. The survey results revealed that, Out of 5,319 practitioners from 44 local government areas in the state, 4,234 were males and 1,085 were females. An examination of the literacy levels of practitioners in 44 local government areas showed that among the 5, 319 total practitioners in these areas, 925 had completed primary education, 2,004 had secondary education, 843 had a Diploma/NCE, 203 held degrees in non-relevant courses, 144 had a PGD, and 1,200 had other forms of education. In conclusion, this study provides educational status of traditional medicine practitioners across the State, which will serve as one of the basis for integrating traditional medicine into the national healthcare system.

Keywords: Traditional Medicine, Healthcare, Practitioners, Educational Status

In-Vitro Assessment of Antiplasmodial Activity of Methanolic and N-Hexane Fractions of *Azadirachta indica* Leaves

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Abstract

Malaria is a severe and life-threatening infectious disease transmitted through the bites of infected Anopheles mosquitoes. The disease affects the globe with particular emphasis on sub-Saharan Africa due to higher cases and fatalities. It is caused by Plasmodium parasites, Plasmodium falciparum being the most prevalent. Medicinal plants have long been used as valuable sources of therapeutic compounds. Azadirachta indica, known as neem, is a widely used medicinal plant known for its diverse pharmacological properties including antimalarial activity. This study aimed to evaluate the in vitro antiplasmodial activity of the n-hexane and methanolic fractions of Azadirachta indica leaves. The extraction of Azadirachta indica leaves was carried out using n-hexane and methanol and distilled water. The preliminary phytochemical screening of these extracts was performed to identify the presence of secondary metabolites. Plasmodium falciparum, the causative agent of malaria, was used as the test organism. The in-vitro antiplasmodial activity of the n-hexane and methanolic fractions was evaluated using established protocols. The phytochemical analysis revealed the presence of various secondary metabolites, including alkaloids, flavonoids, terpenoids, steroids, cardiac glycosides, tannins, saponins and free anthraquinones in the n-hexane, methanolic and aqueous fractions. Artemether combined therapy was used as control. The invitro test result revealed significant antiplasmodial activity of both fractions ($p<0.05$), with the n-hexane fraction exhibiting higher activity having 89% elimination of the parasitemia compared to the methanolic fraction with 85%. In conclusion, this study provides significant evidence for the antiplasmodial activity of the n-hexane and methanolic fractions of Azadirachta indica leaves.

Keywords: *Azadirachta indica,* Neem, Secondary Metabolites, Plasmodium Falciparum, Anti-Plasmodia

Child Feeding Practice and Prevalence of Diarrheal Disease among Children Under Five A Case Study of Air Force Hospital Kano State, Nigeria

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Abstract

The research work was conducted in Air Force Hospital local government area. The aim of the research was to investigate the feeding practices and prevalence of diarrheal diseases among underfive admitted in the hospital. The research was descriptive cross-sectional study where 50 Questionnaire were prepared and distributed, the participant include mothers 15-49 year old. The result shown that minority of the Respondent (12%) had primary school education while 32% have secondary Education and 48% have tertiary education and agreed that nutrition play a vital role in child feeding while 15.5% of the respondents strongly agreed. That child feeding play a vital role on growth and development of a child While 10% disagreed. Upon analysis the result shown strong association between poor feeding practices and maintenance of hygienic practices by the mothers in occurrence of diarrhea in their children. Some of the specific factors found to contribute include poor exclusive breastfeeding, early introduction of complementary foods, preparation of practices, poor hand washing practices before child feeding, used of artificial teats and bottle instead of spoons in feeding and use of prelacteal feeds and other traditional concoction and herbs in early days of lactation. In conclusion, a strong association has been found between poor feeding practices and incidence/prevalence of diarrheal diseases among underfive in air force hospital Kano and therefore, strong effort should be given in improving child feeding practices of lactating women and other caregivers through health education, environmental hygiene and provision of adequate diet and safe food and water supply.

Keywords: Malnutrition, Diarrhea, Feeding Practice, Prevalence, Incidences, Underfive, Health Education

Assessment of Knowledge and Practice of Exclusive Breastfeeding Among Women of Childbearing Age in Charanchi LGA, Katsina State-Nigeria

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Abstract

Background: Exclusive breastfeeding (EBF) is essential for the optimal health of infants, yet its practice remains sub-optimal in Charanchi LGA, Katsina State, Nigeria. Various factors continue to hinder its adoption among women of childbearing age (WCBA) in this region. This study aimed to investigate these factors and recommend solutions to increase the knowledge and practice of EBF among WCBA. **Methodology**: A mixed-method crosssectional study was employed to assess the knowledge and practice of EBF among WCBA in Charanchi LGA. A multi-stage sampling technique was used to select 315 participants. Data was collected using interviewer-administered questionnaires and key informant interviews respectively. **Bivariate analysis** was used to assess the relationships between knowledge and practice of EBF in the quantitative data, which was analyzed using IBM SPSS version 27.0, while thematic analysis was used for the qualitative data. **Results**: While about 87.62% of the respondents had knowledge on EBF, only 64.76% of them practiced EBF for the recommended six months ($p<0.05$). The findings showed the key barriers to EBF were socioeconomic constraints (52%), cultural beliefs (49%), and lack of family support(52%). Healthcare education accessed by 82.5% of the participants during antenatal visits, and postnatal support services utilized by 52.3%, were found to be significant factors promoting EBF among the WCBA. **Conclusion**: The study revealed that although nearly all respondents were aware of exclusive breastfeeding (EBF), only about two-thirds actually practiced it. To improve EBF rates in Charanchi LGA, it is essential to address barriers such as cultural beliefs and lack of family support.

Keywords: Exclusive breastfeeding, Women of child-bearing age, Knowledge, Practice.

Disinfectant Performance Evaluation of Bacteria Isolated from the Surface of ATM

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Abstract

An Automated Teller Machine (ATM) is an electronic unattended banking outlet, which allows customers to complete basic banking transactions without a direct branch interaction or a branch representative or teller. It has been widely used due to its convenience but also serves as a source of bacterial contamination. This work was carried out to isolate the pathogenic bacteria associated with ATMs and to evaluate the potency of the commonly sold disinfectants (Izal,Parazone and Dettol) on these bacterial isolates. Forty (40) Swab samples were collected from four (4) selected areas and ten (10) different study sites. Standard plate count was employed for the enumeration of bacterial counts and disc diffusion was used for susceptibility test. The result showed that *Staphylococcus aureus*(35%), *Escherichia coli* (27.5%), *Pseudomonas sp*. (17.5%), *Bacillus sp*. (12.5%) and *Clostridium sp*. (7.5%). *Escherichia coli* was the predominant organism found (27.5%) while *Clostridium sp.* was the least (7.5). *Psuedomonas sp.* had the highest susceptibility to Dettol (40±2.20) and least to Parasol (6±0.00). The findings have shown that the potency of the test disinfectants increases with increase in concentrations. It was noted that the ATMs are contaminated with bacteria that are of medical importance and could be easily transferred from one person to another via contact from droplets during coughing, sneezing and touching with previously contaminated hands. It could thus be concluded that the ATMs studied present a very great risk for cross contamination.

Keywords: Automated Teller Machines (ATMs), Disinfectants, Bacteria, *Escherichia coli,* Potency.

Evaluation of Antibacterial Activity of Camel's Milk and Urine against MRSA and ESBL- Producing E. coli

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Abstract

Camel is a multipurpose livestock species of great economic importance due to the benefits provided by camel products. This research work is aimed at evaluating the antibacterial activity of camel's milk and urine against MRSA and ESBL-producing E. coli. Staphylococcus aureus and Escherichia coli were isolated and identified from the samples using culture (on selective media), microscopy and biochemical tests according to standard microbiological techniques. MRSA were identified and confirmed using Cefoxitin disc diffusion method whereas potential ESBL- E. coli were identified following standard double disc synergy test. The area with highest inhibition zone for both milk and urine samples were determine as well as minimum bactericidal concentration. The results revealed the incidence of MRSA and ESBL-E. coli among patients with recurrent UTIs and complicated wound infections as 22.2% and 11.8% respectively. The result of the antibacterial activity of camel's milk revealed activity in all the concentrations (25-100%) with the mean diameter of inhibition ranging from 6.0+5.1mm to 15.75+3.1mm for MRSA and 50-100% concentration for ESBL-E. coli ranging from 3.5+4.9mm to 14.50+4.9mm. Whereas, the antibacterial activity of camel's urine revealed activity in both MRSA and ESBL-E. coli from 50-100% concentrations showing zones of inhibition ranging from 10.13+2.6mm to 14.88+3.7mm for MRSA and 5.5+5.5mm to 13.50+1.5mm for ESBL-E. coli. The study therefore revealed an in vitro antibacterial activity of camel's milk and urine against MRSA and ESBL-E. coli isolated from burn wound and urinary tract infections.

Keywords: Camel's milk and urine, MRSA and ESBL. E. coli

Hand Grip Strength as a Measure of peripheral Diabetic Hand Neuropathies in Hausa Ethnic Group of Kano Metropolis.

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Abstract

The burden of non-communicable diseases in Nigeria is alarming with Type 2 diabetes mellitus (T2DM) among the leading diseases associated with many complication including decline in hand function. Individuals with T2DM often showed hands and feet complications. Still, the attention of the literature on hand peripheral neuropathies in T2DM was neglected. Moreover, lower hand grip strength has (HGS) been associated with increased risk of peripheral hand neuropathies. Although, several studies have revealed that T2DM can also cause hand neurological deficits of sensorimotor function or neuropathies in the hands. This study was aimed to evaluate the HGS as a measure of diabetic hand neuropathic screening in Hausa ethnic group of Kano metropolis.100 participants male and female were recruited including both control and T2DM patients at the same ratio. The HGS of both right and left hands was measured using a standard adjustable hand grip dynamometer. The mean value was recorded to the nearest 0.1kg.The data were expressed as Mean ± Standard deviation. Comparison between T2DM and control was done using ANOVA for both sexes. The study showed that hand function was affected in T2DM patients with significant statistical difference ($P < 0.001$).Further investigations are warranted to explore the impact of T2DM on hand function. Therefore, HGS assessment can be used as screening tool for peripheral diabetic hand neuropathies in Hausa ethnic group T2DM patients.

Keywords: Hand grip strength, Type 2 Diabetes Mellitus, Neuropathy, Hand function

Prevalence and Post-Exposure Knowledge, Attitudes and Practices of *Schistosomiasis* Patients in Selected Local Government Areas of Kano State, Nigeria

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Abstract

This study aimed to assess the prevalence of *schistosomiasis* and investigate post-exposure knowledge, attitudes, and practices among individuals in selected Local Government Areas of Kano State. A total of 413 urine samples were collected and microscopically analyzed, revealing an overall prevalence rate of 26.68%. Munjibir LGA had the highest infection rate (30.89%), followed by Garko (26.95%) and Wudil (20.45%). Males exhibited significantly higher infection rates than females, and the age group of 21-30 years old recorded the highest prevalence, with peaks observed in the 31-40 and 41-50 age brackets. However, regarding *schistosomiasis* knowledge, 62.22% of the respondents reported awareness, while 46.97% acknowledged previous infections. Symptoms included *haematuria* (25.42%), urethral pain (31.23%), *cystitis* (27.84%), and others (15.98%). Water contact activities (23.48%), sunlight (30.02%), and excess salt consumption (35.83%) were perceived as causative factors. Communication mediums for *schistosomiasis* information included radio (42.37%), television (20.09%), newspapers (12.59%), and health centers (22.03%). Post-exposure symptoms were also reported, with difficulty urinating (6.05%), urine blockage (3.63%), lower abdomen hardening (2.42%), urogenital track blockage (97.57%), urogenital flopping (1.69%), infertility (5.32%), difficulty during coitus (2.66%), abdominal testicle blockage (4.11%), urogenital ulceration (2.17%), and bladder cancer (1.93%). In conclusion, this study highlights the significant prevalence of schistosomiasis in the studied LGAs, emphasizing the need for targeted interventions and educational campaigns to improve awareness, prevention, and treatment strategies among the affected population.

Keywords: *Schistosomiasis*, KAP, Post-exposure Knowledge, *haematuria,* Kano.

Factors Associated with Mothers' Practices of Essential New Born Care in Birnin Gwari Local Government Area, Kaduna State, Nigeria

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Abstract

Introduction: Newborns are very vulnerable, hence a need for quality care to ensure their safety and survival. The World Health Organization (WHO) recommends an economical intervention package of new born care practices to help reduce new born morbidity, mortality and thus, promote healthy survival. These easy practices are significant for all babies in order to save lives, Nigeria being a country were new born death is high there is a critical need to ensure the effective utilization of the WHO essential new born care intervention package towards improving good new born care practices. **Aim and Objectives**: The study aims to examine the factors associated with mothers' practices of Essential New Born Care (ENBC)in health facilities of Birnin Gwari LGA Kaduna State, Nigeria **Methodology**: The study adopted a descriptive cross- sectional design a total of 372 three hundred and seventytwo mothers whose child is within the age of (0-12 months) were selected using multi-stage sampling technique. A semi-structured questionnaire was used for interviews after were selected using multi-stage sampling technique. A semi-structured questionnaire was used for interviews after obtaining verbal informed consent. Data were analyzed using SPSS statistical package for social science version 26.0 **Results**: The modal age group was 20-29 years with 202 (54.5%) women, 131 (35%) has attained post-secondary education, majority married 350 (94.1%), Hausa 187(50.3%) and were muslims 338 (90.9%).There were 71 (19%0 who were primiparous and 236 (63.4%) women were in a nuclear family settings. The practice of ENBC was found to be good in only 185 (49.8%) of respondents, a statistically significant relationship was observed between practice of ENBC and marital status (p=0.020), level of education (p=0.019), maternal age (p=0.005), maternal occupation (p=0.001), ethnicity (p=0.0030 and parity (p=0.001). **Conclusion**: Essential new born practices were poor among respondents. There was significant association with sociodemographic factors and reproductive profile of mothers. **Recommendation**: It is recommended that health education programmes on best practices of Essential New Born Care be emphasized to mothers whose child is within 12months of age especially during antenatal and post-natal clinics.

Keywords: Essential, Newborn, Care, Mothers, Practices.

Omega-3 Fish Oil Improves Working Memory and Decreases Corticosterone Concentration in Male Adult Wistar Rats

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Abstract

Background: Sleep deprivation is a public health problem due to its association with neurodegenerative diseases such as Alzheimer's disease. However, Omega-3 fish oil (O3FO) has been reported to elicit vital antioxidant, anti-apoptotic and anti-inflammatory activities. **Objective:** The objective of this study was to evaluate the effect of O3FO on the stress biomarker and working memory following sleep deprivation in Wistar rats. **Methodology:** Twenty male Wistar rats (150-200g) were randomly divided into 4 groups (n=5). Group I received 2ml/kg distilled water, Group II, III, and IV were sleep deprived (SD) for 18hrs daily for 21 days using the modified multiple-platform method. Additionally, group III, and IV received 200 & 400 mg/kg of O3FO. Working memory was assessed using the Y-maze test. On day 22, the animals were euthanised. Blood sample was collected via cardiac puncture and serum obtained was used for assessment of corticosterone. Brains were removed and fixed immediately. **Results:** Spontaneous alternation result revealed a significant ($p<0.05$) decrease in the SD group when compared to the control. However, the SD+400mg revealed a significant ($p<0.05$) increase when compared to the SD group only. Corticosterone level revealed a significant increase ($p<0.05$) in the SD-only group and in the 400 mg/kg O3FO treatment group when compared to the control. However, a significant decrease ($p<0.01$) in corticosterone level was observed in the SD+ 200 mg/kg O3FO group when compared to the SD-only group. **Conclusion:** The findings of this study revealed that O3FO treatment improved working memory and helped decreased the levels of corticosterone caused by sleep deprivation.

Keywords: Omega-3, Neuroprotective, Corticosterone, Sleep deprivation, Working memory

Complications Associated With Clinical and Morbidity Rate Among Patients With Reported Cases of Advanced *Bilharziasis* (A Case Study of Abubakar Imam Wali Urology Center, Kano State)

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Abstract

Microscopic analysis was used to examine *Schistosoma haematobium* infection and associated bladder complications in 400 adult participants at Abubakar Imam Wali Urology Center, Kano State, Nigeria. Urine samples were analyzed for *S. haematobium* eggs, and abdominopelvic ultrasound scans assessed bladder health. The overall infection prevalence was 33%. Males had a higher prevalence (68.21%) compared to females (31.81%), though the difference was not statistically significant ($P = 0.226$). Most infections were light (27.5%), while 5.5% were classified as heavy, with a mean egg count of 48±12.2 eggs per 10 ml of urine. Ultrasound findings in infected individuals revealed bladder wall thickening (60%), irregular bladder shape (14.54%), wall irregularities (14.54%), and rare occurrences of bladder masses (0.5%) and calcifications (0.5%). Bladder abnormalities were more frequent in individuals with heavy infections and more common in men. Cigarette smoking was reported by 29.54% of participants but showed no significant association with bladder pathology. Similarly, 28.03% of participants with bladder issues consumed alcohol, while 44.69% had never consumed alcohol. In conclusion, *S. haematobium* infection is linked to significant bladder pathologies, with severity increasing in heavier infections. Efforts should focus on early diagnosis, regular screening, and public health campaigns to control urinary schistosomiasis. Treatment programs should also address lifestyle risk factors such as alcohol consumption and smoking to mitigate bladder complications.

Keywords: *Schistosoma haematobium*, bladder pathology, urinary schistosomiasis, infection prevalence, Kano State

Maternal and Child Health Nutrition Policies as Key Indicators of Progress Towards SDG 3: A Review

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Abstract

Introduction: Maternal and child health nutrition policies stand as sentinel guardians, not only safeguarding the vulnerable stages of life but also shaping the very fabric of a community's future. The optimal nutrient intake of children impacts significantly on their overall health outcomes and their food security status. Hence, the state of food and nutrition status of children in any nation determines the national preparedness towards achieving no poverty, zero hunger, and good health and well-being, which are important indicators of sustainable development goals (SDGs) 2030 and Africa agenda 2063. **Objective:** To evaluate the effectiveness of maternal and child health nutrition policies in achieving Sustainable Development Goal 3 (SDG 3) while identifying indicators of progress in the policies. **Methodology:** The study explores available online resources, peer-reviewed articles, books, and relevant reports from official websites that identify the drivers of maternal child health and nutrition security status from Nigeria's perspective. **Results:** Findings from the reviewed literatures reveals that prevalence of malnutrition in low- and middle-income countries, hinders SDG 3 progress, affecting health, productivity, education, and well-being. So also, Inadequate funding, access, and implementation hinder policy effectiveness. Furthermore, targeted interventions (maternal nutrition education, breastfeeding promotion, micronutrient supplementation) integrated into healthcare systems can significantly improve outcomes and advance SDG 3. **Conclusion:** This review supports Sustainable Development Goal 3 (good health and wellbeing) by examining maternal and child nutritional status. It informs policymakers, healthcare providers, and stakeholders on strengthening nutrition policies and programs to improve health outcomes for mothers and children, contributing to the achievement of the SDGs by 2030.

Keywords: SDG3, Child Health, Maternal, Nutrition, Policy

Determination and Antibiogram Profile of Bacteria associated with Dental Plaque among Adult Patients attending Katsina General Hospital.

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Abstract

Dental plaque can be described as a complex biofilm consisting of a diverse community of microorganisms that adhere to tooth surfaces. This biofilm forms through the accumulation of saliva, food particles and bacteria creating a protective environment for the bacteria. To evaluate the antibiogram profile of bacteria associated with dental plaque among Adult patients attending General Hospital Katsina. 5 adult patients including 2 females and 3 males. Oral bacterial isolates were identified by Gram staining and biochemical tests. The sensitivity and resistance of these isolates to erythromycin were assessed using standard disc diffusion methods, with interpretations based on CLSI breakpoints.Bacterial isolates included *Staphylococcus spp.*, *Escherichia coli*, *Salmonella spp*., *Klebsiella spp*., and *Pseudomonas aeruginosa*. Gram staining and biochemical tests revealed distinct patterns: *Staphylococcus spp*. were uniformly catalase and coagulase positive, while *E. coli* and *Salmonella spp*. exhibited specific biochemical characteristics. Sensitivity tests showed that isolates of *Staphylococcus spp.* and *E. coli* were sensitive to erythromycin with inhibition zones of 25mm and 38mm respectively. In contrast, isolates of *Salmonella spp*., *Staphylococcus spp*., *P. aeruginosa* and *Klebsiella spp*., were resistant with inhibition zones ranging from 7mm to 14mm. Isolates of *E. coli* and *Staphylococcus spp*. were categorised as intermediate, with zones of 15mm.The variability in erythromycin sensitivity emphasises the growing concern of antibiotic resistance and the need for tailored antimicrobial stewardship.

Keywords: Dental plaque, Antibiogram, Oral Bacteria.

Effect of Intramuscular Administration of Snake Venom (*Echis ocellatus*) on Kidney and Liver of Wistar Rats Infected with *Trypanosoma brucei brucei.*

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Abstract

Background/Introduction: Trypanosomes are haemo-flagellate protozoans that inhabit the blood plasma, the lymph and various tissues of their host causing disease in both humans and animals which has been described as a complex debilitating and often fatal condition leading to death in severe cases. **Objectives:** To evaluate the effect of intramuscular administration of *Echis ocellatus* venom on kidney and liver of wistar rats infected with *T. brucei brucei*. **Methodology:** 30 wistar rats divided into six groups of five rats each. Group 1 were infected and administered 400ml of venom, Group 2 were infected and administered 200ml of venom, Group 3 were infected and administered 100ml of venom, Group 4 were infected and administered 25ml of venom, Group 5 were infected and not administered venom and lastly Group 6 were infected and treated with Dimenazene aceturate. **Results:** It was observed that at 25ml of the venom administered into wistar rats, there was a significant rise (0.68+- 0.01) on the weight of the kidney as compared to the remaining dosages at 400ml (5.33 +- 0.04). The liver was slightly or thinly affected, indicating that high dosage of venom can be lethal to the liver of wistar rats. **Conclusion:** This study showed that both kidney and liver infected with *T. brucei brucei* without administering snake venom and treated with Dimenazene aceturate gained more weight indicating hepatomegaly and nephritis, therefore it can be concluded that *Echis ocellatus* has potential strength in combating the disease.

Keywords: Dimenazene aceturate, Snake venom, *T.b.brucei*.

Pharmacological effects of polydatin on lead-intoxicated *Drosophila melanogaster* (Harwich Strain)

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Abstract

Introduction: Lead toxicity poses a substantial ecological distress connected to different health problems. **Objective**: This study explores the pharmacological effects of polydatin on lead-intoxicated *Drosophila melanogaster* (Harwich Strain). **Methods**: *Drosophila melanogaster*, aged three (3) days, were orally administered lead acetate (PbAc 500 µM/5g diet), dimercaptosuccinic (DMSA 10 mg/5g diet), and varying concentrations of polydatin (PD 10, 20 and 40 µM/5g diet). The study included the assessment of designated biological parameters, biochemical markers, oxidative stress markers, and antioxidant enzymes. Polydatin demonstrated a dose-dependent augmentation of egg-laying, eclosure rate, filial generation rate, negative geotaxis, and life span in *D. melanogaster*, significantly ($p < 0.05$) to 20 and 40 µM/5g diet. **Results**: Most of the examined biochemical parameters were significantly ($p < 0.05$) salvaged in PbAc-exposed *D. melanogaster* when co-treated with polydatin. However, oxidative stress remained unaffected by polydatin. **Conclusion**: The results suggest that polydatin excellently protects against lead toxicity in *Drosophila melanogaster* and may hold therapeutic prospective as an antidote for treating lead poisoning in humans.

Keywords: *Drosophila melanogaster*, Lead-Acetate, Harwich Strain, Polydatin, Toxicity

Assessment of Indoor Resting Density of Anopheles Mosquito In Auyo LGA, Jigawa State Northwest Nigeria

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Abstract

Insect-transmitted disease remains a major source of illness and death worldwide. Mosquitoes alone transmit diseases to more than 700 million people annually. This study evaluates the indoor resting density of Anopheles mosquitoes in Auyo Local Government Area, Jigawa State, North-Western Nigeria. A cross-sectional design was employed, where samples were collected over three consecutive months. A total of 1,253 Anopheles mosquitoes were collected from 20 households using the Pyrethrum Spray Catch (PSC) method. Experimental morphological sorting revealed that *Anopheles gambiae* was the predominant malaria vector, comprising 99% (1,236 specimens), followed by Anopheles funestus (1.1%), *An. pharoensis* (0.2%), and *An. squamosus* (0.1%). The highest mosquito abundance was recorded in September, with 735 samples collected, attributed to the presence of numerous water bodies and rice farming activities in the region, which provided ideal breeding sites. Notably, *An. gambiae* accounted for 98.5% of the breeding population in the study area, indicating a direct correlation between mosquito abundance and rainfall patterns. The findings underscore the need for intensified vector control strategies to address the rising population of malaria vectors during the rainy season.

Keywords: Indoor Resting Density, Pyrethrum Spray Catch, Malaria vectors, *Anopheles gambia*.

Anthropometric Variations of External Ear Among Hausa, Igbo And Yoruba Ethnic Groups In Nigeria: A Comparative Study

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Abstract

Background: The external ear is very important structure of the face as it is among the structures that define the beauty and the identity of individual; hence a deformed or abnormal ear position can detract from one's appearance. The external ear is presented with various eminences, depressions and foldings. These features make it a very variable facial structure that differ between ethnic groups, sex and geographic location and hence can be utilized in medical and forensic settings. The present study was aimed in evaluating the anthropometrical variations of the external ear among Hausa, Igbo and Yoruba Ethinc groups in Nigeria **Materials And Methods:** This study comprised a total of 403 subjects that were randomly selected in which 145, 128 and 130 subjects were selected from Hausa, Igbo and Yoruba ethnic groups respectively. The photographs of the subjects were taken using sony DCR-SX53 camera. All the linear measurements were made using pair of points on the face-arth software after the photos were resized and scaled using the photo resize software in a computer. **Results:** The findings of the study have shown that total ear length, ear width, lobule height and lobule width all showed significant ethnic differences regardless of sex ($p < 0.05$). Regardless of the gender, Yoruba have larger measurements in most of the parameters, while Hausa and Igbos trail each other in some of the parameters. **Conclusion:** In conclusion this study shows external ear is a very variable structure that varies with ethnicity and can be considered in medical and forensic settings.

Keywords: Total ear length, lobule height, Ethnic Variations, Anthropometric**.**

Computational Analysis of Potent Hybrid Compounds for Alzheimer's Disease: Virtual Screening, Molecular Dynamic Simulation, and Pharmacokinetic Evaluation

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Abstract

Introduction: Alzheimer's disease (A.D.) is a neurodegenerative disorder that continues to be a major concern for both researchers and the medical community due to its complex aetiology and the lack of effective treatment options. Recent literature has highlighted the potential of hybrid drugs with multitargeted properties as a promising avenue to either cure or slow the progression of A.D. Computational-aided drug design (CADD) has emerged as a crucial methodology in drug discovery, allowing for the efficient and cost-effective creation of molecules with desirable pharmacological characteristics. This study seeks to explore hybrid compounds' potential as inhibitors of key proteins involved in A.D. through computational screening, molecular simulations, and pharmacokinetic evaluations. **Methodology:** A total of 25 hybrid compounds were selected for virtual screening using computational drug design techniques. These compounds were subjected to molecular docking simulations to evaluate their binding affinities to target enzymes and receptors relevant to A.D. pathology. The docking scores were calculated to determine the interaction strength between the compounds and the protein targets. The top-performing compounds were further analyzed using LIGPLOT+ V 2.2.7 for 2D interaction mapping and PyMol V 2.5 for 3D visualization of ligandreceptor interactions. Additionally, pharmacokinetic properties, including ADMET (Absorption, Distribution, Metabolism, Excretion, and Toxicity) profiles, were predicted to assess the therapeutic potential of these compounds as anti-AD agents. **Results:** Out of the 25 compounds screened, ten exhibited significant interactions with the protein targets, showing high binding affinities based on their docking scores. Notable compounds, such as compound 3 (-37.41 kcal/mol), compound 19 (35.68 kcal/mol), and compound 20 (-36.88 kcal/mol), demonstrated superior binding energy compared to the reference compound, which had a docking score of -26.30 kcal/mol. The amino acids ASN349, PHE168, and SER67 were identified as key residues involved in hydrogen and hydrophobic bonding with the ligands. These interactions are critical as they play roles in neurotransmitter production, including dopamine and norepinephrine, which are implicated in treating and managing A.D. symptoms. Pharmacokinetic and ADMET-ox predictions further supported the therapeutic potential of all the screened compounds, suggesting favourable drug-like properties and minimal toxicity. **Conclusion**: The computational screening and simulation studies identified several promising hybrid compounds with strong inhibitory potential against AD-related protein targets. These compounds' atomic-level interactions and pharmacokinetic profiles suggest they could effectively inhibit A.D. treatment. While the in-silico findings are encouraging, further clinical validation through in-vitro and in-vivo studies is necessary to confirm the efficacy of these inhibitors in a biological context. The results provide a strong foundation for future research in developing multi targeted therapies for Alzheimer's disease.

Keywords: Alzheimer's Disease, Hybrid inhibitors, receptor, docking, pharmacokinetic

Immunohistochemistry of Colon Biomarkers; A Narrative Literature Review

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Abstract

Background: Immunohistochemistry (IHC) is a powerful technique used to detect specific antigens in tissue sections, enabling the visualization of protein expression patterns in various conditions, including cancer. **Aim**; the aim of the review was to determine key biomarkers expressed in the colon and their significance in diagnostics and research. **Material and Methods:** The relevant literatures were extracted from medical data base using the keywords that include; colon, biomarkers, immunohistochemistry. **Results;** The key biomarkers of colon include Alpha-SMA, encoded by the ACTA2 gene, is a marker for myofibroblasts and is crucial in identifying smooth muscle cells in various tissues. Chromogranin A is a neuroendocrine marker associated with neuroendocrine tumors in the gastrointestinal tract. Keratin 20, a type I cytokeratin, is expressed in the gastrointestinal epithelium and is a critical marker for colorectal cancer. Ki-67 is a well-established marker of cell proliferation, with its expression correlating with tumor aggressiveness in various cancers. Syndecan-1 (CD138) is primarily expressed in plasma cells and is used to identify immune cell populations in the colon. **Conclusion;** Immunohistochemistry of colon biomarkers plays a vital role in understanding disease mechanisms and improving diagnostic accuracy. The ongoing refinement of IHC techniques and biomarker panels will enhance our ability to diagnose and treat colorectal conditions effectively.

Keywords: Immunohistochemistry, Colon, Biomarkers, Cancer

Asessment of Factors Associated with the Utilization of Traditional Medicine During Pregnancy and Child Birth Among Reproductive Age Women in Igabi, Kaduna State.

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Abstract

Introduction: Traditional medicine remains the most accessible and affordable form of treatment in primary healthcare for rural communities worldwide. It has been used for pregnancy care in many countries, even when modern healthcare is available. **Aim:** This study aim to determine the factors associated with the utilization of traditional medicine during pregnancy and childbirth among reproductive age women in Igabi LGA Kaduna State. **Methodology:** The study employed a semi-structured interviewer-administered questionnaire with a cross-sectional survey method. The study was conducted in six selected wards of Igabi Local Government. The objects of the study was women of child of bearing age (WCBA). Four hundred and forty women were randomly sampled for the study. Ethical consideration was kept during all the stages of the study and the statistical package for social science (SPSS) version 23 was used to evaluate the data. **Results:** Results obtained revealed that cultural factors was the major (71.5%) factor associated with the utilization of traditional medicine during pregnancy and childbirth. This is followed by environmental, social, personal, economic and religious factors. **Conclusion:** In conclusion, Cultural factors are strongly linked to the use of traditional medicine during pregnancy and childbirth. **Recommendation**: there is need to include community education programs to inform members about harmful traditional practices related to pregnancy and childbirth. Additionally, further research should be carried out to examine the effects of traditional medicine on pregnancy and labor outcomes.

Keywords: Traditional Medicine, Factors, Pregnancy, Labour

Neurobehavioral and Biochemical effects of prenatal exposure to Aqueous Extract of *Cola nitida* and folic acid on the Cerebellum of Wistar rat pups

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Abstract

Introduction: Prenatal exposure to various substances can significantly disrupt fetal brain development, potentially causing neurological problems in the long-term. *Cola nitida* a caffeine-containing nut commonly chewed by pregnant women to alleviate nausea and folic acid; a recommended prenatal vitamin may interact to impact fetal brain development. **Aim:** This study examines the neurobehavioral and biochemical effects of prenatal exposure to aqueous extract of *Cola nitida* (AECN) and folic acid (FA) on cerebellum of Wistar rat pups. **Methods:** Pregnant Wistar rats were randomly distributed into eight experimental groups of five rats each. Group 1 and 2 received 1ml/kg distilled water and 0.4 mg/kg FA respectively. Group 3, 4 and 5 received 250mg, 500mg and 750mg per kg AECN respectively. Group 6, 7 and 8 in addition to 250mg, 500mg and 750mg per kg AECN received 0.4 mg/kg FA respectively. Administration lasted for 21 days. The pregnant rats were then allowed to litter. Neurobehavioural test for forelimb grip test was carried out. On postnatal day 21, the Wistar rat pups were euthanized and the cerebellum was excised for biochemical determination of malondialdehyde levels. **Results:** High dose AECN significantly increased the levels of malondialdehyde when compared to the group that received high dose AECN in addition to folic acid. No significant changes were observed in the forelimb grip test among the groups. **Conclusion:** Folic Acid has a protective effect against *Cola nitida* induced oxidative stress on the developing cerebellum of Wistar rat pups.

Keywords: Cola nitida, Folic Acid, Cerebellum, Neurodevelopment, Neurobehavior

Primer Design: Basic Practical Considerations, Types and Applications

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Abstract

Background: The current research trend deals with the molecular genesis of discovery, with molecular biology serving as the backbone. Polymerase Chain Reaction (PCR) is a widely used technique in molecular biology and its success largely depends on the design of primers for amplifying specific DNA sequences. These short, specific DNA sequences (primers) are used to initiate and amplify target DNA. **Objective:** This review aims to provide a comprehensive overview of the practical considerations for a primer design, with regards to the type of primers for an effective PCR for research purposes: **Methodology** A review of literature was conducted in Google scholar focusing on the search words ―primer design‖ and ―PCR‖. **Results**: Theoretical considerations alone tend to bring about practical errors or limitations, this in essence results in wrong result and faulty interpretations. Therefore some basic practical considerations need to be taken into cognizance for an effective PCR. Such considerations include; the primer length, GC content, GC clamp, primer melting temperature, annealing temperature and secondary structure. These requirements are common and essential for designing both sequence specific and universal primers. **Conclusion**: This highlights the importance of practical considerations with regards to the type of primers for effective practice in research fields such as cancer research, genetics, forensic, molecular microbiology and agricultural biotechnology.

Keywords: Primers, Molecular biology, DNA, Polymerase Chain Reaction

Stature Estimation from Hand Dimensions and Prints in Ebira Ethnic Group of Nigeria.

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Abstract

Background: Prediction of stature is considered as an important anthropometric parameter for personal identification which is often required in mass disaster and medical jurisprudence or by the medico-legal experts. **Objectives**: This study was done to estimate stature from hand dimensions and prints in Ebira ethnic group of Kogi state. **Methods**: Ethical approval (ABUCUHSR/2021/20) was obtained prior to the commencement of the research which comprised of 600 subjects (age 20-60 years) of Ebira ethnic groups in Kogi state who consented to take part in the study. Bilateral measurements from the bare hand was done using a digital vernier caliper while the stature was obtained with a stadiometer following standard procedure. **Results**: Significant correlation exists between height, right hand dimensions and print measurements in the female and male subjects. The same was equally observed in the left hand dimensions and prints. The linear regression models for the estimation of stature derived from various hand dimensions and print measurements shows high predictive accuracy (R^2) and lower standard error of estimates with 4th left finger (LL4) exhibiting the highest accuracy. **Conclusion**: Stature can be estimated from hand dimensions and prints with a high degree of accuracy.

Keywords: Ebira, Handprint, Stature, Kogi.

Effect of Aqueous Extract of *Cassia Arerah Del* Stem Bark on the Histology and Selected Biochemical Indices of Liver in Adult Wistar Rat

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Abstract

Introduction: The plant *Cassia arereh Del* stem bark is known to possess medicinal properties according to African folklore. Scientific verification of its bioactive constituents backing its use for the treatment of diarrhea, dysentery, stomach ache, ascites, headache, cough, rheumatism, back pain, wound healing, weakness, avian plaque, yellow fever and malaria. The liver, despite its crucial role in metabolism is prone to several metabolic toxicities and insults manifesting as hepatic damage, thus, hepatic diseases arise from multiple etiologies. **Aim and objectives**: This study aimed to determine the effects of aqueous extract of *Cassia arereh Del* on the histological and some selected biochemical indices of hepatic tissues of adult Wistar rats. Its objectives evaluate oral administration of *cassia arereh del* using H and E, MT and PAS stain, and to evaluate changes in the liver function enzymes. **Methods:** Twenty-four (24) Wistar rats weighing between 91.31g and 223.01g were randomly divided into six (6) groups of four (4) rats each (A, B, C, D, E, and F). Various graded doses 400 mg/kg, 800 mg/kg, 1200 mg/kg, 1600 mg/kg and 2000 mg/kg of the aqueous extract was orally administered to the various groups respectively and then observed for 24 hours for mortality or any abnormal behavioural changes. **Results:** The result revealed the hepatic tissue histologically, changes which were clearly demonstrated by various histological stains with evidence of bridging fibrosis around the portal triad, bi nucleation of hepatocytes, infiltration of inflammatory cells but no evidence of glycogen deposit. Which was corroborated by slightly elevation of ALT and ALP levels with decreased AST level that produce slight distortion as a result of fibrosis and inflammation in hepatic tissue. **Conclusions:** Hence, this study provide insight in the obvious uncalculated dosage as well as prolong use of *Cassia arereh Del* stem by individuals toward curing different ailments causing alteration in the histoarchetecture of the liver.

Keywords: C. arereh, ALT, ALP, Dosage, Histoarchitecture

Assessment of Heavy Metals and Health Risk of Cucumber *(Cucumis Sativus)* Grown in Sharada Industrial Area, Kano State.

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Abstract

Introduction: Micronutrients content in leafy plants are essential for healthy human nutrition. The biochemical effects induced by the toxicants such as heavy metals present in soils, together with the chemical and physical characterizations, are good indicators to provide a general overview of their quality. However, because of their inclination for heavy metals build up, it is necessary to evaluate the health risk in addition to determining the metal levels of leafy vegetables in order to uncover potential consequences on human health. Cucurbit vegetables, belonging to the *Cucurbitaceae* family, are beneficial to human health. Numerous studies have demonstrated their antioxidant, antidiabetic, anti-inflammatory, and purgative qualities. ***Methodology*** The Cucumber (*Cucumis sativus*) fruit sample was obtained from the farm and then transported to Biochemistry Laboratory Federal University Dutse. The sample was shade dried into powder, and the mineral elements content of Cucumber (*Cucumis sativus*) were determined using standard procedure Atomic Absorption Spectrophotometry (AAS). A spectra A-40 model atomic absorption spectrometer, PSC-56 programmable sampler changer, Epson Lx-80 printer, and Zn, Fe and Ca hollow cathode lamps from variants were used in the procedure. Human health risk of heavy metals through Cucumber fruits consumption were determined using hazard quotient (HQ) and target hazard quotient (THQ). ***Results:*** The Cucumber (*Cucumis sativus*) fruit sample showed some level of essential elements. The mean values are as follows Cadmium, Lead, Zinc, Cobalt, and Nickel 0.0005, 0.0035, 0.30, 0.0003 and 0.02 mg/kg respectively. The health risk assessment (noncarcinogenic) showed that all the hazard quotients (HQ) values were found below 1, with Target Hazard Quotient (THQ) of 0.962,) on non-carcinogenic and carcinogenic risk potentials of metals exposure from vegetables grown in Sharada industrial area Kano. The metal concentrations for both carcinogenic and non-carcinogenic were found within the acceptable values while others above the stipulated range by WHO, hence contradicts my findings were the total hazard quotient is less than one ***Conclusion:*** Cucumber (*Cucumis sativus*) contained substantial amount of non-carcinogenic heavy metals, hence its safe for human consumption.

Keywords: Heavy metals, Health risk, Cucumber

Enhancement of Alzheimers Disease Targeting Drug Donepezil in the Traetment of Alzheimers Disease Using in Silico Research

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Abstract

Background: Alzheimer's disease (AD) is a progressive neurodegenerative disorder that involves amyloid-beta aggregation, tau hyperphosphorylation, and neuroinflammation which primarily affecting the elderly. It is characterized by cognitive decline, memory impairment, and neuronal dysfunction. Donepezil is a widely used acetylcholinesterase inhibitor (AChEI), that often offer limited efficacy in addressing AD's complex pathology due to it poor bloodbrain barrier (BBB) permeability and inefficient multitarget engagement.

Aim and Objectives: This study utilizes in silico techniques viz; molecular docking, pharmacophore modeling, and ADMET profiling, to develop an optimize Donepezil derivatives with improved pharmacokinetic and receptor affinity in treatment for AD.

Methodology: AutoDock Vina and SwissADME programed software were used to assess molecular docking simulations and ADMET predictions, respectively.

Results: The present study results indicated an enhanced binding affinity of -13.1 Kcal/mol of Enhanced Donepezil (C18H22N2) when compared to the gold standard of donepezil with 11.2 Kcal/mol. ADMET predictions conducted via SwissADME, evaluated BBB permeability and metabolic stability, revealed the enhanced Donepezil compound possessed a favorable bioavailability and minimized toxicity.

Conclusion: The present selected Donepezil derivative (C18H22N2) exhibit an improved CNS penetrance and multitarget potential, suggesting it predictive potentials as an enhanced therapeutic agents against AD.

Keywords: Alzheimer's disease, Donepezil, in silico, molecular docking

Relative Perception in Mating Preferences Using Feet Size Stimuli amongst Students of Some Tertiary Institutions within Northwestern Nigeria.

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Abstract

Physical appeal begins from the ground up, with foot size influencing perceptions of attractiveness. The aim of the study was to assess sex differences and effect of ethnicity on perceived attractiveness ratings of feet size stimuli amongst students of some tertiary institutions. 726 male, 761 females (1,487) participants were randomly selected. Questionnaire consisting male and female feet stimuli was used. The participant rated the stimuli on a scale of 1, most attractive to 5, least attractive. The feet of the participants was also measured using tape rule to the nearest 0.1cm, following the standard protocol. Ethical approval obtained from Ahmadu Bello university ethics committee. The anthropometric variables for both male and female was sexually dimorphic with $p<0.001$ with $p<0.05$ for statistical significance. Sexual differences was not perceived in attractiveness ratings of feet size where medium size was preferred as most attractive male feet by both male and female whereas, sex differences was observed in the most attractive female feet size with male preferring medium and small size by female participants. Across culture, the size of physically attractive man and woman shoe without stimuli, the most attractive male and female feet size (whole stimuli) and the most and least attractive women feet only stimuli was the medium size. This study findings reveal that females generally have smaller feet than males, and both genders prefer smaller feet for females, with females showing a stronger preference for this trait.

Keywords: Attractiveness, Feet size, Mating preferences, Sex differences,

Assessment of Non-Communicable Disease Risk Factors in Hadejia Town, Jigawa State: A Cross-Sectional Study

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Abstract

Background: Non-communicable diseases (NCDs) are a leading cause of adult mortality worldwide, with deaths from these conditions increasingly affecting developing nations. In Nigeria, common risk factors for NCDs include high blood pressure and elevated blood sugar levels. In Hadejia, Jigawa State, NCDs such as chronic kidney disease (CKD), hypertension, and obesity pose a substantial public health challenge. For instance, the period prevalence of CKD in Hadejia over the past five years (2018–2023) was 18.7%, with peak incidences occurring during the rainy season. Therefore, evaluating NCD risk factors is crucial for early detection and reducing the risk of developing chronic diseases. **Methods:** This crosssectional, community-based study employed a systematic random sampling method to assess demographic factors in relation to established NCD risk factors, including systolic blood pressure, diastolic blood pressure, and random blood sugar (RBS) levels. **Results:** A total of 185 respondents participated in the study, comprising 34.6% males and 65.4% females. The prevalence rates for hypertension and elevated RBS levels were 58.4% and 15.1%, respectively. Participants with hypertension and high RBS had a significantly higher mean age (53.7 vs. 42.9; $p < 0.001$) and (62.3 vs. 46.9; $p < 0.001$), respectively. Additionally, hypertension prevalence was significantly higher among females (63.6%), married individuals (65.5%), and those in occupations like fishing and farming (71.4%). **Conclusion:** The findings of this research highlight the necessity for specialized preventative and therapeutic approaches in Hadejia due to the high prevalence of NCD risk factors in this area.

Keywords: Diabetes, disease, heart, hypertension.

Effect of Aqueous Extract of Cowpea (Vigna unguiculata (L) Walp) on Visuospatial Learning and Memory in Acute Lead-Induced Neurotoxicity in Mice

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Abstract

Introduction: Lead exposure remains a critical environmental health issue associated with neurotoxic effects that impair cognitive functions, particularly learning and memory. This study aims to evaluate the protective effects of *Vigna unguiculata* (cowpea) aqueous extract against visuospatial learning and memory deficits induced by acute lead toxicity in mice. **Methodology:** Fifty mice, aged 6-8 weeks, were divided into five groups: one control group receiving distilled water, one group receiving succimmer, and three groups receiving *Vigna unguiculata* extract at doses of 250 mg/kg, 500 mg/kg, and 1000 mg/kg. The Morris Water Maze and Barnes Maze assessed spatial learning and memory performance. **Results:** Behavioral assessments indicated no significant differences in learning and memory performance among the treated groups compared to the control during the probe trials in both mazes. The Vigna unguiculata extract exhibited no acute toxicity, with an estimated oral median lethal dose (LD50) greater than 5000 mg/kg. **Conclusion:** The findings suggest that Vigna unguiculata, at the administered doses, does not mitigate lead-induced cognitive impairment in this mouse model. However, the absence of acute toxicity indicates potential for further exploration of its therapeutic benefits in other contexts.

Keywords: Lead exposure, *Vigna unguiculata*, visuospatial learning, learning and memory

Assessment of Schistosomiasis on Nutritional and Pulse Parameters among School Aged Children in Bakwarga and Shawara Communities of Jigawa State

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Abstract

Introduction: Schistosomiasis is a serious public health problem in many parts of the world especially in sub-Saharan Africa, where the diseases is endemic, causing morbidity in children and adults. **Objectives:** To assess bradycardia and tachycardia among schistosomiasis infected pupils. To determine nutritional status of school aged children in two endemic communities. **Methodology:** Random sampling was carried out to collect 240 urine samples from Primary and Junior Secondary Schools children in Bakwarga and Shawara communities, which was used to detect eggs of *Schistosoma haematobium* using sedimentation technique. Pulse oximeter was utilized to measure oxygen tension (bradycardia and tachycardia). Assessment of nutritional status was carried out using anthropometric measurements. Non structured questionnaire was used to obtain socio-demographic information and risk factors. **Results and Discussion:** Overall prevalence and density of *S. haematobium* was found to be 77/240 (33.1%) and 6 egg per 10ml (3 – 10) respectively, with significance difference between communities ($p < 0.001$). Mean heart rate of 89.0 ± 3.0 beats per minute was to be significantly differently ($p = 0.01$) between the two communities. There was however no significant difference in gender ($p = 0.25$), and across age groups ($p = 0.59$). the prevalence of underweight, stunting and thinness were 28.6%, 26.0%, and 32.5% respectively. Underweight differ between infected and non-infected children, ($p= 0.05$). Multivariate logistic regression suggests that community of residence, age, and involvement in irrigation farming are independent risk factors for schistosomiasis infection. **Conclusion:** Urogenital schistosomiasis is prevalent in Shawara and Bakwarga and cause malnutrition.

Keywords: Schistosomiasis, Nutritional status, Pulse Parameters

Selenium Reverses Sleep Deprivation Associated Motor-Cognitive Decline In Sprague Dawley Rat

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Abstract

Introduction: Selenium (Se) exhibited antinociceptive, neuroprotective potentials and alleviates motor-cognitive decline associated with neurodegenerative disorders. The potential of Se to alleviate sleep deprivation-associated dysregulation of nociceptive motor response was investigated. **Materials and method:** Male Wistar rats (140 – 160 g, 8 - 12 weeks old) were deprived of sleep for 7 days (18 h/day; 2:00 PM - 8:00 AM and 6 h/day 8:00 AM – 2:00 PM) in home cages using the modified multiple platform method (MMPM; diameter cm and height cm) after they were habituated to MMPM for 3-days (1 hour/day). The rats (n=5, per group) were randomly assigned to groups: Sleep deprived, Se (0.4 mg/kg)-, Se (0.6 mg/kg)-treated groups which were compared to normal controls and treated throughout the seven days of sleep deprivation. Behavioural motor-coordination and nociceptive-motor reactions were assessed in the animals. Blood and brain samples were collected for biochemical assessement of pro-inflammatory cytokines (IL-1β, IL-6 and TNFα), and pain biomarkers (substance P, glutamate and β-endorphin) in the serum and the substantial nigra (SN). **Results:** Motor activity was increased significantly by Se (0.6 and 0.4 mg/kg) vs. sleep deprived (8.28 ± 2.51 and 9.61 ± 1.08 s vs. 2.43 ± 0.04 s; $p < 0.05$ respectively). Se (0.6 mg/kg) and the controls exhibited no difference in the nociceptive threshold but Se alone reduced both serum and SN pro-inflammatory cytokines. Se modulates SP and glutamate in the SN of sleep deprived rats. **Conclusion:** Se reduced pro-inflammatory cytokines and restored dysregulated pain biomarkers in the SN of sleep deprived rats. Se requires further study as a potential analgesic sleep supplement.

Keywords: Experimental Parkinsonism; Mineral Micronutrient; Motor Coordination; Nociceptive threshold; Neuroinflammation; Pain biomarkers

Examination-Induced Anxiety: Its Implications on Cognitive Performance and Mental Health Among Faculty of Basic Medical Students Federal University Dutse (FBMS-FUD)

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Abstract

Background of study: Examination anxiety can potentiate over-arousal, tension and somatic symptoms, along with worry and fear of failure which can occur before or during exams situations. **Aim and Objectives:** This study aims to assess the impact of examination induced anxiety on cognitive performance and mental health among medical students at Federal University Dutse. **Methodology:** Data on anxiety levels was collected using questionnaire based on the Test Anxiety Inventory (TAI), while mental health assessments were conducted using the PHQ-9, a validated tool for measuring depression. Participants' (N=200; M= 52% F= 42.5%, PNTS=5.5%) academic performance data will be sourced from recent examination results to assess cognitive performance. SPSS software was used to analyses the data collected. **Results:** FBMS-FUD students were observed to have mild to minimal anxiety and depression which is negatively correlated to their performance. Higher level of anxiety were observed among students with unspecified gender status when compared to male or female. Minimal level of anxiety were found among student of final year compare to the lower level. Public and Environmental Health were observed to have the highest level of anxiety when compare to other department. **Conclusion:** Examination at FBMS-FUD can potentially induced anxiety which often negatively affect cognitive performance and mental health of student.

Keywords: unspecified gender status, anxiety, mental health, cognition and Depression

Parthenium hysterophorus in Phytoremediation of Total Petroleum Hydrocarbon Contaminated Soils: Enhancing Efficiency with Zeolite and *Pseudomonas aeruginosa* RS6

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Abstract

This study investigates the impact of zeolite and *Pseudomonas aeruginosa* RS6 on *Parthenium hysterophorus* in response to the extensive use of petroleum hydrocarbons in the petrochemical industry and the consequent soil degradation. Plants and the physiological characteristics of the soil were negatively impacted by total petroleum hydrocarbon (TPH) contamination, highlighting the need for efficient remediation techniques. Chlorophyll content, root and shoot length, and fresh and dry biomass were among the physiological characteristics measured. The results indicated that integrating *Pseudomonas aeruginosa* RS6 and zeolite into the soil enhanced plant growth and improved soil properties, providing a possible solution to the TPH-contaminated soil. Combining zeolite and *Pseudomonas aeruginosa* RS6 improved the moisture content, pH, electrical conductivity, and concentrations of essential nutrients, including potassium, calcium, and phosphorus. This synergistic effect makes *Parthenium hysterophorus* a promising option for the remediation of TPH-contaminated soil. The study provides an essential understanding of developing effective phytoremediation strategies for TPH-contaminated areas. Treatment combined with zeolite and *Pseudomonas aeruginosa* RS6 reduced TPH levels significantly, with a significant decrease of 85.52% in the polluted environment. This result highlighted the beneficial combination of physical soil amendments and biological remediation strategies. The treatment having *Parthenium hysterophorus* and *Pseudomonas aeruginosa* RS6 without using zeolite produced an impressive reduction of 80.37%, indicating the value of microbial inoculation in enhancing phytoremediation. However, the TPH reduction in Treatment A (*Parthenium hysterophorus*) and Treatment B (zeolite) was lower, at 20.39% and 29.61%. The control sample without treatment recorded only a 16.6% reduction rate.

Keywords: *Parthenium hysterophorus*, Phytoremediation, Petroleum hydrocarbons, *Pseudomonas aeruginosa* RS6, Zeolite

Assessment of Heavy Metal Accumulation in *Oreochromis niloticus* as a Pollution Indicator in Kafin Gana Dam, Dutse, Jigawa State, Nigeria

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Abstract

Introduction:This study investigates the pollution status of Kafin Gana Dam, with a focus on assessing heavy metal accumulation in the water and tissues of *Oreochromis niloticus* (Tilapia) as an indicator of environmental contamination. Given the dam's exposure to agricultural runoff and other anthropogenic activities, understanding the levels and distribution of heavy metals within aquatic biota is essential for evaluating ecosystem health and identifying potential risks to biodiversity and human health. **Methodology**: Sampling was conducted from March to August 2024 at three distinct sites within Kafin Gana Dam (designated as Sites A, B, and C) during early morning hours (7:00–7:30 am). Water and fish samples, specifically from the gills, liver, and muscle tissues of *Oreochromis niloticus*, were collected monthly and analyzed for heavy metal concentrations using microwave plasma atomic emission spectroscopy (MP-AES). Concentrations of zinc (Zn), copper (Cu), lead (Pb), and cadmium (Cd) were measured, and the bioaccumulation factor (BAF) was calculated to assess the extent of heavy metal uptake in fish tissues relative to their concentrations in water. **Results**: The analysis revealed that heavy metal concentrations in water samples followed the order: Zn (2.15 mg/L) > Cu (1.40 mg/L) > Pb (0.89 mg/L) > Cd (0.68 mg/L). Bioaccumulation Factor (BAF) values varied across tissues, with zinc exhibiting the highest BAF in the gills, while copper and lead concentrations were more pronounced in the liver. Specifically, BAF values in liver tissue were highest for copper (2.90), followed by lead (2.16), zinc, and cadmium. Notably, BAF values differed significantly ($p < 0.05$) across sampling sites and seasons, except for cadmium, which showed no significant seasonal or spatial variation ($p > 0.05$). These patterns suggest a notable accumulation of metals in fish tissues, particularly from agrochemical runoff. **Conclusion and Recommendation:** The observed bioaccumulation of heavy metals in fish tissues suggests a significant influx of contaminants into Kafin Gana Dam, likely attributable to agricultural runoff and other human activities in the region. This accumulation poses potential risks to aquatic species and, by extension, human health through the food chain. To mitigate these risks, it is recommended that indiscriminate discharge of xenobiotic compounds into the dam be minimized. Moreover, regulatory authorities should implement and enforce measures to control heavy metal pollution in the dam, thereby protecting aquatic biota and preserving ecosystem integrity.

Keywords:

Effects of Biogenic Nanoparticles of *Sclerocarya Birrea* (Hoschst) Stem Bark Extract on Monosodium Glutamate - Induced Depression – Like Behavior in Mice

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Abstract

Introduction: Monosodium glutamate (MSG) is a common food additive used to enhance flavor though excessive intake has been linked to neurotoxic effects in animal studies. Depression is a debilitating mental health disorder affecting millions of people worldwide. *Sclerocarya birrea*, has exhibited neuroprotective effects in experimental models of neurodegenerative diseases with its biogenic nanoparticles showing potentials in crossing the blood-brain barrier (BBB), a critical challenge in treating central nervous system disorders. **Objective**: To investigate the potential anti-depressant effects of BNSB stem bark extract on monosodium glutamate-induced depression-like symptoms in mice. **Methodology**: BNSB was synthesized using silver nitrate. Forty adult mice of both sexes were used for the study. These were blocked by weight into four groups of five animals each. Animals were weighed weekly. Group 1 and 2 received 1 ml/kg olive oil and 2 g/kg MSG respectively for 28 days, while groups 3 and 4 received 2 g/kg MSG alongside 100 mg/kg and 200 mg/kg BNSB respectively. BNSB was administered from day 15-28. Tail Suspension test (TST) was conducted on day 28. On the 29th day, animals were humanely sacrificed and the brain was weighed to determine the Brain-Somatic index. **Results and Discussion:** Significant difference was observed in TST between the MSG-only and the BNSB treated groups in the male mice. In the female mice, significant changes were found to be between the positive and negative control group. No significant changes were observed in the BSI of both male and female mice. **Conclusion:** BNSB modulated depression-like symptoms in male mice.

Keywords: *Sclerocarya birrea*, Monosodium glutamate, Biogenic nanoparticles, Depression.

Biogenic Nanoparticles of *Sclerocarya birrea* (Hoschst) Stem Bark Extract Modulates Sperm Alterations in Monosodium Glutamate-Induced Reproductive Toxicity in Mice.

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Abstract

Introduction: Monosodium glutamate (MSG), a common food additive, has been shown to exert adverse effects on male reproductive health due to oxidative stress and free radical generation, which lead to testicular toxicity and impaired spermatogenesis *Sclerocarya birrea*, a plant rich in antioxidants, has demonstrated significant potential in combating oxidative stress. With the recent advancement in nanotechnology, biogenic nanoparticles of *S. birrea* (BNSB) may be a potential candidate for ameliorating chemically-induced reproductive toxicity. **Objective:** To investigate the effect of BNSB on sperm alterations in monosodium glutamate-induced reproductive toxicity in mice. **Methodology:** BNSB was synthesized using silver nitrate. Twenty adult male mice were used for the study. These were blocked by weight into four groups of five animals each. Group 1 received 1 ml/kg olive oil, group received 2 g/kg MSG for 28 days, while groups 3 and 4 received 2 g/kg MSG alongside 100 mg/kg and 200 mg/kg BNSB respectively. BNSB was administered from day 15-28. At the end of the experiment, animals were humanely sacrificed and percutaneous epididymal sperm aspiration done to assay for sperm morphology, motility and viability. **Results and Discussion:** The MSG-only treated group exhibited significant changes in sperm motility, viability and increased alterations in sperm morphology. These effects were significantly improved in the BNSB-treated group. Thus, suggesting the protective effective of BNSB in MSG-induced sperm alterations, likely due to enhanced antioxidant activity and bioavailability. **Conclusion:** BNSB modulates sperm alterations in MSG-induced reproductive toxicity in mice.

Keywords: *Sclerocarya birrea*, Monosodium glutamate, Biogenic nanoparticles, Reproductive toxicity

Interdisciplinary Science to Personalised Medicine on Dysmenorrhoea.

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Abstract

Introduction; Personalized medicine is an emerging practice of medicine that uses an individual's genetic profile to guide decisions made in regard to the prevention, diagnosis, and treatment based on each patient's unique genetic makeup. Allows health care providers to customize disease-prevention strategies. **Dysmenorrhea** is the medical term for painful periods or menstrual craps with common causes such as heavy flow, passing clots, uterine fibroid or endometriosis.Abnormal uterine bleeding, dyspareunia , monocyclic pain, changes in intensity and duration of pain, and abnormal pelvic examination findings suggest underlying pathology (secondary dysmenorrhea) and require further investigation. Transvaginal ultrasonography should be performed if secondary dysmenorrhea is suspected.. Endometriosis is the most common cause of secondary dysmenorrhea. Symptoms and signs of adenomyosis include dysmenorrhea, menorrhagia, and a uniformly enlarged uterus. Management options for primary dysmenorrhea include nonsteroidal anti-inflammatory drugs and hormonal contraceptives. **Objective**; To use gene replacement therapy as a form of personalized medicine for treatment of secondary dysmenorrhea **Methodology**; Participants were drawn from the customer base of 23andMe, Inc., a personal genetics company. Research participants provided informed consent and answered research questions online, under a protocol approved by the external AAHRPP-accredited institutional review board, Ethical and Independent Review Services (E&I). a single survey was designed to capture variance in dysmenorrhea pain severity on a 4-point scale and deployed it to female research participants who had previously completed a range of health and lifestyle surveys. There were no restrictions applied relating to the presence of primary or secondary dysmenorrhea conditions. The dysmenorrhea question was devised to capture the full spectrum of research participant assessment of their pain levels before first childbirth, as parity has previously been suggested to reduce individual's reporting of dysmenorrhea pain severity level. An upper age restriction of 45 years was applied to control for any possible confounding effect from poor recall of pain severity experienced by postmenopausal women. To minimise changes over time, we asked participants to recall their pain on average. **Result and Disccusion:** Participants reporting extreme dysmenorrhea pain were more likely to report being positive for endometriosis, polycystic ovarian syndrome, and other psychiatric disorders. **Conclusion:** Our results indicate that dysmenorrhea pain severity is partly genetically determined.

Keywords: endometriosis, dysmenorrhea, gene replacement therapy, secondary dysmenorrhea

Heterotic (Hybrid) Individuals are Perceived as More Attractive than Non-Heterotic (Purebred) Individuals by Nigerian Students

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Abstract

Introduction: Heterosis is a genetic phenomenon where two species crossbreeds, producing offspring with better phenotypic traits. While biologists have documented instances in hybrid plants and animals, there is a lack of data supporting heterosis in humans beyond molecular level. Despite a positive association between geographic and genetic distances, studies suggest that children from hybrid marriages—where couples are from different ethnicities or countries—may have greater genetic fitness in terms of early growth, IQ, height, or physical appearance. **Aim:** To investigate the attractiveness rating between Heterotic and nonheterotic Nigerian adolescents. **Methodology:** 389 male and female university students were recruited in this study in order to assess facial attractiveness of heterotic (hybrid) and nonheterotic (purebred) faces via manupulated facial shape images. The participants were presented with two altered images of heterotic and non-heterotic faces, and they were asked to select which one they felt was more attractive beween the two. Participants opinion was also sorted with respect to beauty perception between heterotic and non heterotic children. **Results**: It was observed that improved single-ethnicity (non-heterotic) face shapes were less attractive than mixed-ethnicity (heterotic) face shapes. These findings are in line with evolutionary theories that propose people should prefer heterozygosity in spouses because mixed-ethnic facial cues are more likely to represent a variety of genes than cues indicating a face that is exclusive to a

single culture or population. **Conclusion:** Hybrid (heterotic) people are perceived as more beautiful and more attractive in Nigerian adolescents.

Keywords: heterosis, heterotic, non-heterotic, facial attractiveness, mixed-ethnicity

Effect of Heterosis on Body Mass Index (BMI) of Some Nigerian Students in Federal University Dutse, Nigeria.

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Abstract

Introduction: Crossbred (heterotic) individuals exhibit higher levels of performance for specific qualities (like height, disease resistance, IQ) than their straightbred (non-heterotic) parents on average. This phenomenon is known as heterosis or hybrid vigor. The body mass index (BMI), which is the most often used metric to define anthropometric height/weight characteristics in adults, has been linked to a number of physical and mental health problems, such as diabetes, cardiovascular disease, and a lower quality of life in relation to health. According to official statistics, nearly 60% of adults between the ages of 20 and 39 are overweight or obese, which poses a serious public health concern. **Aim:** To compare the BMI between heterotic and non-heterotic Nigerian students living in Federal University Dutse, (FUD). **Methodology:** 500 male and female FUD students were recruited in this study. Participant's ethnnicity annd that of their parents were obtained by self reporting questionaire. The participant's height and weight were measured using standard procedure after which the BMI were calculated and compared according to their heterosis. **Results**: It was observed that there were no statistically significant difference between heterotic and nonheterotic FUD students based on their BMI. However, non- heterotic FUD students had higher BMI values (21.23) when compared with their heterotic counterparts (20.70).

Conclusion: Heterosis had no effect on the BMI of Nigerian students studying in FUD.

Keywords: Heterosis, Heterotic, Non-heterotic, BMI, FUD

Knowledge, Attitude, and Practice of Self-Breast Examination among Female Secondary School Students in Ibadan North Local Government Area of Oyo State

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Abstract

Background: Breast cancer remains a major public health concern and a leading cause of cancer-related mortality among women globally. Self-breast examination (SBE), or breast self-examination (BSE), is the practice of females examining their breasts for abnormalities. This study assessed the knowledge, attitude, and practice of SBE among female secondary school students in Ibadan North Local Government Area, Oyo State. **Methods**: A crosssectional survey design was used, with 200 female students selected through purposive sampling. Data were collected using semi-structured, self-administered questionnaires covering respondents' demographics, knowledge, attitudes, and practices related to SBE. Descriptive and inferential analyses, including Chi-square tests, were conducted at a 0.05 significance level. **Results**: Results indicated that the majority (69%) of respondents were from public schools, with a mean age of 14.92 years. A substantial knowledge gap was found, as 80.5% of students had poor knowledge of SBE, although 69% held a positive attitude towards it. Only 37.5% practiced SBE monthly, while 39% rarely or never engaged in it. Bivariate analysis revealed no significant differences in SBE practices by school type ($p=0.402$) or age ($p=0.447$), though knowledge was nearly significant ($p=0.090$), and there was a strong association between positive attitudes and practice frequency ($p=0.000$). **Conclusion**: These findings underscore the need for targeted educational interventions to improve adolescent knowledge and encourage regular SBE, fostering preventive behaviours among female students.

Keywords: Self-breast Examination, Knowledge, Attitude, and Practice

Molecular Docking and Drug Kinetics Assessment for Structure-Based Drug Design of New Piperazine-Containing Hydrazone Derivatives as Effective Alzheimer Inhibitors

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Abstract

The neuro-degenerative condition known as Alzheimer's disease (AD) impairs cognitive function and produces dementia in older people. The disease's precise mechanism is still a mystery. Four drugs are available. However, they all have a long list of adverse effects and only help people with their warning signs. There is need for creating and using a new class of multifunctional small molecule inhibitors. **Methodology**: The hydrazone scaffold was used to create a wide range of chemicals. Structure-based drug design methods were used in this investigation. A protein target (code ID 4EY7) was selected based on published literature research and factors like a lower resolution value (2.35), no mutation, Homo sapiens, and the X-ray diffraction technique. **Result**: Fifteen (15) Hydrazone derivatives with increased interactions, higher binding scores, and improved drug-like properties and drug kinetic parameters were designed using the protein target, engineered to interact with compounds of interest (a lead compound with a higher binding energy). **Conclusion**: Promising pharmacotherapeutic drugs for AD treatment may be developed using the results of these investigations.

Keywords: Alzheimer's Disease, Computer-aided drug design, Complex mechanism, Binding energy, Pharmacokinetics.

Role of Resveratrol and Pioglitazone Co-Administration on Serum Protein/Creatinine Levels and Kidney Injury Molecule-1 Concentration in Wistar Rats with Diabetic Nephropathy

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Abstract

Hyperglycaemia developed in type-2 diabetes results in lipid peroxidation and structural changes in the kidney tissues. This research is aimed at determining the effect of resveratrol and pioglitazone co-administration in hyperglycaemia-induced nephropathy in type-2 diabetes by analyzing certain renal biochemical markers. Twenty-eight (28) adult male Wistar rats were evenly divided into 7 groups of 4 rats each. Type-2 diabetes was induced in groups III, IV, V, VI and VII using HFD/Fructose administration for six weeks and then receiving a single low dose (35 mg/kg) of streptozotocin injection intraperitoneally. Group I= normal control 1 mg/ml distilled water while group II= normoglycaemic but received the vehicle (CMC). Group III= diabetic untreated while Group IV, V, VI and VII served as diabetic+100 mg/kg resveratrol, diabetic+5 mg/kg pioglitazone, diabetic+combination of 100 mg/kg resveratrol and 5 mg/kg pioglitazone and diabetic+1 mg/kg lisinopril. All interventions were done through oral route and lasted for six weeks post STZ injection, after which the rats were fasted overnight and then anaesthesized with 50 mg/kg ketamine hydrochloride and 25 mg/kg diazepam. Blood was collected via cardiac puncture in plain bottles and right kidney of each rat was dissected out and homogenized for biochemical assays. The results obtained showed a significant decrease ($p < 0.05$) in fasting blood glucose levels between the coadministration group and diabetic untreated group on the final day of the experiment. On the effect of time on mean FBG, statistical significance was observed on week 12 as compared with week 6 prior to STZ injection and week 8. Additionally, there was a significant decrease in MDA concentration between co-administration and diabetic untreated groups. Serum total protein and serum albumin levels increased significantly in the co-administration group compared to the diabetic untreated, while serum creatinine levels decreased significantly in the co-administration group. Finally, significant decrease ($p< 0.05$) was observed in KIM-1 concentration in the resveratrol + pioglitazone co-administration group compared to the diabetic control. The outcome of this study reveals that augmentation of pioglitazone with resveratrol could be beneficial towards diabetic nephropathy prevention in type-2 diabetes.

Keywords: Diabetic nephropathy; Serum proteins; Serum creatinine; Resveratrol; Pioglitazone

Assessment of impact of Socio-Economic Status and Quality of Life on Maternal Health Among Women Attending Gumel General Hospital, Jigawa State.

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Abstract

Maternal health issues has been one of the cornerstone challenge over decades in developing countries like Nigeria. Factors like socio-economic status and quality of life have been correlated with maternal health. Conditions like anemia, preeclampsia, and birth related complications are all associated with low income and inability to live qualitative life, therefore, the focus of the paper is on maternal health related distresses resulted from low socio-economic status and poor quality of life. This study aimed to assess the impact of socio-economic status and the effect of quality of life maternal health problems**.** A descriptive study design was employed and 125 women were selected using purposive sampling technique, data was collected using adopted and modified quality of life scale (WHO 2004), Socio economic status scale (Kuppuswamy's 2012) and dietary analysis/diversity. Data was analyzed using statistical package for social science (spss) version 23.0. Result shown that out of 87 women that are below poverty benchmark 38 (43.68%) have anemia, 16.09% experienced birth related complications while 32.18 present with disease. While the Quality of life results shown that 83 (66.4) of the respondents have live lower quality of life and 42 (50.60) of them present with anemia, 43.38 presented with birth complication 4.82 presented with other diseases. This correlated low socioeconomic status and poor quality of life with health challenges. Therefore, there is need for effective health policy formulation and resource intervention to curtail these issues to prevent the cases from escalating.

Keywords; Maternal Health, Socio-economic Status, Quality of Life, Disease.

Detection of Human Pathogenic *Escherichia coli* (O157:H7) Associated with Indiscriminate Refuse Dumping in Dutse Metropolis and It's Public Health Implications

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Abstract

Introduction: The rate of solid waste generation has increased to an uncontrollable rate in Nigeria. The increase in population, technological innovation and excessive urbanization being experienced has drastically contributed to the generation of municipal wastes. **Objectives:** Isolation of *Escherichia coli* (*E. coli* O157:H7) from soil samples using most probable number (MPN). Isolation of *E. coli* O157:H7 from soil samples using biochemical characteristics. **Methodology:** A total of forty-eight (48) soil samples, six (6) per site, were randomly collected from eight different selected dumping sites and taken to the laboratory to analyze for the presence of *Escherichia coli* using the most probable number (MPN) and biochemical characteristics. **Result and Discussion:** The characteristic pink coloration on eosin methylene blue (EMB) agar and black green with metallic sheen on violet red bile (VRB) agar are indicative of *E. coli* O157:H7. Upon gram staining, gram negative appears as rod shape on microscope, while 15 (31.3%) samples were positive for *E. coli* O157:H7 in biochemical tests which included; catalase, citrase, indolase, oxidase, methyl red, Voges Proskauer and urease). **Conclusion**: The 31.3% positive samples for human pathogenic *E. coli* O157:H7 simply means people leaving around the dumpsites, especially children, who go to either play or pick up disposed wastes are at risk of becoming infected and may suffer watery diarrhea, vomiting and fever. It is therefore recommended that effective waste management strategies, strict enforcement of regulations and community education should be put in place to prevent outbreaks.

Keywords: Human Pathogenic *E. coli* (O157:H7), Indiscriminate Refuse Dumping, Public Health Implications

Awareness and Uptake of Malaria Prophylaxis among Pregnant Women Attending Antenatal Clinic in General Hospital Birnin Kudu, Jigawa State

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Abstract

Malaria remains a life-threatening disease, particularly among pregnant women. The World Health Organization recommends intermittent preventive treatment (IPTp) with sulfadoxine-pyrimethamine (SP) after the first trimester. This study assessed awareness and uptake of malaria prophylaxis, identifying factors influencing uptake among pregnant women attending antenatal clinics in General Hospital Birnin Kudu. A descriptive cross-sectional design was employed, distributing 85 structured questionnaires. Data analysis utilized frequency distribution tables and percentages, with key findings expressed in bar charts. Participants demonstrated positive awareness of malaria prophylaxis (79%). However, uptake of IPTp-SP was low, influenced by health facility issues (79%), insufficient IPTp-SP distribution, timing of ANC visits (64%) and financial constraints (54%). To improve IPTp-SP uptake, healthcare facilities should ensure consistent and sufficient supply, healthcare providers should prioritize ongoing education and training, and pregnant women should receive targeted education emphasizing early initiation and consistent adherence to recommended practices.

Keywords: Awareness, Uptake, Malaria, IPTp-SP, Pregnant Women.