AKANU IBIAM FEDERAL POLYTECHNIC
UNWANA
SKILL FOR TECHNOLOGICAL FREEDOM

SCHOOL OF SCIENCE

AKANU IBIAM FEDERAL POLYTECHNIC UNWANA
P.M.B 1007, AFIKPO, EBONYI STATE, NIGERIA

SCHOOL OF SCIENCE
πr^2
AKANU IBIAM FEDERAL POLYTECHNIC

2ND INTERNATIONAL CONFERENCE AND EXHIBITION

THEME: ADVANCING THE FRONTIERS OF SCIENCE AND TECHNOLOGY FOR ECONOMIC GROWTH.

Date: Wed. 3rd - Fri. 5th April, 2024

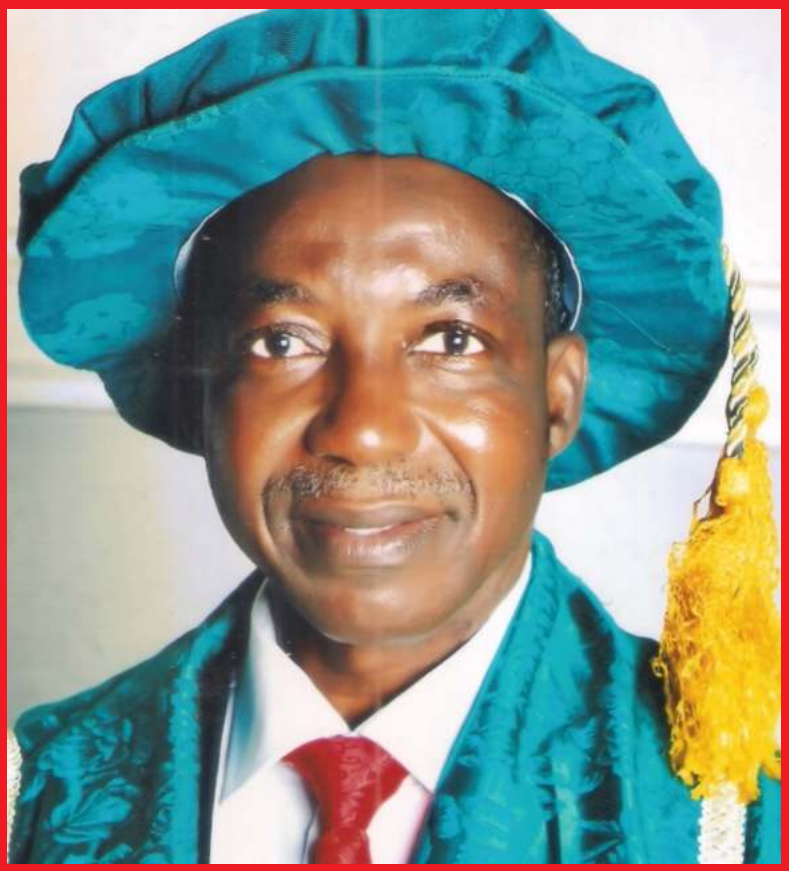
BOOK OF ABSTRACT

His Excellency
Bola Ahmed Tinubu
President of Nigeria

His Excellency

FRANCIS OGBONNA ERISHI NWIFURU

Executive Governor of Ebonyi State



DR. FELIX UROKO ATTAH

Rector

Akanu Ibiam Federal Polytechnic, Unwana

Uchendu D. O.
Head, Science Laboratory Technology Dept

Engr. Malachy Amaechi Eziechina
Head, Computer Science Dept.

Alabi A.
Head, Maths/Statistics Dept.

Dr. A. A. Esonwune
Dean, School of Science

Dr. Segun Solomon Ogundapo
Head, Pharmaceutical Technology Dept.

LOCAL ORGANIZING COMMITTEE (LOC)

Dr. Uboaja, Uchenna C. A.
Chairman, LOC

Mr. Ukoha, P. U.
Secretary LOC

Dr. Mrs. Adannaya Uneke Gift-Adene
Member LOC

George Elechi Christopher
Member LOC

Onochie Jeff Nkama
Member LOC

Chukwunonso Madu
Member LOC

Dr. Segun Solomon Ogundapo
Member LOC

AN ADDRESS PRESENTED BY DR. UGBOAJA, UCHENNA C. A, CHAIRMAN, LOC SCHOOL OF SCIENCE CONFERENCE, AKANU IBIAM FEDERAL POLYTECHNIC, UNWANA, AT THE 2ND INTERNATIONAL CONFERENCE OF THE SCHOOL OF SCIENCE, HOLDING AT THE LECTURE THEATRE, FROM 3RD – 5TH APRIL, 2024.

The Chairman,
The Special Guest of Honour
The Rector, Akanu Ibiam Federal Polytechnic, Unwana, Dr. Felix Uroko Attah,
The Deputy Rectors,
Deans and Directors,
Heads of Department and Units,
The Guest Lecturer,
Staff and Students of the School of Science,
Gentlemen of the Press,
Ladies and Gentlemen

I consider it a great honour and unique privilege to welcome you, our distinguished ladies and gentlemen, to the 2nd International Conference of the School of Science holding at the New Lecture Theatre of Akanu Ibiam Federal Polytechnic, Unwana.

The School of Science Conference theme entitled "Advancing the Frontiers of Science and Technology for Economic Growth" is special in view of the time and the state of science and industrial evolution our country dearly needs for its growth and development.

Before long, the guest speaker will open his goatskin bag of business knowledge to brief us as well as make a statement on the current trends in Science and technical Education. In the same way the lead paper presenters and conference participants will equally unfold their packages for the enrichment of our knowledge bank.

On behalf of the school, I express our profound gratitude to the Rector and our Icon in the school of science who solidly stood behind us in cash and kind as a Father he is in all its facets. I wish to also thank the members of Local Organizing Committee for working hard enough to see this dream come true. I am not ungrateful to the entire staff and students of the School who worked as a team to make this conference a huge success.

I make bold to say that our School has always proved itself first to take its place as a pacesetter within and outside the polytechnic community. Our watchword remains excellence, in line with the vision of Skill for technological freedom.

We hope that the Federal Government will appreciate our efforts by perusing our Conference communiqué and consider as appropriate where to apply it in order to enhance science and technological opportunities for the development of the Nigerian nation. It shall be well with our country.

Once again, I welcome our colleagues far and near and wish them happy deliberations as well as wish them journey mercies back home at the end of this memorable conference.

Thank you for coming.

Dr. Ugboaja, Uchenna C. A. **FCAI, FIIA, MBCS, MNCS, MCPN**
Chairman, LOC

A WELCOME ADDRESS PRESENTATED BY DR. A. A. ESONWUNE, THE DEAN SCHOOL OF SCIENCE AKANU IBIAM FEDERAL POLYTECHNIC UNWANA @ THE 2ND INTERNATIONAL AND EXHIBITION SCHOOL OF SCIENCE HOLDING @ THE LECTURE THEATRE FROM 3RD – 5TH APRIL, 2024.

The Rector,
The Deputy Rectors,
Chairman of the Occasion,
Deans of Schools here present,
Heads of Departments here Present,
Our Eminent Paper Presenters,
Distinguished Participants,
Colleagues,
Ladies and Gentleman,

It's a great honor and privilege to welcome you all, on behalf of the entire staff and students of School of Science, Akanu Ibiam Federal Polytechnic Unwana Ebonyi State, to the 2nd International Conference and Exhibition of the School Of Science with the theme "Advancing the Frontiers of Science and Technology For Economic Growth".

Nigeria as in many other African countries and the world at large is currently exploring strategies and opportunities that will lead to the emergence of their economic through Science and Technology. As we share knowledge from the arrays of researchable topics by our colleagues from different institutions and industries in the technical sessions, we hope to come up with a communique that will address pertinent national economic issues of interest and contribute to the development of our dear country Nigeria, other African countries and the world at large.

On behalf of School of Science, I express our gratitude to the Rector and his management team for their strong support in cash and kind, I wish to also thank the members of local organizing committee (LOC) For working hard to make this conference see the light of the day, the entire staff and students of school of science am grateful for your effort towards the success of this conference.

I encourage all participant to engage fully in all discussions during the conference and enjoy themselves at the conference, as well wish them journey mercy back home at the end of this memorable conference.

Thank you all.

Dr. A.A Esonwune (MCSN, MICCON, FRHD, FIIA, KSJI)
Dean School of Science.

AN ADDRESS PRESENTED BY DR. FELIX UROKO ATTAH, RECTOR, AKANU IBIAM FEDERAL POLYTECHNIC, UNWANA, AT THE 2ND INTERNATIONAL CONFERENCE OF THE SCHOOL OF SCIENCE, HOLDING AT THE LECTURE THEATRE, FROM 3RD – 5TH APRIL, 2024.

The Honourable Chairman,
The Special Guest of Honour
The Deputy Rectors,
Deans and Directors,
Heads of Department and Units,
The Guest Lecturer,
Staff and Students of the School of Science,
Gentlemen of the Press,
Ladies and Gentlemen

On behalf of the Entire Management, Staff and Students of Akanu Ibiam Federal Polytechnic, Unwana, I welcome all and sundry to the 2nd International Conference and Exhibition of the School of Science and especially the conference participants whom have travelled from afar to be part of this academic exercise.

The land of Unwana where our institution is situated in a serene and tourists environment with so many beautiful natural heritage to behold and very conducive for academic development. I will urge you to seize this opportunity of stepping your foot on the soil of this Ancient City which happens to be the home of one of our illustrious son and leader of our time Ezeogo Dr Akanu Ibiam and visit some of this tourist site before your departure.

The Local Organizing Committee for this year's conference has done beautifully well to package the theme "Advancing the Frontiers of Science and Technology for Economic Growth" which is very apt going by the present economic situation of our country today.

No doubt the Key Note Speaker and Lead paper presenters are well prepared to do justice to the theme; and the conference participants have deeply researched to present academic papers that will help alleviate the present dilapidating economic situation of our dear country.

Once again, I wish you all a wonderful deliberations as you enjoy your stay here during the period of the conference and journey mercies as you travel back to reunite with your families.

Thank you and God bless you richly

Dr. Felix Uroko Attah
Rector, Akanu Ibiam Federal Polytechnic Unwana

A KEY NOTE ADDRESS PRESENTED BY PROF NWOGO AJUKA OBOASI, Ph.D, FIRDI, FIIA, FIPMD, FIOGR AT THE SCHOOL OF SCIENCE, AKANU IBIAM FEDERAL POLYTECHNIC UNWANA, 2ND INTERNATIONAL CONFERENCE AND EXHIBITION 2024 ON THE THEME: ADVANCING THE FRONTIERS OF SCIENCE AND TECHNOLOGY FOR ECONOMIC GROWTH.

Outlines

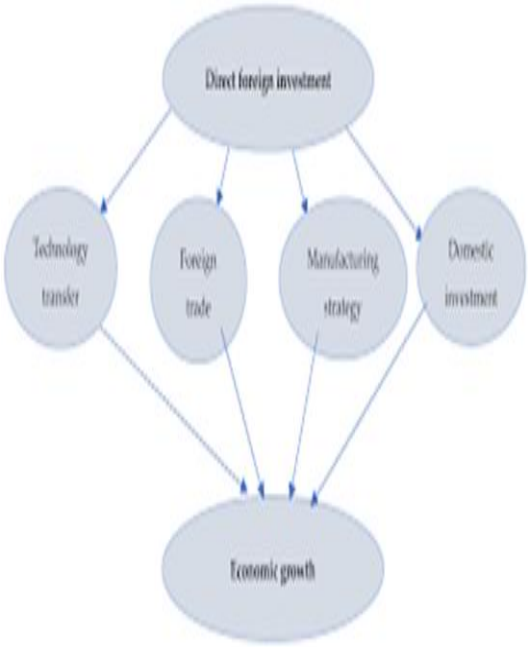
- Introduction
- Challenges
- Role of Academia
- Academia-industry collaboration
- Role of Government
- Conclusion

INTRODUCTION

Economic growth and development of any country is generally measured by the living standards of its citizens through achievement of fiscal prudence, low inflation and increased availability of infrastructural facilities

- Leveraging science and technology for economic growth and development in Nigeria offers both prospects and challenges. The promising prospects includes increased innovation, improved healthcare, enhanced agricultural productivity, and streamlined business processes among others.

- However, Some of the major challenges include inadequate infrastructure, limited funding for research and development, lack of effective policies, limited access to technology in rural areas, and a shortage of skilled personnel.
- By fostering a conducive environment for research and development in Science and Technology, Nigeria can attract more direct foreign investment and create opportunities for Economic Growth and Development.



- Several challenges hinder Nigeria's economic growth and development through the effective utilization of science and technology.
- To fully realize the benefits of science and technology for economic growth and Development, it is crucial for Nigeria to address its challenges through strategic planning, increased investment in education and research, and the formulation of effective policies that support technological advancement across various sectors.
- Some of the key challenges include:

1. Inadequate Infrastructure: The lack of robust infrastructure, such as power supply, internet connectivity, and transportation systems, hampers the adoption and diffusion of technology across various sectors.
2. Limited Funding for Research and Development: Insufficient investment in research and development (R&D) stifles innovation and inhibits the creation of new technologies that could drive economic growth.
3. Skills Gap: There is a shortage of skilled personnel in science and technology fields, which limits the country's capacity to leverage technological advancements for socioeconomic development.

- Some of the key challenges include:

4. Policy Challenges: Inadequate policies and regulatory frameworks that support science and technology initiatives hinder progress and create uncertainties for investors and innovators.
5. Brain Drain: The emigration of highly skilled professionals to other countries deprives Nigeria of talent essential for technological advancement and economic development.

6. Limited Access to Technology: Rural areas often lack access to basic technology infrastructure, limiting the potential impact of science and technology on these communities.
7. Poor Coordination and Collaboration: Inadequate collaboration between academia, industry, and government institutions hinders effective knowledge sharing and technology transfer.

ROLE OF ACADEMIA

Addressing these challenges requires a multifaceted approach involving strategic investments in infrastructure, education, R&D, and policy reforms. The academia can play a critical role in driving economic growth and development in Nigeria through the use of science and technology. Here are some strategies that can be implemented:

1. Research and Innovation: Encouraging academic institutions to prioritize research and innovation in various fields can lead to the development of new technologies, products, and solutions that can contribute to economic growth.

2. Knowledge Transfer/Collaboration with Industry: Academia plays a vital role in transferring knowledge and technology to industries and government institutions, fostering collaborations that can lead to the commercialization of research outcomes and skills development. This collaboration can lead to the creation of job opportunities, increased productivity, and enhanced competitiveness in the market.
3. Capacity Building: Academia trains the next generation of scientists, engineers, and technology experts, equipping them with the knowledge and skills needed to contribute to the nation's development. Investing in training programs, workshops, and seminars can help build the capacity of students and researchers in utilizing cutting-edge technologies and techniques. This upskilling can lead to a more qualified workforce that can drive innovation and development in the country.
4. Policy Advocacy and Development: Academia provides evidence-based insights and expertise to policymakers, guiding the formulation of science and technology policies that can drive innovation and sustainable development . By engaging with policymakers, academia can influence decisions that promote a conducive environment for technological advancement and economic growth.

5. Entrepreneurship and Startups: Encouraging entrepreneurship among students and faculty members can lead to the creation of startups that develop innovative solutions to local challenges. Academic institutions can provide support through incubation centers, funding opportunities, and mentorship programs.

ACADEMIA-INDUSTRY COLLABORATION

- Academia-industry collaboration in science and technology is crucial for driving economic growth and development in Nigeria. Key areas of this collaboration include:

1. Knowledge Transfer: Academic institutions can collaborate with industry partners to transfer knowledge, expertise, and technology from research to practical applications. This can lead to the development of innovative solutions that address real-world challenges and drive economic growth.
2. Research and Development Partnerships: Collaborative research projects between academia and industry can lead to the creation of new technologies, products, and services that have commercial potential. These partnerships can also enhance the skill sets of students and researchers, making them more competitive in the job market.
3. Technology Commercialization: By working together, academia and industry can commercialize research findings and intellectual property, turning them into marketable products and services. This can lead to job creation, revenue generation, and increased competitiveness in the global market.
4. Skills Development: Industry-academia partnerships can help bridge the skills gap by providing students and researchers with hands-on experience, industry insights, and training opportunities. This can ensure that graduates are better equipped to meet the demands of the workforce and drive technological innovation.
5. Policy Advocacy: Collaborative efforts between academia and industry can be instrumental in advocating for policies that support research, development, and innovation. By working together, stakeholders can influence policy decisions that create a conducive environment for economic growth through science and technology.

ROLE OF GOVERNMENT

- Nigerian Government plays crucial roles in promoting science and technology for economic growth and development through relevant ministries, agencies and other relevant institutions such as Ministry of Science and Technology and related Ministries in the State, Tertiary Education Trust Fund (TETFund), Industrial Training Fund (ITF), among others The major roles of these ministries and other relevant institutions include:

1. Funding Research and Development: Ministries and agencies such as TETFund provides funding for research and development projects in Nigerian universities and other tertiary institutions. This financial support enables researchers to conduct studies in various scientific and technological fields, leading to innovation and the creation of solutions that can drive economic growth.
2. Supporting Infrastructure Development: Relevant Government Institutions invest in improving infrastructure in higher education institutions, including laboratories, research centers, and technology hubs. By enhancing facilities for scientific research and

technological innovation, these institutions contribute to the advancement of science and technology in Nigeria.

3. 3. Capacity Building: TETFund, ITF among others supports capacity building initiatives, such as training programs and workshops, to enhance the skills of researchers, scientists, and technologists. By investing in human capital development, they help to build a workforce that is competent and knowledgeable in various scientific and technological disciplines.
4. 4. Promoting Collaboration: Ministry of Science and Technology and related Ministries in the State, TETFund, ITF, among others encourages collaboration between academia, industry, and government agencies to foster innovation and technology transfer. By facilitating partnerships and knowledge sharing, these institutions contribute to the development of solutions that address societal challenges and drive economic growth and development.
5. 5. Supporting STEM Education. Also, relevant ministries, agencies and parasitatals promote science, technology, engineering, and mathematics (STEM) education by providing scholarships, grants, and other incentives to students pursuing STEM-related fields. By encouraging interest and participation in these disciplines, government institutions help to build a talent pool that can contribute to technological advancement and economic growth.

CONCLUSION

- Leveraging science and technology for economic growth and development in Nigeria offers both challenges and prospects
- Addressing these challenges requires a multifaceted approach involving strategic investments in infrastructure, education, R&D, and policy reforms.
- By actively engaging with academia and supporting research and education initiatives, nations like Nigeria can leverage science and technology as powerful tools for economic growth, social development, and global competitiveness.
- Academia-industry collaboration in science and technology is essential for unlocking Nigeria's innovation potential, driving sustainable economic development, and fostering a culture of entrepreneurship and technological advancement in the country.
- Overall, relevant Government institutions in Nigeria play pivotal roles in promoting science and technology for economic growth and development by providing financial support, enhancing infrastructure, building capacity, fostering collaboration, and supporting STEM education initiatives.
- By harnessing the potential of science and technology, Nigeria can position itself as a hub for innovation and drive sustainable economic development in the long run.

Thank you

PROF NWOGO AJUKA OBOASI, Ph.D, FIRDI, FIIA, FIPMD, FIOGR

LIST OF ABSTRACTS

2024/SOSC12	INVESTIGATION OF HEAVY METALS IN LIVERS, GIZZARDS, AND MUSCLES OF LOCAL BREEDS CHICKENS AND BROILERS REARED IN UNWANA, AFIKPO LOCAL GOVERNMENT AREA, EBONYI STATE.	Oko, Nnam Ahamefula, John, Ama Ibiam, Okoro, Otuu Inya, Apie, Columbus Osang and Oji, Chihurumnanya Ola	31
2024/SOSC13	PREVALENCE AND SUSCEPTIBILITY PATTERN OF Salmonella AND Shigella SPECIES ISOLATED FROM CHICKEN DROPPING IN TWO DIFFERENT POULTRY FARMS IN UNWANA	M. N. Ugwu, Uchendu, D. O. Ugbo, U. I. Egwurochi, W. I. 5Mbonu U. B.	32
2024/SOSC14	Olugbue, Victor Uzochukwu., Dike, Uzoma Awa, Okonkwo, Evelyn Ijeoma., Ogundapo, Segun Solomon and 1Ashu Mary Ojeme	CARBAPENEM RESISTANT KLEBSIELLA PNEUMONIAE ISOLATED FROM PATIENTS ATTENDING MATER MISERICORDIAE HOSPITAL, AFIKPO, EBONYI STATE	33
2024/SOSC15	ANTIBIOTIC RESISTANCE PATTERN OF UROPATHOGENS ISOLATED FROM ASYMPTOMATIC STUDENTS OF AKANU IBIAM FEDERAL POLYTECHNIC, UNWANA, EBONYI STATE	Olugbue, Victor Uzochukwu., Okonkwo, Evelyn Ijeoma., Dike, Uzoma Awa and Ugwualor, Loveth Chigozie	34
2024/SOSC16	STATISTICAL ANALYSIS ON THE EFFECT OF POULTRY PRODUCTION ON AGRICULTURAL OUTPUT IN AFIKPO NORTH L.G.A, EBONYI STATE	Igwe, N. O , Madu Chukwunonso , and Okeahialam, A , Adeyiola, I. A.	35
2024/SOSC17	DERIVATION OF ELEVEN NODES COMPOSITE SIMPSON'S RULE FOR BETTER APPROXIMATION	Onosemuode Edesiri Kelvin	36
2024/SOSC18	OPTIMIZATION OF BIOETHANOL PRODUCTION FROM BANANA PEELS: AN ALTERNATIVE ENERGY SOURCE	Chihurumnanya Ola Oji, Innocent A. Okoro, Jude Chidozie Nnaji	37
2024/SOSC19	DETERMINATION OF THE PHYTOCONSTITUENTS AND FREE RADICAL SCAVENGING ACTIVITY OF ACALYPHA WILKESIANA (COPPER LEAF) EXTRACT	Anizoba, G.C., Onuegbu, P.I. and Nwaedozie, C.E.	38

2024/SOSC20	EVALUATION OF SOME MICRONUTRIENTS COMPOSITION AND PHYTOCONSTITUENTS OF JUSTICIA CARNEA LEAF EXTRACT.	Anizoba, G.C.,Nwaedozie, C.E. and Onuegbu, P.I	39
2024/SOSC21	SYNTHESIS AND BIOLOGICAL ACTIVITIES OF METAL COMPLEXES OF HYDRAZINECARBOTHIOAMIDE MOIETY AS PRECURSORS FOR METAL BASED DRUGS: A REVIEW.	Ugochukwu.B. Amadi, Ndife, Chidiebere Temple Ukoha, P.U ,Martin.O.C. Ogwuegbu, Konrad.C. Enenebeaku ,Gerald.O. Onyedika,	40
2024/SOSC22	COMPARISONS OF THE SOLUTIONS OF FIRST AND SECOND ORDER ORDINARY DIFFERENTIAL EQUATIONS BY LAPLACE TRANSFORMS AND ANALYTICAL/USUAL METHOD OF SOLUTIONS	Dr. U.S Isienyi	41
2024/SOSC23	ISOLATION AND CHARACTERIZATION OF ENDOPHYTIC BACTERIA ASSOCIATED WITH ALCHORNEA CORDIFOLIA.	Ukwuoma, Happiness Chinyere; Ogbuji, Nkiruka Christiana; Ugboaja, Felicia. C.	42
2024/SOSC24	STATISTICAL DETERMINATION OF THE EFFECT OF GDP AND URBANIZATION ON NIGERIA`S FERTILITY RATE	Arua, P. I, Nkama, Stephen O. Igwe, Favour O. and Igwe Obasi Igwe .	43
2024/SOSC25	DESIGN OF OUTDOOR NETWORK DENSIFICATION TOWARDS 5G USING BINARY SEARCH BASED CELL POSITIONING ALGORITHM.	Kalu, J, Igbo, N.E , Njoku, C. C., Nwauzor, J. N.	44
2024/SOSC26	A COMPARATIVE EVALUATION OF EXISTING APPROACHES TO RFID TAG ANTI-COLLISION PROTOCOL	N. H. Umelo, P. N. Ibe L. C. Agbo	45
2024/SOSC27	ELECTRIC VEHICLES ADOPTION IN NIGERIA IT'S PRONS AND CONS	Engr. Agbo Levi Chiedozie MNSE,MNTE.	46

2024/SOSC28	COMPARATIVE STUDY OF THE EFFECT OF ETHANOL LEAF EXTRACT OF MORINGA OLEIFERA L. FROM SELECTED LOCATIONS IN SOUTH- EASTERN NIGERIA ON TESTOSTERONE, PROGESTERONE AND LUTEINIZING HORMONE IN ALBINO RATS.	OtuChristian, G., Okaka, A. N. C., Obasi, S. E., 1Ngobidi, K. C., Okparauka, I. I., Aja, O. A. and Ikwor, C. S.	47
2024/SOSC29	ANALYSIS OF BROMATE AND CYANIC ACID CONTENT IN BREAD LOAVES AND WHEAT FLOUR SOLD IN ONITSHA METROPOLIS, SOUTH -EASTERN NIGERIA	Ikeagwuani, C. O. and Idara, I. A.	49
2024/SOSC30	MONKEYPOX: A REVIEW OF CAUSES, EPIDEMIOLOGY AND TREATMENT	Ezike, Blessing N.; Anikwe, Rita C.; Akpa, Elizabeth N.; Onwe, Rachel U and Akwo, Jessica B.	50
2024/SOSC31	CHALLENGES FACING AKANU IBIAM FEDERAL POLYTECHNIC, UNWANA (AIFPU) ACADEMIC STAFF ACCESS TO RESEARCH FUNDING	Gift Adene Adannaya Uneke Gift-Adene Onyemachi George O., Onyemachi Dorothy	51
2024/SOSC32	DEVELOPMENT OF A CYBERSECURITY AWARENESS SYSTEM: An Innovative Initiative for Economic Growth	O. R. Oyelowo, O. Y. Obansola, R. A. Olaniran	52
2024/SOSC33	A STATISTICAL STUDY OF ECONOMIC GROWTH OF GOVERNMENT EXPENDITURE ON EDUCATION, WELFARE AND DEFENSE IN NIGERIA	Elem-Uche, O., Dike, A. O., Ogbonnia, C. F.,	53
2024/SOSC34	ONLINE STAFF APPRAISAL SYSTEM BASED ON BEHAVIORAL ANCHORED RATING SCALE (BARS).	Eme, Ogwo; Onuora, Augustine Chidiebere; Oliver, Ifeoma Catherine & Uguba, Happiness Ijeoma	54

2024/SOSC35	MICROBIAL ASSESSMENT OF COMMERCIAL POULTRY FEEDS FROM DIFFERENT BRANDS AVAILABLE IN AFIKPO,EBONYI STATE.	Ogbuji Nkiruka Christiana, Egwurochi Wilson Iheukwumere, Okata-Nwachukwu Maria Okwudili, Ukwuoma Happines Chinyere, Okoronkwo Goodness Udechi, Ologwu Richard, Okonkwo Evelyn Ijeoma and Akpangene Mayfair Chineme.	55
2024/SOSC36	EVALUATION OF PROXIMATE AND MICROBIAL QUALITY OF Littorina littorea SOLD IN AFIKPO	Egwurochi, W. I.; Ngobidi, K. C.; Okoro, O. I., Ukoha, P.U., Igwe, A. Oko,N. A., Egbule, C.U., Igwe, A.M., and Nnachi, A.S.	56
2024/SOSC37	STUDENT ASSISTANT SYSTEM USING A WHATSAPP-BASED CHATBOT	Chibuike E. Madubuike, Chinenye E. Ikechukwu, Victory Nwokocha, Arikpo Etowa	57
2024/SOSC38	STADIUM MANAGEMENT USING ONLINE TICKET SYSTEM	Chibuike Ezeocha Madubuike, Ameh Peter & Mikpedigeabasi, Victor	58
2024SOSC39	BACTERIOLOGICAL ASSESSMENT OF NAIRA NOTES IN AKANU IBIAM FEDERAL POLYTECHNIC, UNWANA	O.F Igwe; Anozie Justina Kenechukwu Aja Monique Iheoma and Aniokete Ugonna Cassandra	59
2024/SOSC40	COMPARATIVE ANALYSIS OF PHYTOCHEMICAL AND PROXIMATE COMPOSITIONS OF Solanum aethiopicum (Ethiopian eggplant) AND Solanum macrocarpon (African Eggplant) LEAVE EXTRACTS	Nwali, I.U, Ezem, S.N, Ibiam, J.A, Igara, C.E and Olulue, N.	60

2024/SOSC41	HYPOGLYCEMIC ACTIVITY OF JATROPHA CURCAS ETHANOL LEAVE EXTRACT ON LIPID PROFILE PARAMETERS OF ALLOXAN-INDUCED DIABETIC RATS	Danladi, G. J., Anyiam, C. C., Anyiam C. A. and Amaechi C. C.	61
2024/SOSC42	COMPARATIVE STUDY OF VITAMIN AND MINERAL CONTENTS OF SOME COMMERCIAL FRUIT JUICES AVAILABLE IN AFIKPO, SOUTH-EAST, NIGERIA	C. O. APIE P. U UKOHA A. N. OKO O. I. OKORO AND C. E. OMINYI	62
2024/SOSC43	SENSORY EVALUATION AND PHYSICOCHEMICAL PROPERTIES OF COOKIES PRODUCED FROM WHEAT AND ACHA FLOUR WITH DATE SYRUP AS SUGAR SUBSTITUTE	Obi, Maryjane, A.	63
2024SOSC44	THE ROLE OF GLUTATHIONE IN ASTHMA – A REVIEW	Ajayi, A. A; Vining-Ogu I .C; Aja, O. A and Ngobidi, K.C	64
2024/SOSC45	TRENDS IN THE ELIMINATION OF VECTORS AND TREATMENT OF MALARIA: A REVIEW	Egwurochi, Wilson I., Onwe, Rachel U., Igwe, Amarachi; Ngobidi, Kerian. C. and Okoro, Otuu I., Egbule, Cynthia U., Igwe, Amarachi M., Nnachi, Antoinette S. and Uwakmfon Udoakpan.	65
2024/SOSC46	COMPARATIVE NUTRITIONAL AND ANTINUTRITIONAL CONTENT OF SELECTED CONDIMENTS (AFZELIAAFRICANA AND DETARIUMMICROCAPUM) USED AS THICKENER IN THE PREPARATION OF SOUP	Danladi, G. J., Anyiam, C. C., Anyiam, C. A. and Ugwuanyi, C. C.	66

2024/SOSC47	DESIGN AND CONSTRUCTION OF A 10 METRE RADIO BROADCASTING AND TRANSMITTING FM DEVICE	ONI, OLUWABUNMI AYANKEMI & IDOWU OLUWAYEMI I	67
2024/SOSC48	DEVELOPMENT OF A CRIMINAL KEYWORD SPOTTING SYSTEM	ONI, OLUWABUNMI AYANKEMI & JOHNSON SAMUEL OLADIMEJI	68
2024/SOSC49	THE ATTITUDE OF STUDENT TOWARD COMPUTER BASED TEST (CBT)	ONI, OLUWABUNMI AYANKEMI; JIMOH, ISA OPEYEMI & KAZEEM, KAUSARAT OMOWUNMI	69
2024/SOSC50	COMPARATIVE ANALYSIS OF FORMALDEHYDE IN FROZEN FOODS USING pH AND ULTRAVIOLET-VISIBLE SPECTROPHOTOMETER	Mbonu O.F., Udeozor P.A., Osai I.T., Ikeagwuani C.O., Diribe C.I.	70
2024/SOSC51	PHARMACOLOGICAL PROPERTIES AND MEDICINAL IMPORTANCE OF CLOVE (Syzygium aromaticum) PLANT: A REVIEW	IGARA, CHINTUA E, OJONG, ENKOM O. AND UDEH, CHIKAODINAKA C.	71
2024/SOS52	PHENOLOGY OF SELECTED PLANT SPECIES IN NWAMBA COMMUNITY FOREST IN NDUBIA IZZI LOCAL GOVERNMENT AREA (L.G.A), EBONYI STATE.	Obasi, S.E., OtuChristian, G., Nkama,O.J., Ezeh, E. L., Chukwunwike, O.O.S, Oko, P.O., Okparauka, I.I,	72
2024/SOSC53	CONCURRENT ENGINEERING DESIGN AND PRODUCTION OF AUTOMATED CHARCOAL PRESSING IRON	Tommy, S. D. Onah, T. O. Nwoke, O. N. Ugboaja, O.I., and Alum, J.O.	73
2024SOS54	THE BIOLOGICAL ACTIVITIES OF METAL COMPLEXES OF BENZOYL ANTIPYRINE LIGANDS	EZENWEKE L.O., OKOYE G.U AND ESONWUNE A.A.	74
2024/SOSC55	PHYTOREMEDIATION OF HEAVY METALS FROM SOILS IN A MECHANIC WORKSHOP ENVIRONMENT IN IBENO, EKET LOCAL GOVERNMENT AREA, AKWA IBOM STATE.	Chukwunwike, O. O. S., Suleiman, J.B. and Obasi, S.E.	75
2024SOSC56	SEQUESTERING OF HEAVY METALS USING LOCAL CLAYS FROM UNWANA COMMUNITY IN EBONYI STATE, NIGERIA	Ikeagwuani, C. O., Ukoha, P. U. and Mbonu, F. O.	76
2024/SOSC57	MECHANISMS OF METAL TOXICITY AND EFFECTS ON HUMAN DISEASES	Lawrence Olusegun Ajala, Nwogo Ajuka Obasi, John Ama Ibiam Chukwudum Albert Anyiam, Cynthia Chioma Anyiam	77

2024SOSC58	A REVIEW ON THE TOXICOLOGICAL EFFECT OF HEMATOLOGICAL AND HEMATOPOIETIC PARAMETERS OF FISHES	Okwuosa, Obinna Ben, Amadi-Ibiam Christina O., Uchendu, Damian O. and Mbada Deborah Godwin	78
2024/SOSC59	REVIEW ON NON-FOOD INDUSTRIAL APPLICATIONS OF FISH	Okwuosa, Obinna Ben Amadi-Ibiam Christina O., Ezeh, Eucheria Lilian and Anya Divine Chimezie	79
2024/SOSC60	DETERMINATION OF TOTAL FLAVONORDS CONTENT OF ORANGE FLESHED SWEET POTATO AND OTHER INDIGENOUS ABAKALIKI SWEET POTATO ACCESSIONS	Ezeh, Eucheria Lilian and Okwuosa, Obinna Ben,	80
2024/SOSC61	THE ROLE OF TECHNICAL AND SCIENCE EDUCATION IN COMBANTING FLOOD MEANCE IN OUR CITIES	Nwabineli E.O, Ogonna S. Nwokyo , and Azubuike, Thaddeus, C	81
2024/SOSC62	GEOMORHOLOGY AND POOR CIVIL ENGINEERING LAND USE AS THE MAJOR CAUSATIVE FACTOR OF GULLY EROSION IN OKO - EKWUOBIA AREAS OF ANAMBRA STATE	Nwabineli E.O, Ogonna S. Nwokyo, and Azubuike Thaddeus C.	82
2024/SOSC63	Tommy, S. D., Onah, T. O., Nwoke, O. N., Ugboaja, O.I. and Alum, J.O.	OPTIMIZATION OF MECHANICAL PROPERTIES OF ALUMINIUM-SILICON SYSTEM FOR ENHANCED SERVICE PERFORMANCE VIA CONTROLLED AGEING	83
2024SOSC64	UNRAVELING THE MOLECULAR SIGNALING PATHWAYS IN INFLAMMATION: A COMPREHENSIVE REVIEW	Suleiman Joseph Bagi, Chukwunwike Obinna Sunday, Ndukwe Esther Ijeoma	84
2024SOSC65	Blockchain Smart Contract Use cases and Applications	Augustine Chidiebere Onuora Adannaya Uneke Gift-Adene, Nonye Emmanuel Maidoh , Inya Ogbonnia Umeh and Mercy Ikem Ebere	85
2024SOSC66	Decentralized Cloud Storage: A Comprehensive Review	Augustine Chidiebere Onuora Ikedilo, Obiora Emeka Iweama, Williams Rowland Chidi Aguwamba and Ali Sunday Ogbonnia	86

2024/SOSC01

MODELING AND FORECASTING ACTIVE VOICE AND ACTIVE INTERNET MOBILE DATA SUBSCRIPTIONS IN NIGERIA

Dike A. O *, Elem-Uche O, Madu C & Ibiam F.
Department of Mathematics/Statistics
Akanu Ibiam Federal Polytechnic, Unwana, Nigeria
dikeawa@gmail.com *

ABSTRACT

This paper seeks to analyze the active voice (AV) and active internet (AI) data subscriptions in Nigeria. Secondary data were collected from the Nigerian communication commission. The Buy's Ballot technique was used to compute the mean and standard deviation, from the result obtained the LogSTDEV was regressed against the LogMEAN for both the active voice and active internet which gave the slope of (β) = 0.798 and (β) = 0.923 respectively which is approximately 1 for each set of data. This suggests a logarithmic transformation of the data sets. Accuracy measures taken revealed that quadratic trend model formed the best model for both the active voice and active internet data, since it has the least MAPE than the linear trend model. Finally, the regression equation showed that both the active voice model and active internet model decreases as the years go by with the models given as $Y_t = 7.390 - 0.01659t - 0.000180t^2$ and $Y_t = 8.222 + 0.0456t - 0.000601t^2$ respectively. Hence this study recommends that Nigerian communication commission should allocate appropriate resources to ensure increase in mobile data subscription in Nigeria.

Key Words: Transformation, Regression, Buy's Ballot, Logarithmic

2024/SOSC02

IMPROVED POPULATION GROWTH MODEL FOR FIRST ORDER ORDINARY DIFFERENTIAL EQUATION

Oko Nlia, Okoro U. U & Dike A. O
Department of Mathematics/Statistics
Akanu Ibiam Federal Polytechnic, Unwana
Albbert1960.on@gmail.com

ABSTRACT

In population studies, a common assumption is that, in absence of limiting factors, a population will grow at a rate which is proportional to its size. A deterministic model for such population in continuous time is given by the differential equation $\frac{dp}{dt} = kp$ where $p(t)$ is population size at time t, and k is a constant of population. Such a model is not realistic since the relative rate of growth k is not a constant but should consider environmental effects such as famine, war, epidemics, flood, etc whose behavior is not exactly known. The improved model considered such environmental effects, such that $k(t) = r(t)$ + 'noise', where the noise behavior is not exactly known except its probability distribution. In this case, the improved model becomes a stochastic differential equation. $\frac{dp}{dt} = k(t)\,p(t),\ p(o) = A,$ where $p(o)$ is population size at zero. Solution on how to obtain the improved model was shown and was compared with the results of previous deterministic model.

Keyword: Population, Probability distribution, stochastic differential equations, Environmental effect.

2024/SOSC03

ISOLATION OF YEAST STRAINS FROM PALM WINE

Ikwor, C. S., Okparauka I.I., Ekuma E.T., Ibe C.O.
Biochemistry unit, Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana Afikpo, Ebonyi State
Email Address: chinyereikwo4@gmail.com
Phone: 07067481402

ABSTRACT

Palm wine is an alcoholic beverage produced from the sap of different species of palm trees such as Elaesis guinensis, Raffia palm. The purpose of this study is to isolate and identify the yeast strains present in raffia palm wine produced by natural fermentation of the palm sap obtained from Elaesis guinensis. In view of this work, palm wine samples were collected, media were prepared and yeast strains (species) from the palm wine was isolated. It is centred on the isolation of yeast strains from palm wine which was carried out in the laboratory by culturing the samples using two different media, the W. L. nutrient medium and yeast agar for the isolation of the yeast strains. Three strains of the yeast were isolated from palm wine. The result of the study showed that yeast (Saccharomyces cerevisiae) isolated from palm wine is a high-quality yeast strain. Saccharomyces cerevisiae species were isolated from the fermented sap of Elaesis guineansis (palm wine) as a source of yeast for wine making from pineapple fruits. This study shows that Nigerian palm wine, which harbours quite a number of these yeast strains, could serve as an alternative source of yeast for commercial wine making from fruits.

Keywords: Saccharomyces cerevisiae; fermentation; Palm wine; yeast strains

2024/SOSC04

EXPLORING THE INTEGRATION OF SOLAR SHINGLES WITH SMART STORAGE SYSTEMS ON RESIDENTIAL AND COMMERCIAL BUILDINGS IN NIGERIA

Suleman Kazim, O[1] , Suleiman Abdul-Razak[2] . and Ezike Fidelis. I[3]
[1,3]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State, Nigeria
[2]Department of Urban and Regional Planning, University of Lagos, Akoka Yaba, Lagos, Nigeria.
elkaz4real@gmail.com

ABSTRACT

As the global push for sustainable energy solutions gains momentum, the integration of solar technologies into buildings becomes a focal point for researchers and practitioners alike. In the context of Nigeria, a country with abundant sunlight, the exploration of solar energy solutions is not just an environmental imperative but also a means to address the energy challenges faced by its growing population. This paper comprehensively explains a stand-alone design of a photovoltaic roof tiles which is effectively integrated into residential roof structure. The material of the solar shingles, cost of energy consumption by domestic users and challenges of energy regulations are considered important factors that has cause large consumption of solar shingles. It is important to have much knowledge of materials used for fabrication of solar shingles for maximum efficiency of the solar roof tiles required for residential and commercial usage. The solar shingles are firmly attached to the roof using a special clip wooden batten. Energy saving techniques can be promoted through the use of rafters of the roof structure to connect the battens firmly to the rope. To provide secondary protection against environmental agents, Sarking felt is introduced in between the rafters and battens. Another significant features of the solar shingles is the waterproofing layer to avoid any form of rust or corrosion. MATLAB computer software is used to simulate the electromechanical model of the grid connection to maintain stability. The study recommends reducing the cost per square foot and regulatory policies to maximize consumption of solar shingles in Nigeria.

Keywords: Solar shingles, photovoltaics, and residential energy consumption.

2024/SOSC05

IMPACT OF OIL AND GAS DREDGED ENVIRONMENT TO THE STABILITY AND DURABILITY OF RESIDENTIAL BUILDINGS IN THE NIGER DELTA AREA OF NIGERIA.

Suleman Kazim, O[1], Suleiman Abdul-Razak[2] and Nwauzor Jonathan N[3] .
[1,3]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State, Nigeria
[2]Department of Urban and Regional Planning,
University of Lagos, Akoka Yaba, Lagos, Nigeria.
elkaz4real@gmail.com

ABSTRACT

Nigeria as a self-proclaimed "Giant of Africa" has been undergoing devastating effect in the Niger Delta area of the country for the past five decades, where oil and gas are being extracted. The discovery of oil in the Niger Delta area of Nigeria has brought a lot of financial wealth to the country. Unfortunately, Multinational oil companies exploring the region have not been fair to the inhabitants in the region to adopt best practice policies and strategies to minimize the environmental hazard capable of distorting the geographical landscape of residential buildings. This paper discusses the impact of the oil and gas dredged environment to the stability and durability of these residential buildings located in the Niger Delta area of Nigeria and proffering necessary solution to the effect. About 1,200 explorations wells have been drilled to date in the delta basin and over 400 oil and gas fields of different sizes have been documented. Geographically, the Niger Delta ecological zone can be grouped into Tropical rainforest in the Northern part of the Delta and mangrove forest in the warm coastline of the South.

Keywords: Oil and gas, Niger Delta, dredged, explorations, building

2024/SOSC06

BACTERIOLOGICAL ASSESSMENT OF EXPRESSED BREAST MILK

Chukwu, Adaugo P. and Amakor, Chilota A.
chukwuadaugo@gmail.com, 08032399608
Department of Science Laboratory Technology.
Federal Polytechnic Oko Anambra State.

ABSTRACT

The increase in advocacy for exclusive breastfeeding has pose the need for safe breastfeeding methods. Bacteriological assessment of expressed breast milk was assessed in lactating female students of Federal Polytechnic, Oko (FPO). Ten (10) volunteer lactating mothers of FPO were invited for the study and taken immediately to Microbiology laboratory of FPO for analysis. The breast milk 16ml from each volunteer was divided into eight (8) portions of 2ml each and separated into two groups based on storage, room temperature and refrigerated, 4 portions per group. The first portion was inoculated directly into already prepared media (Nutrient, MacConkey, Chocolate, Salmonella Shigella and Eosin methylene blue agar) and observed after 24 hours. The remaining portions in the two groups were inoculated into separate media plates after 03hours, 06hours and 24hours. Only 1 of the 10 samples showed microbial growth after 03hours storage at room temperature (37℃) and same for the refrigerated (22℃), Sample 2 and 5 showed microbial growth after 06hours and all the samples inoculated and incubated after 24hours on the bench and refrigerator showed microbial growth. The isolate was identified following cultural characteristics and standard biochemical procedure as *Staphylococcus aureus*. The total S*taphylococcus* count after 03hours ranged from (1.2x10 cfu /ml to 2.3x10 cfu/ml), after 06 hours (2.8x10 cfu/ml to $2.6x10^2$ cfu/ml) and after 24hours, (1.2 x 10 cfu/ml to $3.5x10^2$ cfu/ml). Expressed milk stored at room temperature for not more than 6 hours was observed to be free of bacteria. Expressed breast milk kept at room temperature under sterile condition less than Six (06) hours are safe for consumption, lactating mothers should be educated on personal hygiene and proper wash before breast milk expression.

Keywords: Breastmilk, Expressed, Temperature, *Staphylococcus aureus*

2024/SOSC07

MICROBIAL ANALYSIS OF SPOILED-SMOKED MACKEREL FISH (*Scomber scombrus*) SOLD IN EKE MARKET AFIKPO

Dike, U. A[1]., Otuchukwu, N.A[2]., and Okafor A.M.[3].
Department of Science Laboratory Technology
Akanu Ibiam Federal Polytechnic, unwana
Corresponding author email: uzomadike9@gmail.com

ABSTRACT

The aim of this study is to evaluate the quality of spoied-Smoked *Scomber scombrus* sold in Afikpo Market Ebonyi Nigeria. A total of four (4) spoied-Smoked *Scomber scombrus* fish samples were randomly purchased from 4 fish sellers in Eke market Afikpo. The samples were labeled accordingly and then transported to the laboratory under sterile conditions. The samples were analyzed using standard microbiological techniques. The results shows that Seller I had the highest Total Viable Count of 1.1X10 4 Cfu/ml followed by Seller II 6.0X10 3 Cfu/ml while seller III had the least count of 2.0X10 3 Cfu/ml. However all the sample location had No coliform was detected in the samples. Morphological and biochemical characteristics of the isolates shows presence of three (3) bacteria genera *Staphylococcus aureus, Streptococcus sp* and *Shigella sp* in the samples. The samples are not safe for human consumptions, therefore, good personal hygiene and good water supply should be used and prolonged heat treatment during preparation should be employed.

Keywords: Spoiled-smoked, *Scomber scomberus,* Bacteria, Seller, Fish, coliform

2024/SOSC08

ANTIMALARIAL DRUG RESISTANCE: THE IMPLICATION OFGENETIC DIVERSITY

[*1]Nkama, O.J., [2]Obasi, N.A., [3]Igwenyi, I.O., [1]Okoro, O.I. [1]Ebeke, O.O., [1]Igbolekwu, R.I. and [1]Ekuma, E.T.

[1]Biochemistry Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana-Afikpo, Ebonyi State.

[2]Department of Medical Biochemistry, Faculty of Basic Medical Sciences, Alex Ekwueme Federal University, Ndufu-Alike, Ebonyi State.

[3]Department of Biochemistry, Faculty of Science, Ebonyi State University, Abakaliki, Ebonyi State.

*Corresponding Author: Onochiejeff@gmail.com 08061646832

ABSTRACT

Malaria is a deadly parasitic disease caused by five different species of Plasmodium that infect humans. Antimalarial drug resistance is a recurrent problem in the fight against malaria. The emergence and spread of drug resistance in Plasmodium falciparum capable of evading antimalarial agents gives a concern to the control of malaria. Resistance to antimalarials is mainly due to mutations. It has been shown that human amino acid mutations at the P.falciparum Kelch 13 gene provide resistance to artemisinin (ART). Human genetic variation is associated with P. falciparum drug resistance. Parasite genetic diversity arises during meiosis as patients have multiple strain infections transmitted to the vector in high transmission areas. There are genetic markers established to determine antimalarial drug resistance. Genetic and epidemiological surveillance of resistant parasite alleles is very important to guide drug therapies and clinical management. New antimalarial compounds are currently at various stages of clinical trials and regulatory evaluation. Instead of targeting the merozoites surface proteins with a vaccine, a new drug could focus on inhibiting Plasmodium falciparum Apicomplexan Protein 2-1 (PfAP2-1). Preventing PfAP2-1 from binding to DNA and initiating the expression of invasion genes, or preventing PfAP2-1 from recruiting other important proteins like PfBDP1, would stop an infection before it reaches the red blood cell stage. This review shows mechanisms of antimalarial drug resistance and their association with genetic diversity. Moreresearch should be conducted on how genetic diversity may influence the selection dynamics of antimalarial drug resistance, especially in Nigeria.

Key Words: Malaria, drug resistance, Plasmodium falciparum, genetic diversity, mutations, patients.

2024/SOSC09

MINERAL ELEMENT AND VITAMIN COMPOSITIONS OF AFRICAN CATFISH (*Clarias gariepinus*) HARVESTED FROM OKOSA LAKE, UNWANA.

***[1]Nkama, O.J., [2]Obasi, S.E., [3]Amadi, U.B., [3]Atiaetuk, I.E., [1]Okoro, O.I. and [1]Ebeke, O.O.**

[1]Biochemistry Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana-Afikpo, Ebonyi State.
[2]Biology Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana-Afikpo, Ebonyi State
[3]Chemisty Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana-Afikpo, Ebonyi State.
Corresponding Author: Onochiejeff@gmail.com 08061646832

ABSTRACT

Foods are products of agriculture crops, animals, or fishery productions classified into carbohydrates, proteins, lipids, vitamins, and minerals. Mineral element and vitamin compositions of three fresh catfish (*Clarias gariepinus*) weighing 1.6kg harvested from Okosa lake, Unwana were determined using standard analytical procedures (the fish was sundried, pulverized into fine powder, digested and the micronutrients determined using atomic absorption spectrometry). The water pH was determined analytically using a pH meter. The temperature was determined using a standard graduated thermometer. The color and odor of the water sample were determined using a portable photometer and threshold odor test respectively. The study was carried out between November and December, 2023. Data were obtained in triplicates and expressed as mean ± standard deviation. The result of the mineral element compositions showed the values of Na, K, Ca, Mg, Fe, Zn, P and Cu as 32.34±0.152, 98.740±0.064, 45.440±0.136, 136.749±0.123, 3.205±0.050, 4.966±0.033, 27.723±0.030 and 0.567±0.004 respectively while the result of the vitamin contents showed values of Vitamins A, B1, B2, B3, B6, B12, C and E as 16.425±0.016, 28.298±0.100, 5.139±0.084, 1.272±0.043, 11.118±0.071, 3.174±0.450, 0.849±0.027 and 2.266±0.180 respectively. The water sample had musty odor, pale brown color, a pH of 6.87, and a temperature of 24.98^{0}C. The results have indicated that catfish harvested from the lake was considerably rich in micronutrients and may be taken to improve and maintain nutritional status. It is recommended that catfish from the lake be used as food or food supplements for nutritional and medicinal purposes. There is need for more research to evaluate the health risk index of the catfish.

Key Words: Catfish, vitamins, mineral elements, nutrients, okosa lake.

2024/SOSC10

PHYTOCHEMICAL SCREENING, ANTIOXIDANT ACTIVITY AND VITAMIN CONTENT OF *BRYOPHYLLUM PINNATUM* (MIRACLE PLANT) LEAF

Igara, Chintua.Ephraim[1], Ndukwe, Mecha Kalu[1], Ahuchaogu, Ahamefula Anslem[2]. Nnachi, Emmanuel Okewe.[1]. and Orie, Veronica Chimamada[1].
[1]Chemistry Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic Unwana, P.M.B. 1007, Afikpo, Ebonyi State.
[2]Department of Pure and Industrial Chemistry , Abia State University Uturu, P.M.B. 2000, Okigwe, Nigeria.
Correspondence email -- igarace@yahoo.com Phone no. - 08036820964

ABSTRACT

Plants as autotrophs have been used to cater for needs of mankind from time immemorial. There is need to x-ray the constituents of this natural endowment responsible for food, flagrance, spice and medicine for humans which are heterotrophs. This work evaluates the phytochemical screening, antioxidant activity and vitamin content of *Bryophyllum pinnatum* leaf using standard methods. The result of qualitative phytochemicals screening of the plant revealed the presence of flavonoids, tannins, saponins and alkaloids in abundance while phenolics and glycoside were found to be present. The quantitative phytochemical determination gave the following result; alkaloids 2.17 ± 0.01%, flavonoids 1.91 ± 0.01%, saponin 1.80 ± 0.04%, tannins 1.64 ± 0.01%, glycoside 0.83 ± 0.02% and phenolics 0.73 ± 0.03% .The antioxidant activity which is a defense mechanism for survival of organisms was done using DPPH (2, 2-diphenyl-1-picrylhydrazyl) and FRAP (Ferric reducing antioxidant potential) techniques. DPPH radical scavenging activity gave 53.54+ 0.02% while FRAP gave 60.42+ 0.04%. The result of the antioxidant vitamin contents shows vitamin A 3.84 ± 0.03 mg/100g, vitamin C 3.54 ± 0.04mg/100g and vitamin E 1.79 ± 0.05 mg/100g. The study revealed that the plant has abundance of bioactive compounds with strong antioxidant activity and good nutritional values. This makes the *Bryophyllum pinnatum* a strong nutraceutical plant which may also have some pharmaceutical benefits giving credence to its use in herbal medicine.

Keywords: Phytochemicals, Antioxidants, Vitamins and *Bryophyllum pinnatum*

2024/SOSC11

INVESTIGATION OF POLLUTION INDEX OF AKPOHA RIVER

DR J. A. IBIAM*, D. O. UCHENDU and Okonkwo Evelyn Ijeoma.
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana, PMB 1007 Afikpo, Ebonyi State.
*E-mail address: amaibiam2002@gmail.com; Phone number: +2348063803459

ABSTRACT

The research was on the investigation of the pollution index of Akpoha River,Ebonyi State. Four samples were drawn in all and Atomic Absorption Spectrophotometer (AAS) was used to analyze the samples. The results were compared with WHO drinking water standard. The results showed that the temperature ranged 24.23±0.21 – 28.43±0.33, turbidity 44.67±2.05 - 86±1.63, pH 6.39±0.15 – 7.31±0.16 NTU, Electrical Conductivity (EC) 101.33±0.94 – 122.00±1.63µS/cm, total hardness 114.00±3.27 – 182.67±4.99 mg/L, total alkalinity 12.00±0.82 – 29.67±0.47mg/L, total dissolve solids 6.17±0.17 – 8.11±0.10 mg/L, Dissolved Oxygen (DO) 11.27±0.25 – 19.43±0.21 mg/L, Biochemical Oxygen Demand (BOD) 64.44±0.20 – 70.53±0.25mg/L, Chemical Oxygen Demand (COD) 9.56±0.20 – 24.05±0.04 mg/L, Nitrate 234.38±0.17 – 28.54 mg/L, Phosphate 20.44±0.25 – 28.54±0.24 mg/L, sulphate 69.45±0.26 –113.39±0.18 mg/L, Chloride 95.00±2.45 – 207.33±5.91 mg/L, Na 0.08±0.02 – 0.46±0.04 mg/L, K 0.04±0.02 – 0.17±0.01 mg/L, Mg 0.08±0.02 – 0.45±0.05mg/L. The results showed that the temperature, total hardiness, total alkalinity, total dissolve solids, COD, sulphate and chloride in the samples were lower than the WHO drinking water standard, the pH was in agreement with the WHO drinking water guideline, turbidity, DO, BOD, nitrate and phosphate were higher than the WHO permissible limits. The water quality index (WQI) showed that Location A has water quality index (WQI) of 137, B 153, C 142 and D 123. Water with WQI greater than 100 is not suitable for drinking. This implies that the water from the river is unfit for drinking and need comprehensive treatment for usage.

2024/SOSC12

INVESTIGATION OF HEAVY METALS IN LIVERS, GIZZARDS, AND MUSCLES OF LOCAL BREEDS CHICKENS AND BROILERS REARED IN UNWANA, AFIKPO LOCAL GOVERNMENT AREA, EBONYI STATE.

Oko, Nnam Ahamefula[*1], John, Ama Ibiam[2], Okoro, Otuu Inya[3], Apie, Columbus Osang[4] and Oji, Chihurumnanya Ola[5]
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana, P.M.B 1007.
Corresponding author: okoahamefula1@gmail.com +2348030941379.

ABSTRACT

This study was conducted to estimate nickel, lead, cadmium and copper in different organs of selected domesticated chickens (local breeds and broilers). The metals were determined in three major organs (muscles, livers and gizzards) of the chickens using atomic absorption spectrophotometer (AAS). A total of sixteen (16) chickens (local breeds and broilers) were collected for the purpose of the study. the amounts of metals were as follows: ND-0.0 mg/kg
±0.08 mg/kg, 0.01 mg/kg ±0.00 mg/kg- 0.05 mg/kg ±0.00 mg/kg, 0.24 mg/kg ±0.01 mg/kg – 0.49 mg/kg ±0.02 mg/kg, and 1.23 mg/kg ±0.06 mg/kg- 4.44 mg/kg for Cd, Cu, Ni and Pb for organs of chickens collected from Allowance's poultry farm and local breeds around the area from Olamma's poultry farm and local breed around the area. The concentration of metals were ND -0.06 mg/kg ±0.00 mg/kg, 0.01 mg/kg ±0.00 mg/kg – 0.06 mg/kg ±0.00 mg/kg ± 0.02 mg/kg and 1.54 mg/kg ±0.21 mg/kg – 4.15 mg/kg ±0.13 mg/kg for Cd, Cu, Ni and Pb. The amount of Pb and Ni were higher than the maximum limit based on WHO standard. The amount of metals was generally higher in the broilers s than the local breeds. The liver and gizzards were also observed to accumulate more of heavy metals when compared to the other organs There is need to monitor the heavy metals in feeds and checkmate the activities around areas where poultry are kept for human safety.

Key words: Local Breed Chickens, Broilers, Atomic Absorption Spectrophotometer, Poultry, Allowance, Olamma.

2024/SOSC13

PREVALENCE AND SUSCEPTIBILITY PATTERN OF *Salmonella* AND *Shigella* SPECIES ISOLATED FROM CHICKEN DROPPING IN TWO DIFFERENT POULTRY FARMS IN UNWANA

[1]M. N. Ugwu, [2]Uchendu, D. O. [3]Ugbo, U. I. [4]Egwurochi, W. I. [5]Mbonu U. B.
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana, Afikpo, Nigeria.
Correspondence Author: nnaemekaugwu58@gmail.com
Tel: 08038728555

ABSTRACT

The current study was designed to investigate the prevalence and susceptibility pattern of
salmonella and shigella species isolated from chicken droppings in two different poultry farms in Unwana. Samples were collected into sterile containers using sterile trowel. A ten fold serial dilution of the samples were carried out after enrichment in peptone water. Exactly 0.1ml of diluted samples were inoculated into Nutrient agar (NA), MacConkey agar(MAC) and *Salmonella- Shigella* agar(SSA) respectively by a spread plate method. The media were inoculated at 37°C for 24 hours. Identification of the bacteria isolates were done using, cultural, morphological and biochemical characteristics. Sample D has the highest number of bacteria count (7.2×10^4 cfu/g) as well as the highest coliform count(4.3×10^4 cfu/g). Sample A had the least number of bacteria count (4.0×10^4 cfu/g) while Sample C had the lowest coliform count(1.11×10 cfu/g). The prevalence of *salmonella* ranged between (0-65%) while that of *shigella* ranged between (35-100%). *Salmonella* spp was resistant to the following antibiotics; cefotaxime, ceftriaxone, metronidazole, ciprofloxacin, Imipenem, erythromycin and augumentine. *Shigella* spp was also resistance to cefuroxime, gentamycin, cefotaxime, ceftriaxone, metronidazole, Imipenem, erythromycin and augumentine. The high prevalence rate of the isolates could be associated with poor hygiene or cross infection. The multi-drug resistant pattern of the isolates could be associated with excessive or uncontrollable use of antibiotics.

Keywords: salmonella, shigella, Susceptibility

2024/SOSC14

CARBAPENEM RESISTANT KLEBSIELLA PNEUMONIAE ISOLATED FROM PATIENTS ATTENDING MATER MISERICORDIAE HOSPITAL, AFIKPO, EBONYI STATE

[1*]Olugbue, Victor Uzochukwu., [1]Dike, Uzoma Awa, [1]Okonkwo, Evelyn Ijeoma., [2]Ogundapo, Segun Solomon and [1]Ashu Mary Ojeme

[1]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana, PMB, 1007 Afikpo, Ebonyi State
[2]Department of Pharmaceutical Technology,
Akanu Ibiam Federal Polytechnic, Unwana, PMB, 1007 Afikpo, Ebonyi State
* Corresponding author: callvic2@yahoo.com

ABSTRACT

Carbapenems, quinolones, third and fourth-generation cephalosporins are among the drug of choice for the treatment of urinary tract infections caused by Klebsiella pneumoniae. The study aims to assess the prevalence of carbapenem-resistant Klebsiella pneumoniae from urine samples of patients attending Mater Misericordia Hospital, Afikpo, Ebonyi State. A total of 50 midstream urine samples were randomly collected between February and March, 2023 from patients in the Hospital and analysed following standard microbiological procedures. The urine samples were centrifuged at 3000 rpm for 10 minutes, after which the supernatant was discarded while the sediment was used for the isolation bacteria. A prevalence of 56.0 % was recorded in the study. Females accounted for the highest number of K.pneumoniae with 22 (78.6 %) while males had 6 (21.4 %). The number of females positive for K.pneumoniae were significantly different (p < 0.05) than males. The result of the antibiotic sensitivity of K.pneumoniae showed that the bacteria was highly resistant to Imipenem 18 (100 %), Meropenem 18 (100 %), Azithromycin 18 (100 %), piperacillin/Tazobactam 18 (100 %), Cefotaxime 15(83.3 %). Ampicillin/Sulbactam 15 (83.3%), Tetracycline 15 (83.3 %), Ceftriaxone 15 (83.3 %) followed by Cefotaxime, Co-Trimoxazole, Levofloxacin, Ciprofloxacin, Gentamicin and Ofloxacin with 12 (66.7 %) each. The isolates showed very low sensitivity to Gentamicin, Ofloxacin, Levofloxacin, and Co-Trimoxazole with 6 (33.3 %) each. The level of antibiotic drug resistance by K. pneumonia recorded in this study underscores the need for antibiotic tests prior to antibiotic prescription in K. pneumoniae infection.
Keywords: Midstream urine, K. pneumoniae infection, Carbapenem, Ciprofloxacin.

2024/SOSC15

ANTIBIOTIC RESISTANCE PATTERN OF UROPATHOGENS ISOLATED FROM ASYMPTOMATIC STUDENTS OF AKANU IBIAM FEDERAL POLYTECHNIC, UNWANA, EBONYI STATE

#Olugbue, Victor Uzochukwu., Okonkwo, Evelyn Ijeoma., Dike, Uzoma Awa and Ugwualor, Loveth Chigozie

Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana, PMB, 1007 Afikpo, Ebonyi State
#Corresponding author: callvic2@yahoo.com

ABSTRACT

Urinary tract infection (UTI) is a clinical infection affecting both male and female gender but is more common in females than males due to the urinary physiology of the female genital system. This study evaluated the occurrence of uropathogens among asymptomatic students of Akanu Ibiam Federal Polytechnic, Unwana using standard microbiology procedures which involved streak plate technique for isolation and disk diffusion method for antimicrobial susceptibility testing. Results show that, out of 20 midstream urine samples collected between February and March, 2023 from asymptomatic females (10) and males (10), 13 (65.0 %) were positive while 7 (35.0 %) were negative. Females [7 (70.0 %)] accounted for the highest positive sample than males [6 (60.0 %)]. There were no significant difference ($p > 0.05$) observed in the positive samples between the females and males. *Enterobacter aerogenes* 8 (61.5 %) was the most frequently isolated organism, followed by *Klebsiella pneumoniae* 3 (23.1 %), *Pseudomonas aeruginosa* 1 (7.7 %), and *Salmonella* sp 1 (7.7 %). The antibiotic resistance profile of *Enterobacter aerogenes* against 12 antibiotics showed high resistance to Ampicillin/Sulbactam 8 (100 %), Ofloxacin 8 (100 %), Co-Trimoxazole 8 (100 %), Cefotaxime 8 (100 %), Piperacillin/Tazobactam 8 (100 %), Ciprofloxacin 8 (100 %), Tetracycline 8 (100 %), Ceftriaxone 7 (87.5%), Chloramphenicol 6 (75.0 %), Azithromycin 6 (75.0 %), and Levofloxacin 5 (62.5 %). *Klebsiella pneumoniae* had 100 % resistance to Ampicillin/Sulbactam, Ofloxacin, Co-Trimoxazole, Cefotaxime, Piperacillin/Tazobactam, Ciprofloxacin and Tetracycline, whereas it had 66.7 % resistance each to Azithromycin and Levofloxacin. Likewise, *Salmonella* sp and *Pseudomonas aeruginosa* were entirely (100 %) resistant to Ampicillin/Sulbactam, Ofloxacin, Co-Trimoxazole, Cefotaxime, Piperacillin/Tazobactam, Ciprofloxacin, Tetracycline, and Ceftriaxone, Azithromycin, and Levofloxacin. Students should improve their personal hygiene to avoid urinary tract infections.

Keywords: Urinary tract infection, females, *Enterobacter aerogenes*, personal hygiene

2024/SOSC16

STATISTICAL ANALYSIS ON THE EFFECT OF POULTRY PRODUCTION ON AGRICULTURAL OUTPUT IN AFIKPO NORTH L.G.A, EBONYI STATE

Igwe, N. O[1] , Madu Chukwunonso[2] , and Okeahialam, A[3] , Adeyiola, I. A[4] .
[1,2,3.]Department of Maths/ Statistics,
Akanu Ibiam Federal Polytechnic, Unwana, P.M.B 1007 Afikpo, Ebonyi State.
[4]Department of Maths/ Statistics,
Federal Polytechnic, Ugep, Cross River State, Nigeria.
Corresponding Author's Phone Number: 08064090157

ABSTRACT

This study examined the effects of poultry production on agricultural output in Afikpo North L.G.A. Specifically, this study is tailored to explore the effects of poultry birds' production, poultry eggs production and poultry meat production on agricultural output. The period covered by the study spanned from 2017 to 2022. Data on the agricultural output, poultry birds, egg production and poultry meat production were obtained from the inventory book of selected poultry farms. The analytical techniques comprise OLS and error correction model. The Phillips-Perron unit root test results show that all the variables have unit root at levels test, but become stationary after being differenced once. The cointegration test results indicate that each of the test statistics show evidence of two cointegrating equations. This suggests that in actual fact long run relationship exists among the variables. From the parsimonious error correction model (ECM), it was revealed that poultry birds production negatively influence agricultural output. Poultry eggs production has an insignificant effect on agricultural output as evidenced in the parsimonious error correction model (ECM). The result further shows that poultry meat production is associated with a positive and significant coefficient. The implication of this finding is that the production of poultry meats enhances agricultural output through its important contribution to the livestock sub-sector. It was discovered from the result that the coefficient (-0.378) of error correction has the intended theoretical negative sign and also satisfies the statistical condition at 1 percent level. It is clear from this finding that any short run disequilibrium in the system can be corrected in the long run at 39 percent. Thus, this study recommends amongst others that governments at all levels should evolve measures that promote huge commitment to infrastructural development in agricultural sector in order to boost poultry output and promote self-sufficiency in poultry farming.

Keywords: Poultry production, Least squares method, Unit root test, Cointegration test,Error Correction Model.

2024/SOSC17

DERIVATION OF ELEVEN NODES COMPOSITE SIMPSON'S RULE FOR BETTER APPROXIMATION

Onosemuode Edesiri Kelvin
Department of Mathematics and Statistics,
Akanu Ibiam Federal Polytechnic, Unwana, P.M.B. 1007, Afikpo, Ebonyi State.
Correspondence: onosemuodekelvin@yahoo.co.uk (08060521448)

ABSTRACT

One of the major work of researchers in Mathematics especially in the area of Numerical, is to derive formulas that will give a better approximate solution to the exact solution of a particular problem. In this research work, "The Eleven Nodes Composite Simpson's Rule" was derived and applied to a particular problem in the following ways. First the given problem was solved using the Simple Simpson's Rule and thereby compared with the results of the 2, 5, 9 and of the 11 nodes Composite Simpson's rule. The results show that the 2 nodes Composite Simpson's rule gave a better result than the Simple Simpson's rule. It was also observed that the rule with the higher node gave a better result.

Keywords: Numerical Integration Interpolation Quadrature, Simple Simpson Rule, Composite Simpson Rule.

2024/SOSC18

OPTIMIZATION OF BIOETHANOL PRODUCTION FROM BANANA PEELS: AN ALTERNATIVE ENERGY SOURCE

Chihurumnanya Ola Oji*[1], Innocent A. Okoro[2], Jude Chidozie Nnaji[2]
[1]Chemistry Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State, Nigeria.
[2]Department of Chemistry,
Michael Okpara University of Agriculture, Umudike, Umuahia, Abia State.
*Correspondence Author's E-mail: olagoldc@gmail.com. Phone number: 08036878513

ABSTRACT

The environmental issues associated with fossil fuels have resulted to increase in research interest globally on alternative and renewable energy sources such as bioethanol that are sustainable and environmentally friendly. In Nigeria, the use of fruit wastes such as banana peels for bioethanol production is yet to be harnessed effectively despite their rich carbohydrate content. This study is aimed at optimization of bioethanol produced from banana peels. The milled sample was subjected to pretreatment, hydrolysis, fermentation and distillation processes to produce bioethanol. The hydrolysis and fermentation process were optimized using classical optimization technique of one factor at a time to determine the effect of their parameters on the yield of glucose and bioethanol respectively. The results obtained indicated that maximum glucose yield of 42.14±0.92% was obtained at optimum factor conditions of 2% acid concentration,116°C temperature and 25 minutes hydrolysis time while the maximum bioethanol yield of 44.68±0.82% was obtained at optimum factor conditions of 6% yeast concentration, 5.5 pH, 35°C temperature and 3 days fermentation time. The bioethanol produced was characterized for fuel properties such as boiling point, flash point, kinematic viscosity, refractive index, density using ASTM methods and the results obtained revealed that they conform to the standard. These findings suggest that banana peels is a good and sustainable feedstock for bioethanol production in Nigeria. Due to its relative abundance and availability for large scale production it should not be discarded in our environment as this is also a means of generating waste from wealth.

KEYWORDS: Bioethanol, Optimization, Pretreatment, Hydrolysis, Fermentation

2024/SOSC19

DETERMINATION OF THE PHYTOCONSTITUENTS AND FREE RADICAL SCAVENGING ACTIVITY OF *ACALYPHA WILKESIANA* (COPPER LEAF) EXTRACT

***Anizoba, G.C., Onuegbu, P.I. and Nwaedozie, C.E.**
Department of Science Laboratory Technology, School of Applied Sciences, Federal Polytechnic Oko, Anambra State.
Corresponding Author: philipzoba@gmail.com. Phone No. 08134746666

ABSTRACT

The study analyzed the phytochemical composition of Acalypha wilkesiana leaves extract and its free radical scavenging activity (RSA) to determine its potential health benefits and antioxidant properties. Phytochemical analysis was conducted using a BUCK M910 Gas Chromatography with a flame ionization detector. Free radical scavenging activity was assayed by the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay. The result revealed significant levels of flavonones(14.12ppm), steroid(13.61ppm), oxalate(11.80ppm) spartein(8.92ppm), and epicatechin(8.32ppm). Conversely, catechin(0.98ppm) and Kaempferol (2.05ppm) were in lower concentrations. The result of the percentage RSA and EC 50 values for Acalypha extract and the standard control BHT at 80mg/ml were 99.12%, 98.24%; 2.2mg/ml & 5.4mg/ml respectively. This result demonstrates that the extracts' free radical scavenging activity rises with increase in concentration, reaching levels slightly higher than BHT and thus highlighting its potential as an antioxidant agent which could be harnessed for therapeutic applications. The diverse range of phytochemicals indicates a rich nutritional profile with potential health benefits and medicinal properties. Further in vivo studies are recommended to evaluate the extract's safety and efficacy for potential pharmaceutical and nutraceutical applications.

Keywords: Phytoconstituents, Antioxidants, Acalypha wilkesiana

2024/SOSC20

EVALUATION OF SOME MICRONUTRIENTS COMPOSITION AND PHYTOCONSTITUENTS OF JUSTICIA CARNEA LEAF EXTRACT.

Anizoba, G.C.,*Nwaedozie, C.E. and Onuegbu, P.I
Department of Science Laboratory Technology, School of Applied Sciences, Federal Polytechnic Oko, AnambraState.
Corresponding Author: philipzoba@gmail.com. Phone No. 08134746666

ABSTRACT

Plants have from antiquity been used as sources of nourishment and medicament against various ailments duo to their biodiversity and the rich complement of phytochemicals and secondary metabolites. The present study evaluated the micronutrient composition and phytoconstituents present in Justicia carnea leaf extract. The micronutrient analysis was done using standard methods of analysis and Gas Chromatography Flame Ionization Detector was used for phytoconstituents analysis. The result revealed the following phytoconstituents Kaempferol(3.9785pmm), Steroid(11.716ppm),Proanthocyanidin(6.9045ppm),Naringin(12.4327ppm),Anthocyanin(7.7024ppm),Catechin(2.0620ppm),Reseveratol(6.7052ppm),Cyanogenic--glycoside(9.9117ppm), Tannin(2.0042ppm),Flavonones(10.1839ppm),Cardiacglycoside(10.1521ppm),Epicatechin(5.7343ppm),Phytate:(5.7477ppm),Flavone(7.3616pmm),Naringenin(3.1172ppm),Spartein(28.6613ppm), Rutin(8.7832pmm), Ribalinidine(9.3033ppm), Oxalate(12.7423ppm), Sapogenin(7.3954ppm) and Epihedrine(11.1908ppm); Micronutrients viz. sodium(ppm), potassium(5.278ppm), and Zinc(0.467ppm). These results obtained suggests that Justicia carnea leaf may serve as a rich source of micronutrient and some important phytoconstituents with free radical scavenging potentials in the management of micronutrient deficiency diseases and oxidative stress.

Keywords: Micronutrients, Phytoconstituents, Justicia carnea and Gas-chromatography

2024/SOSC21

SYNTHESIS AND BIOLOGICAL ACTIVITIES OF METAL COMPLEXES OF HYDRAZINECARBOTHIOAMIDE MOIETY AS PRECURSORS FOR METAL BASED DRUGS: A REVIEW.

[1]Ugochukwu.B. Amadi, [2]Ndife, Chidiebere Temple [1]Ukoha, P.U ,[3]Martin.O.C. Ogwuegbu, [3]Konrad.C. Enenebeaku ,[2]Gerald.O. Onyedika,

[1]Chemistry Research unit Department of SLT
Akanu Ibiam Federal Polytechnic Unwana, Ebonyi State, Nigeria
[2]Department of Science Laboratory Technology,
Federal Polytechnic Oko, Anambra State, Nigeria
[3]Department of Chemistry,
Federal University of Technology, Owerri, Imo State, Nigeria
Corresponding author: * [1]Ugochukwu.B.Amadi
amadiugochukwubj@yahoo.com; mobile phone : 08033261235

ABSTRACT

Metal based drugs have attracted tremendous aention in recent decades due to their successes in the treatment of antibiotic resistant bacteria. Hydrazinecarbothioamides are important intermediates with biological activities in the synthesis of heterocyclic compounds. Their ease of synthesis and a wide spectrum of biological, medicinal and pharmaceutical properties, their application as building blocks for the synthesis of heterocyclic compounds and NLO materials have made them attractive derivatives of thiosemicarbazides in the recent years. In this review, a detailed account in terms of synthesis and applications of their derivatives and their metal complexes are presented. Further, the biological and analytical applications of newly reported ligands and their complexes are reported. The wide investigation of the metal coordination complexes with organic ligands are mainly due to their structures and strong potential biological and pharmacological properties of hydrazones as derivatives of hydrazinecarbothioamides possess sites that play important roles in the formation of heterocyclics and other biologically active scaffolds.

Keywords: Thiosemicarbazide · Hydrazinecarbothioamide · Metal complexes · Biological applications ·Analytical applications.

2024/SOSC22

COMPARISONS OF THE SOLUTIONS OF FIRST AND SECOND ORDER ORDINARY DIFFERENTIAL EQUATIONS BY LAPLACE TRANSFORMS AND ANALYTICAL/USUAL METHOD OF SOLUTIONS

Dr. U. S. Isienyi
Department of Mathematics/Statistics,
Akanu Ibiam Federal Polytechnic, Unwana
ottaman15@gmail.com

ABSTRACT

Given that af''(t) + bf'(t) + cf(t) = g(t) as ordinary differential equation with constant co-efficient as second-order differential equation, the solution can be obtained ordinarily by obtaining the general form for the expression f(t). The general solution will contain quite a number of integration constants whose values can be determined by applying the boundary conditions or otherwise referred to as initial conditions. Subsequently, a better and easier approach to obtaining the solutions to ordinary differential equations can be done using Laplace transform which transforms or rather converts the differential equation into an algebraic equation with the advantages/merits of incorporating the boundary conditions from the onset. More interesting is a situation where if there are discontinuities in f(t), the Laplace transform succeeds while the ordinary methods may fail. This approach (Laplace transform) provides a more interesting technique especially in the field of technology such as control theory where a knowledge of the system transfer function is essential and where the Laplace transform comes into its own way of approach. This work, compares, contrasts and then advises on which one that can always avail researchers with better options.

Keywords: Differential equation, integration, Laplace transform.

2024/SOSC23

ISOLATION AND CHARACTERIZATION OF ENDOPHYTIC BACTERIA ASSOCIATED WITH *ALCHORNEA CORDIFOLIA.*

Ukwuoma, Happiness Chinyere; Ogbuji, Nkiruka Christiana; Ugboaja, Felicia. C.

Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana Afikpo Ebonyi State.
Corresponding Email: ukwuomahappiness@gmail.com
Tel: 08037535924

ABSTRACT

Endophytic bacteria residing within plants are attributed with symbiotic production of secondary metabolites and disease resistance conferment. These array of bacteria may be employed in the production of novel antimicrobial agents especially if they are directly responsible for the production of the plant's antimicrobial agents. This study aimed to isolate and characterize endophytic bacteria from the leaves and root tissues of *A. cordifolia*. The isolation was performed using surface sterilization followed by plating on nutrient agar and selective media. Morphological, biochemical, and physiological characterization was conducted to identify the isolated endophytic bacteria and their sensitivity to routine antibiotics was tested. Additionally, the potential antimicrobial activities of the endophytic bacteria and methanolic extracts of the plant against clinical isolates (*Staphylococcus aureus* and *Escherichia coli*) was evaluated through agar well diffusion assay. The total viable count of bacteria on the leaves was found to be 9.9×10^9 cfu/ml, while on the roots it was 7.2×10^9cfu/ml. Four bacterial strains (*Pseudomonas* spp*, Escherichia coli, Enterococci* spp and *S.epidermis*) were identified. The *Pseudomonas* spp was found resistant to ampicillin, chloramphenicol, clindamycin, colistin and levofloxacin. The *Escherichia coli* was resistant to erythromycin, colistin, clindamycin, ampicillin and chloroamphenicol. *Enterococci* spp showed resistance to gentamicin, erythromycin, clindamycin and ampicillin while *S.epidermis* was resistant to erythromycin, levofloxacin, ampicillin and chloroamphenicol. The methanolic extracts of the plant had no antimicrobial activities against the endophytes, but had well defined activities on the clinical isolates. Also, the cell suspension of the endophytes showed no antibacterial activities against the clinical isolates. The study indicates that diverse endophytic bacteria occur in the tissues of *A. cordifolia* and are susceptible to a few routine antibiotics. They are not directly responsible for the plants secondary metabolites but may play a role in its production, therefore, can not be used as biocontrol agents for *Staphylococcus aureus* and *Escherichia coli*.

Keywords: Endophytic bacteria, *Alchornea cordifolia*, Antibacterial activity, biocontrol activities, secondary metabolites.

2024/SOSC24

STATISTICAL DETERMINATION OF THE EFFECT OF GDP AND URBANIZATION ON NIGERIA`S FERTILITY RATE

Arua, P. I[1], Nkama, Stephen O[2] Igwe, Favour O.[3] and Igwe Obasi Igwe[4] .

[1,2]Department of Maths/ Statistics,
Akanu Ibiam Federal Polytechnhic, Unwana, Ebonyi State, Nigeria.
[3]Department of Biochemistry,
Abia State University, Uturu, Abia State, Nigeria.
[4]Department of Mathematics,
Ebonyi State University, Abakaliki, Ebonyi State, Nigeria.
Corresponding Author's Phone Number: 08146496917

ABSTRACT

This work determined the effect of the socio - economic factors such as GDP and urbanization on Nigeria`s fertility rate using the multiple linear regression analysis approach. Data was collected from National Bureau of Statistics (NBS) and Central Bank of Nigeria (CBN) Statistical Bulletin.GDP has a significant and positive relationship with fertility in overall model with the coefficient of GDP = 0.0319 and a P-value = 0.041. This implies that women are more inclined towards a career as income increases due to the higher opportunity costs of raising a child relative to the increase of GDP, thus, leading to an increase in fertility as in income rises. Urbanization has a significant and positive relationship with fertility in the overall model with the coefficient of Urbanization = 0.538 and a P-value = 0.038. This implies that people in urban areas have better access to medical centers and cleaner water supply than in rural areas, thus increasing births rates. It is also found that urbanization generally has the largest impact on fertility. This implies that the access to family planning centers and cleaner water supply is very important in affecting fertility. It was recommended that policy makers need to come up with effective and efficient policies to provide better living conditions in under-urbanized areas. In order to bridge the living standards gap between urban and rural areas globally. Measures such as financial assistance and land transfer can motivate rural residents to migrate to urban areas, while for those who remain in rural areas, governments need to invest in health services in order to motivate fertility. This is a more practical effort in encouraging fertility than implementing incentives such as tax reductions and cash assistances, which are proven to be ineffective in encouraging fertility.

Keywords: Socio-economic factors, Fertility rate, Multiple regression analysis, Serial
correlation, Heteroskedsticity, and Multicollinearity.

2024/SOSC25

DESIGN OF OUTDOOR NETWORK DENSIFICATION TOWARDS 5G USING BINARY SEARCH BASED CELL POSITIONING ALGORITHM.

Kalu, J[1], Igbo, N.E[2] , Njoku, C. C.[3], Nwauzor, J.N[4]
Physics Unit
[1,2,4]Department of Science Laboratory Technology
[3]Department of Electrical/Electronics Engineering
Technologotahenomo@gmail.comy
Akanu Ibiam Federal Polytechnic, Unwana, Afikpo, Ebonyi State, Nigeria.
Correspondence: kalujonah_ik@yahoo.com

ABSTRACT

With the launch and subsequent migration to the fifth generation (5G) network, network densification has a crucial role in meeting the quality of service (QoS) standards set for 5G networks. Considering the attendant high costs of network densification, effective network planning and optimization is necessary to ensure cost effectiveness and guarantee business sustainability for mobile network operators. This research investigated the design and performance evaluation of network densification using outdoor femto cells with a view to reducing capital expenditure for mobile network operators. The densification was carried out to ensure that the numbers of cell sites used to achieve maximum network coverage are as few as possible. Binary-search based cell positioning (BSCP) algorithm was used to determine the minimum number of cell sites and their corresponding locations while EDX SignalPro (version 7.4) was employed for the network simulation using COST 231 Walfisch-Ikegami propagation model over an area of 0.5km by 0.5km.

2024/SOSC26

A COMPARATIVE EVALUATION OF EXISTING APPROACHES TO RFID TAG ANTI-COLLISION PROTOCOL

[1,4]N. H. Umelo, [2]P. N. Ibe [3]L. C. Agbo

[1]Department of Computer Engineering, School of Engineering Technology,
Akanu Ibiam Federal Polytechnic Unwana.

[2]Department of Computer Science Technology, School of Applied Science,
Imo state Polytechnic Omuma, Imo state

[3]Department of Computer Engineering, School of Engineering Technology,
Akanu Ibiam Federal Polytechnic Unwana.

[4]Wireless Networks and Photonics Centre of Excellence (WiPNET),
Faculty of Engineering,
UPM Malaysia.

Correspondent Phone ; E-mail: 08030887074, 09122993454 umelonnamdi@gmail.com

ABSTRACT

Radio Frequency Identification (RFID) edges other Automatic Identification Procedures like Biometrics, Barcodes, Optical character recognition and Magnetic stripes as it identifies objects wirelessly, simultaneously and requires no line-of-sight. Passive RFID is seen as an inevitable enabling technology for attaining the dreams of Internet of things (IoT) because they are cheap and can easily be used in tagging just any object. Hence, making them wireless identifiable. One major challenge facing RFID is tag collision as RFID tags use same communication channel to respond to RFID reader queries. Whereas existing approaches address this for a few tag density, this problem becomes more calamitous in view of IoT where thousands of objects can be tagged and read by one reader. This paper discusses and compares these existing approaches (Probabilistic and deterministic approaches) used in developing existing RFID tag anti-collision protocol. Their strengths and weaknesses were exposed. The existing protocols were implemented in MATLAB while a simulation evaluation was performed with varying RFID tag density. The results of the evaluation shows much is to be desired in developing an efficient RFID tag anti-collision protocol that can support large scale deployment of RFID like in IoT in terms of tag collision rate and efficiency. However, the probabilistic or ALOHA approach showed some edge in terms of tag read rate and is promising if its weaknesses is addressed. Finally, the paper highlighted some of these weakness and made suggestions towards future research for RFID in view of IoT.

Keywords: RFID, Anti-Collision Protocol, Deterministic Approach, Probabilistic Approach, Peformance Evaluation

2024/SOSC27

ELECTRIC VEHICLES ADOPTION IN NIGERIA IT'S PRONS AND CONS

[1]Engr. Agbo Levi Chiedozie MNSE,MNTE.
Department of Electrical Electronics Engineering Technology
Akanu Ibiam Federal Polytechnic Unwana Afikpo.
agbolevi@gmail.com - 08033749032
[2] Engr, Umelo Nnamdi Henry.
Department of Computer Engineering Technology
Akanu Ibiam Federal Polytechnic Unwana Afikpo

A B S T R A C T

The shifting investor sentiment away from traditional fossil fuel industries, eg petrol and diesel vehicles, further highlights the imperative of incorporating renewable. To facilitate significant progress in the renewable energy sector, it is vital to establish platforms that support the growth and diversification of industry players, with knowledge sharing playing a key role. This feasibility assessment serves as an initial reference for individuals and businesses seeking technically and economically viable opportunities within the sector. Examples of Electric vehicles includes battery-electric vehicles (BEV), hybrid-electric vehicles (HEV), plug-in hybrid-electric vehicles (PHEVs), and fuel-cell electric vehicles (FCEV). This mode of transportation is expected to eventually replace internal combustion engine (ICE) vehicles, based on current trends like removal of fuel subsidy in Nigeria. Each key EV component integrates several technologies that are either currently in use or have the potential to become prominent in the future. Environmental, power systems, and other industries may be adversely affected by electric vehicles (EVs). With sufficient EV penetration, the current power system could be subjected to severe instabilities; nevertheless, with proper management and coordination, EVs can significantly contribute to the success of the smart grid concept. Moreover, EVs have the potential to significantly cut transportation-related emissions of greenhouse gases. However, there are still considerable barriers that EVs must overcome before they can completely replace ICEs. This study is to review all the relevant information available on EV architectures, battery energy sources, charging processes, and control approaches. Its goal is to provide a comprehensive overview of current EV technology and to highlight area that is going to work against its full implementation theses will include Power supply and high cost of EV as well as others.

KEY WORDS : Nigeria; Electric Vehicles, Adoption, PRONS, CONS.

2024/SOSC28

COMPARATIVE STUDY OF THE EFFECT OF ETHANOL LEAF EXTRACT OF MORINGA OLEIFERA L. FROM SELECTED LOCATIONS IN SOUTH- EASTERN NIGERIA ON TESTOSTERONE, PROGESTERONE AND LUTEINIZING HORMONE IN ALBINO RATS.

***[1]OtuChristian, G., [2]Okaka, A. N. C., [3]Obasi, S. E., [1]Ngobidi, K. C., [1]Okparauka, I. I., [1]Aja, O. A. and [1]Ikwor, C. S.**

[1]Biochemistry unit, Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State Nigeria.
[2]Department of Biochemistry,
Nnamdi Azikiwe Federal University, Awka, Anambra State, Nigeria.
[3]Biology Unit, Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State Nigeria.
Corresponding author: otuchristianglory123@gmail.com
Telephone-07061012664

ABSTRACT

The effect of ethanol leaf extract ff Moringa oleifera L. from selected locations (Aba, Umuahia, Owerri, Okigwe, Afikpo and Abakaliki) in South-Eastern Nigeria on testosterone, progesterone and luteinizing hormones in albino rats were investigated using standard methods. The acute toxicity of the extract was determined by modified Lorke's method. One hundred and ninety (190) albino rats comprised of 95 males and 95 females were randomly assigned into 19 groups with 5 male and 5 female rats each. Each group received oral intubation of 0, 250, 500 and 750 mg/kg body weight of the extract respectively. The extract was safe at concentrations below 5000 mg/kg body weight of extract, there was no record of death or toxicity. Progesterone levels in male and female at 250, 500 and 750 mg/kg body weight of extract respectively (Aba: 34.90±1.06, 36.95±1.40, 41.00±1.44, 41.90±1.30, 45.80±1.10, 52.00±0.70; Afikpo: 34.80±0.07, 36.00±0.15, 37.75±0.10, 39.00±0.05, 42.40±0.08, 45.45±0.03; Abakaliki: 34.49±0.01, 34.90±1.00, 36.09±0.03, 38.90±1.05, 40.00±0.60, 42,10±0.03; Owerri: 34.60±0.05, 35.00±0,10, 35.90±0.20, 38.20±0.20, 40.00±0.60, 41.20±0.20; Okigwe: 34.50±1.00, 34.90±0.05, 35.00±0.50, 39.90±1.10, 4.00±0.10, 39.90±0.30; Umuahia: 36.22±1.58, 45.83±1.44, 65.68±1.37, 42.07±1.42, 53.19±1.13, 70.45±0.86). Luteinizing levels in male and female at 250, 500 and 750 mg/kg body weight of extract respectively (Aba: 2.02±0.03, 2.12±0.11, 2.50±0.02, 2.08±0.06, 2.13±0.12, 3.00±0.13; Afikpo: 2.00±0.05, 2.15±0.11, 2.30±0.10, 2.07±0.06, 2.30±0.15, 3.50±0.13; Abakaliki: 2.00±0.20, 2.13±0.40,

2.20±1.10, 2.05±0.05, 2.20±1.00, 2.50±0.03; Qwerri: 1.99±0.30, 2.10±0.01, 2.15±0.01, 2.03±0.70, 2.10±0.30, 2.20±0.50; Okigwe: 1.98±0.40, 2.05±0.61, 2.10±0.20, 2.05±0.50, 2.07±0.10, 2.10±0.20; Umuahia: 2.00±0.06, 2.50±1.10, 4.00±0.05, 2.10±0.50, 3.00±0.17, 5.50±0.10). There was no dose significant (P > 0.05) increase with extracts obtained from different locations in progesterone and luteinizing hormone, except the extract from Umuahia. Testosterone levels in male and female at 250, 500 and 750 mg/k body weight of extract respectively (Aba: 4.00±0.11, 4.07±0.05, 6.00±0.08, 3.75±0.40, 3.50±0.09, 3.00±0.06, Afikpo: 3.99±0.30, 4.05±0.02, 4.50±0.08, 3.80±0.15, 3.60±0.09, 3.40±0.10; Abakaliki: 4.00±1.00, 4.03±0.02, 4.20±0.10, 3.79±0.20, 3.50±0.09, 3.70±0.10; Owerri: 3.99±0.02, 4.03±0.04, 4.18±0.20, 3.80±0.30, 3.79±0.20, 3.80±0.01; Okigwe: 3.99±1,10, 4.03±0.50, 4.10±0.05, 3.82±0.02, 3.80±0.30, 3.81±0.40; Umuahia: 4.20±0.17, 5.11±0.08, 7.30±0.05, 3.60±0.15, 3.00±0.10, 1.95±0.03). There was no significant (P > 0.05) difference in the levels of testosterone of the rats administered 250 and 500 mg/kg body weight of the extracts, except group administered 750 mg/kg body weight of the extract from Aba and Umuahia. The chemical and nutritional values of the samples from different locations might have accounted for the fertility enhancements with Umuahia leading due to differences in climate conditions, soil types and plant's stages. It could therefore be concluded that Moringa oleifera leaf extracts obtained from Umuahia has more nutritional and medicinal value than those obtained from other locations and could be used to improve fertility and nutrition in South- Eastern Nigeria.

Key words: Moringa oleifera leaf L., Selected reproductive hormones, Nutritional values, Medicinal values, South-Eastern

2024/SOSC29

ANALYSIS OF BROMATE AND CYANIC ACID CONTENT IN BREAD LOAVES AND WHEAT FLOUR SOLD IN ONITSHA METROPOLIS, SOUTH -EASTERN NIGERIA

***Ikeagwuani, C. O. and Idara, I. A.**
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State, Nigeria
*Corresponding author's e-mail: ikeagwuanichidube@gmail.com

ABSTRACT

This study aims at evaluating the bromate and cyanic acid content of randomly selected fifteen loaves and five flour samples in Onitsha community located in southeastern Nigeria using standard methods. The results revealed that bromate content ranged from 0.172mg/g to 0.362mg/g and 0.173mg/g to 5.69mg in wheat flour samples while the cyanic acid composition of the bread loaves and wheat flour samples ranged from 0.179 to 3.838mg/1000g and 1.723 to 4.275mg/1000g sample respectively. The results also showed that about 41% of the loaves contained high level of bromate and significant amounts of cyanic acid which may lead to various health problems.

Keywords: Bread loaves, bromate, cyanic acid, wheat flour

2024/SOSC30

MONKEYPOX: A REVIEW OF CAUSES, EPIDEMIOLOGY AND TREATMENT

***Ezike, Blessing N.; Anikwe, Rita C.; Akpa, Elizabeth N.; Onwe, Rachel U and Akwo, Jessica B.**

Microbiology Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana

*Corresponding Author: ezikeblessing70@gmail.com

09032033477

ABSTRACT

Reemergence of many disease that were once thought to have been eradicated is becoming alarming. These diseases are defying many known antimicrobial agents thereby posing serious risk to mankind. One of such diseases is the Monkeypox. The reemergence of monkeypox has created a lot of concern that people even now appear to be afraid of consuming monkeys. It is the light of what this infections are casing that this review on the causes, epidemiology and treatment of monkeypox is initiated. Monkeypox infection is a zoonotic infection caused by Monkeypox virus, a double-stranded DNA virus from the Poxviridae. Monkeypox is indigenous to the rainforests of Central and West Africa. Between 1970 and 1986, 10cases of human monkeypox infection were reported in Sierra Leone, Nigeria, Liberia and Côte d'Ivoire all. Monkey pox infection is a zoonotic infection transmitted by direct or indirect contact with Blood, Body fluids and Lesions of an infected animal. Infection is usually self-limiting. Monkeypox has an incubation period which ranges from 4 to 21 days with an average of 6 to 16 days. Outbreaks typically occur among inhabitants of small villages involved in hunting and gathering with close physical to animals. Typical characteristics of infection include fever (38.5-40.5℃), malaise, intense headache, lymph node enlargement, back pain, myalgia and intense asthenia. There is no known drug for treatment though cidofovir and brincidofovir have proved effective. Best option is prevention which includes. Restriction of movement of monkeys and small African mammals; use of gloves and proper cooking of meat is recommended.

KEY WORDS: Monkeypox, Epidemiology and Treatment

2024/SOSC31

CHALLENGES FACING AKANU IBIAM FEDERAL POLYTECHNIC, UNWANA (AIFPU) ACADEMIC STAFF ACCESS TO RESEARCH FUNDING

Gift Adene*[1] Adannaya Uneke Gift-Adene[2] Onyemachi George O.[3], Onyemachi Dorothy[4]

*[1,2,3]Department of Computer Science, AIFPU

[4]Department of Science Laboratory Technology, AIFPU

ABSTRACT

The paper focuses on the sources of research funding available to academic staff of Akanu Ibiam Federal Polytechnic, Unwana (AIFPU), problems faced by these staff and possible solutions to these problems. AIFPU is a federal polytechnic located in Unwana, a suburb in Afikpo North Local Government Area of Ebonyi state. A questionnaire was distributed via Google Forms and the sample comprised 432 academic staff of the institution. Data were analyzed using descriptive statistics-means, standard deviations and percentages. Result of the study revealed Institution-Based Research (IBR) from government owned agency, Tertiary Education Trust Fund (TETFund) as major source of research funding for academic staff of the institution, followed by Self-funding and foreign agencies. The most effective source of research financing available to academic staff was found to be self-funding. The results of the survey revealed that a higher proportion of employees had not received research funds in many years and that 31% of academic staff were unaware of funding sources. The authors found several key barriers to research funding, including nepotism, inadequate money for research, strict conditions linked to research grants, and inability to meet qualifying requirements. Also, the fact that the school and its staff lack a significant social media or digital presence posed as a huge barrier to research funding for staff. These results led to several recommendations, including that the government significantly increase funding for polytechnics, that the institution's management avoid prejudice (bias), invest on digital awareness, and mechanisms be developed for locating and informing academics about research funding opportunities and the prerequisites for obtaining them.

Keywords: Research Funding, AIFPU, Academic staff, Grants, Akanu Ibiam

2024/SOSC32

DEVELOPMENT OF A CYBERSECURITY AWARENESS SYSTEM: An Innovative Initiative for Economic Growth

[1]O. R. Oyelowo, [2]O. Y. Obansola, [3]R. A. Olaniran

[1]oyelowoomotola@gmail.com,[2]obansolatoyin@gmail.com,[3]hajiasalaam@gmail.com

08066343412 08038121181 08055553636

[1,2,3,]Federal School of Surveying, Oyo, Oyo State, Nigeria

ABSTRACT

Cyber security is the implementation and utilization of various technologies, processes, and
controls to safeguard systems, networks, programs, devices, and data from potential cyber attacks. This research work was selected due to high rate cyber threats and cyber crime. With an advancement on technology in the society today, which prone to risk of cyber threat and unauthorized exploitation of students account due to lack of knowledge and enlightenment on cybersecurity. According to literature, it was discovered that there are so many way by which students are vulnerable (cyber bulling) to cyber threat thereby needing education program and awareness for effective internet usage. This means that students need to be educated on cybe security and procedures to be taken to secure their online activities. SECUREX was develop with the aim of educating students on cyber security, steps to take to be safe from cyber threat an malicious activities on the internet. The developed website was created using HTML, CSS JavaScript and MySOL. Finally, the system will have interactive features that will contribute to strengthened students experience. Creating awareness about the potential risk and consequences of not following security activities, provide clear guidelines and instructions and also engaging
educational programs are some factors that will influence students to adhere to the security practices, in a way to enhance the growth of the economy.

Keywords: Cybersecurity, SECUREX, Cyber Threats, Awareness, Education

2024/SOSC33

A STATISTICAL STUDY OF ECONOMIC GROWTH OF GOVERNMENT EXPENDITURE ON EDUCATION, WELFARE AND DEFENSE IN NIGERIA

[1]Elem-Uche, O., [1]Dike, A. O., [2]Ogbonnia, C. F.,
[1]Department of Maths/Statistics,
Akanu Ibiam Federal Polytechnic Unwana, Ebonyi State.
[2]Department of Chemistry,
College of Education (Technical) Umunze, Anambra State

ABSTRACT

This paper studied the relational effect of government expenditure on education, welfare and defense on the economic growth in Nigeria statistically. The data used were from secondary source. The data includes gross domestic product GDP, government expenditure on education, welfare and defense, and were arranged annually from 1975 to 2023. The study employed the use of the four functional forms of linear regression models (linear, exponential, semi-logarithm and double logarithm). The ordinary least squares method was used in the estimation of the model parameters and statistical test performed to justify their significance at 5 percent level. From the analysis, the result showed that the double logarithm regression model outperformed other forms of regression model revealing that the factors included in the model explained over 99.60 percent of economic growth, which implies that the factors not taken into account explains about 0.40 percent only. Also, the result revealed that government expenditure on welfare and defense contributed significantly on the country's economic growth than education, and that, welfare and defense on the average contributed respectively about 0.24353 and 0.13728 million naira to the economic growth over the period under consideration. This paper therefore concludes that the insignificant effect of education on economic growth of Nigeria could be attributed to government's attitude towards education as it does not usually form the major part of their expenditure in the country within the period considered.

Keywords: Economic growth, government expenditure, ordinary least squares, regression analysis

2024/SOSC34

ONLINE STAFF APPRAISAL SYSTEM BASED ON BEHAVIORAL ANCHORED RATING SCALE (BARS).

***Eme, Ogwo; Onuora, Augustine Chidiebere; Oliver, Ifeoma Catherine & Uguba, Happiness Ijeoma**
Computer Science Department,
Akanu Ibiam Federal Polytechnic, Unwana, Nigeria

ABSTRACT

Over the years, manual method of appraisal exercise has been used and it have proven to be tedious, inefficient, time consuming, introduces partiality, and causes delay in the yearly staff performance appraisal exercise in many organisations. This brought about the emergence of this paper "Online Staff Appraisal System Based on Behaviorally Anchored Rating Scale (BARS). This involves conducting the appraisal exercise online appraisal system. The proposed system is designed to help organizations to identify the strengths and weaknesses of their staff& yearly performance and gives the appraised staff the opportunity to know the status of their job performance as well as any expectations their organizations may require from them. The design approach adopted was Structured System Analysis and Design Methodology (SSADM). PHP programming language was used for the Server-Side Scripting; MySQL was used for the database back-end development while HTML, CSS and Bootstrap were used for the front-end development. A BARS based online appraisal system handles all the appraisal process making it more efficient, accessible and transparent compared to manual method. The Online Staff Appraisal System Based on BARS was used to rate staff performance in an appraisal year, create database structure to store their performance details in the database and finally create a reporting platform for all appraised staff for each to access their appraisal status at the end of the appraisal exercise.

Keywords: Appraisal System, BARS, Performance, Rating Scale

2024/SOSC35

MICROBIAL ASSESSMENT OF COMMERCIAL POULTRY FEEDS FROM DIFFERENT BRANDS AVAILABLE IN AFIKPO,EBONYI STATE.

***Ogbuji Nkiruka Christiana, Egwurochi Wilson Iheukwumere, Okata-Nwachukwu Maria Okwudili, Ukwuoma Happines Chinyere, Okoronkwo Goodness Udechi, Ologwu Richard, Okonkwo Evelyn Ijeoma and Akpangene Mayfair Chineme.**

Department of Science Laboratory Technology (Microbiology Unit),
Akanu Ibiam Federal Polytechnic Unwana, Afikpo. Ebonyi State.
*Correspondence author: nkiruogbuji92@gmail.com; 08063650419

ABSTRACT

A research on the assessment of commercial poultry feeds was carried out to ascertain thelevel of microbial contaminants present in feed sold within Afikpo metropolis. A total of three (3) samples from three different brands designated Brand A, Brand B and Brand C were sourced and analysed via standard microbiological techniques. Result obtained showed the presence of bacterial and fungal isolates such as *staphylococcus auerus, shigella sp, proteus spp, kliebisella pneumonia* for bacteria and *candida spp,mucor spp, Asperillus fumigatus, Asperillus flavus and Rhizopus spp,* for fungi. A total viable count of 13.9 X 10 3 cfu/ml and a total coliform count of 5.9 X 10 3 cfu/ml occurred most in Brand B while Brand C had the least total viable count of 5.9 X 10 3 and 2.8 X 10 3 coliform count the mucor spp was predominant in Brand A at 43.75% while Rhizopus spp, Asperilligus flavus, Asperillus fumigatus had lower occurance at 12.5% in Brand C and Brand B respectively. The bacteria count and fungal count obtained in this study was high, which indicates a high level of negligence in observing internal sanitary conditions in the feed mills. The results obtained calls for the need of Hazard analysis critical control point(HACCP) to be employed during the harvesting of raw material and care should be taken during processing, packaging and storage of the finished product to ensure reduction of contaminants to the barest. Moreso good trained personnel should be employed to work in poultry feed factories to ensure well processed poultry feed.

Keynotes:Microbial, Contaminants, Sanitary, Hazard Analysis Critical Control point(HACCP),

2024/SOSC36

EVALUATION OF PROXIMATE AND MICROBIAL QUALITY OF *Littorina littorea* SOLD IN AFIKPO

[1]Egwurochi, W. I.; [2]Ngobidi, K. C.; [2]Okoro, O. I., [3]Ukoha, P.U., [1]Igwe, A.[3]Oko,N. A., [1]Egbule, C.U., [1]Igwe, A.M., and [1]Nnachi, A.S.

[1]Microbiology Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana

[2]Biochemistry Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana

[3]Chemistry Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana

Corresponding author: egwurochiwilson@yahoo.com

08038686856

ABSTRACT

Seafood such as species of snails have been part of man's food. It is regrettable that they may be vehicles for disease transmission based on the environments for which they are harvested. It is on the light of this that this research on the evaluation of the proximate and microbial quality of *Littorina littorea* (Periwinkle**)** sold in Afikpo was conceived. Periwinkle were randomly purchased from three sellers at the market and conveyed to the laboratory for analysis. The samples were shared into two halves (proximate (determine the percentage moisture contents, protein) and microbial analysis). For microbiological evaluation meats were removed from the shell and 30g weighed out; blended in electric blender and homogenized in distilled water. This was used in preparing ten-fold serial dilution. 0.1ml aliquot of 10^{-3} was then inoculated and spread on aseptically prepared isolating media; incubated for 24h at 37^{o}C and room temperature for 5 days for bacterial and fungal isolations respectively. Isolates were characterized based on their morphological features. Highest *heterotrophic plate* counts was *4.3x10^{3}cfu/g with the highest total coliform count of 3.9x10^{3}cfu/g. Six bacteria genera (Staphylococcus aureus*, *Streptococcus faecalis, Enterobacter* sp. *Salmonella* sp., *Pseudomonas* sp. and *Proteus* sp.). *While the fungal isolates were – Aspergillus niger, Aspergillus Flavus,* Mucor and *Trichosporon mucoides*; with *Aspergillus niger being the highest occurring fungus.* Proximate properties showed periwinkle had high percentage content of protein at 40.27%. From the foregoing, it is recommended that periwinkle should be part of daily food consumption but should be handled with care to avoid infections.

Key word: Evaluation, Proximate, Microbial, Quality, *Littorina littorea*

2024/SOSC37

STUDENT ASSISTANT SYSTEM USING A WHATSAPP-BASED CHATBOT

Chibuike E. Madubuike[1*], Chinenye E. Ikechukwu[2], Victory Nwokocha[3], Arikpo Etowa[4]

[1,4]Computer Science Department,
Akanu Ibiam Federal Polytechnic unwana
[2]Agricultural Extension Department,
Ebonyi State University, Abakiliki
[3]Electrical and Electronics Engineering Department,
Akanu Ibiam Federal Polytechnic Unwana
*Corresponding author's e-mail: chibuikemadubuike@gmail.com

ABSTRACT

This study aims to building a WhatsApp chatbot dedicated to facilitate four (4) major routine activities carried out by students in their different academic departments ranging from obtaining informative content, processing their clearance of students for registration, payment of fees, and registering personal. It will also ease the workload of the administrative staff in the department, allowing them to attend to other vital matters. This study covers the knowledge of both rule-based chatbots and machine-learning chatbots. But, the design and implementation of the new system adopt the rule-based mechanism. The Chatbot for the Department will only follow a pre-defined set of rules or scripts to interact with students. A successful implementation of the new system will ensure a seemless completion of departmental transactions from the comfort a remote location.a

Keywords: Artificial Intelligence, Chatbot, WhatsApp-based, Student Assistance

2024/SOSC38

STADIUM MANAGEMENT USING ONLINE TICKET SYSTEM

***Chibuike Ezeocha Madubuike, Ameh Peter & Mikpedigeabasi, Victor**

Department of Computer Science,
Akanu Ibiam Federal Polytechnic, Unwana
*Corresponding author's e-mail: chibuikemadubuike@gmail.com

ABSTRACT:

From duplication of tickets, loss of tickets, and to inability to account for sold tickets, stadium management could pose a serious problem for sports organizers and investors who are saddled with the responsibility of providing high satisfaction to spectators while, at the same time, increasing returns on investment. This paper proposes the use of an online ticket system for football stadiums. The new system provides a user-friendly interface for the sale of tickets in a secure manner and an administrative module for authorized management of the online system. To achieve this, the spiral Model methodology was adopted for both the analysis and the design of the new system. Also, a phased conversion strategy is recommended for the new system to ensure operational effectiveness, spectators sati, action, and accountability of tickets in stadium management.

Keywords: stadium management online ticket system, spiral model, phased conversion.

2024/SOSC39
BACTERIOLOGICAL ASSESSMENT OF NAIRA NOTES IN AKANU IBIAM FEDERAL POLYTECHNIC, UNWANA

O.F Igwe[1]; Anozie Justina Kenechukwu[2]; Aja Monique Iheoma[2] and Aniokete Ugonna Cassandra[3]

[1]Microbiology Unit, Department of Science Laboratory Technology,
Akanu Ibiam FederalAfikpo. Ebonyi State.
[2]Department of Food Technology,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo. Ebonyi State.
[3]Institute of Maternal and Child Health,
University of Nigeria, Ituku-Ozalla campus, Enugu state
[4]Department of Medical Laboratory Science,
David Umahi Federal University of Health Sciences, Uburu, Ebonyi State.
Corresponding Author: Igwe Onyekachi Fidelis.
Email: igwe2612@gmail.com, Phone contact: 08131973917

ABSTRACT

Naira notes could serve as a vehicle for the transmisssion of pathogenic organisms hence othe objective of this study was to carry out the bacteriological assessment of naira notes used in Akanu Ibiam Federal polytechnic unwana in order to determine their hygienic conditions and to identify pathogenic organisms associated with them. Two Samples for each of the five denominations of Nigeria currency notes including 50,100,200,500 and 1000 naira notes were randomly collected from two different locations at the polytechnic, soaked in distilled water and immediately transported to the microbiology laboratory for bacteriological examination using standard microbiological technique. The results showed that a total of 309cfu of bacteria were isolated from 10 samples of the five denominations with location A and B containing total of 149 and160 colony counts of different pathogenic organisms respectively. the percentage distribution of the bacterial isolates from different denomination of naira notes in Aifpu (% occurrence) ñ (%) were as follows for different organisms :32,60,37,20 and 0 respectively for *Staphylococcus aureus, Escherichia coli, Streptococcus spp, Shigella spp and Klebsiella spp* respectively for location A, and a total % counts of 32,50,44,27 and 7 counts for the organisms respectively for location B. it was statistically analysed using bar chat from the frequency distribution tables of the organisms. this calls for public enlightment on the risk of spread of infections through naira notes and adoption of hand sanitation and other safety measures before and after touching naira notes, embracing cashless policy and other electronic measures of transaction that will reduce level of human contact to this notes since they could serve as vehicle for outbreaks and ion of infectious diseases.

Key words: Naira notes, bacteria, cfu, polytechnic, organisms

2024/SOSC40

COMPARATIVE ANALYSIS OF PHYTOCHEMICAL AND PROXIMATE COMPOSITIONS OF *Solanum aethiopicum (*Ethiopian eggplant) AND Solanum *macrocarpon* (African Eggplant) LEAVE EXTRACTS

BY

Nwali, I.U, Ezem, S.N, Ibiam, J.A, Igara, C.E and Olulue, N.

Department of Science Laboratory Technology, School of Science.
Akanu Ibiam Federal Polytechnic, Unwana.

ABSTRACT

The leaves of *S. aethiopicum* and *S. macrocarpon* obtained from Amasiri, Afikpo North, Ebonyi State were washed, oven dried at 50°C for 72 hours and ground to powder using mechanically driven pulverising machine. About 40g each of the powdered leaves were extracted *in* 400ml ethylacetate by the cold maceration method. The extracts were concentrated in a water bath at 60°C. Proximate composition, qualitative and quantitative phytochemical analyses were carried out on the extract using standard methods. The result of the proximate composition showed that *S. acthiopicum* leaves contained 10.9% moisture, 22.2% crude fiber, 22.3% ash, 22.0% crude fat, 6.2% crude proteins and 16.4% carbohydrates. The leaves of *S. macrocarpon* contained 10.7% moisture, 21.4% crude fiber, 20.1% ash, 21.2% carobohydrates. The phytochemicals detected in the leaf extract of both. *S. aethiopicum* and *S. macrocaropon* are flavonids, alkaloids, tannin, phenols and saponins. The findings indicated that the leaves of *S. acthiopicum* and *S. macrocarpon* are rich in phytochemicals but that of *S. aethiopicum* contain them in higher amounts. The results also show that these leaves are potential sources of highly nutritious feed stuff and phytomedicine. They are of nutritional and veterinary relevance considering the diverse ethno phamacological uses of the plant in various parts of the country.

Key words: Phytochemical, Proximate, Composition Maceration.

2024/SOSC41

HYPOGLYCEMIC ACTIVITY OF JATROPHA CURCAS ETHANOL LEAVE EXTRACT ON LIPID PROFILE PARAMETERS OF ALLOXAN-INDUCED DIABETIC RATS

***[1]Danladi, G. J., [1]Anyiam, C. C., [2]Anyiam C. A. and [3]Amaechi C. C.**

[1]Biochemistry Research Unit, Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, P.M.B 1007 Afikpo, Ebonyi State, Nigeria.
[2]Department of Food Technology,
Akanu Ibiam Federal Polytechnic Unwana, P.M.B 1007 Afikpo, Ebonyi State, Nigeria.
[3]Chemistry Research Unit, Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, P.M.B 1007 Afikpo, Ebonyi State, Nigeria.
*Corresponding Author E-mail: danladijeremiah@gmail.com
+2348100113021

ABSTRACT

The leaves extract of J. curcas was investigated in alloxan induced diabetic rats using standard methods. Diabetes was induced intraperitoneally with a single dose of 140 mg/kg body weight of alloxan solution dissolved in 0.1 M citrate buffer. Twenty male albino rats were divided into five groups of four rats each. Group 3, 4 and 5 were administered with 100, 300 and 500 mg/kg body weight of J. curcas ethanol leave weekly for 21 days. Group 1 was the normal control; group 2 was negative untreated diabetic control. The result shows that the level of glucose, weight, total cholesterol (183.58±2.18), triacylglycerol (80.9467+2.61) and LDL (19.0267±0.92) were significantly (P<0.05) increased in the serum of diabetic untreated rats compared to 108.36±1.15 (cholesterol), 56.44+ 1.16 (triacylglycerol) and 19.0267±0.92 (LDL) respectively of normal control rats that were not induced. However, administration of 100mg/kg, 300mg/kg and 500mg/kg b.w of J. curcas ethanol leave extract for 21 days resulted in significant (P<0.05) decrease in blood glucose level which was accompany by increase in body weight. The decrease in blood glucose level of the rats following the administration of the J. curcas leaves extract suggested that the extract possesses antidiabetic effects. This dose also significantly (p<;0.05) reduced concentrations of cholesterol 151.35±2.19, 145.92±5.39 (group 4 and 5), triglycerides 69.58±1.90 (group 5), low density lipoproteins (LDL) 26.01±1.63 (group 5) and increased the concentration of high density lipoproteins (HDL) 11.19±0.91 (group 4) when compared with the untreated diabetic control rats 9.74+0.78 (group 2), indicating that the J. curcas ethanol leave extract also has hypolipidaemic effect. The results this study suggests that J. curcas leaves are potent antidiabetic agents. It could also be effective in preventing and managing complications of diabetes.

Keywords: Diabetes, Weight, Blood Glucose, Jatropha curcas, hypolipidaemic.

2024/SOSC42

COMPARATIVE STUDY OF VITAMIN AND MINERAL CONTENTS OF SOME COMMERCIAL FRUIT JUICES AVAILABLE IN AFIKPO, SOUTH-EAST, NIGERIA

C. O. APIE[1*], P. U UKOHA[1], A. N. OKO[1], O. I. OKORO[1] AND C. E. OMINYI[1]

[1]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana, P.M.B 1007 Afikpo, Ebonyi State.
[1*]Corresponding author's E-mail: columbusapie247@gmail.com
(+234-8136629501)

ABSTRACT

In this study, the vitamin and mineral contents of seven different brands of commercially available fruit juices (samples A, B, C, D, E, F and G) in Eke market, Afikpo, South-East, Nigeria were examined using standard analytical methods of AOAC to compare their overall quality with World Health Organization (WHO). Results of the study revealed that the vitamin contents (mg/100ml) ranged from 11.0-1±0.16 sample F to 1.01±0.05 sample B for vitamin A; 22.26±1.63 sample A to 5.20±0.42 sample E for vitamin C; 2.28±0.05 sample C to 0.22±0.06 sample D for vitamin E; 1.14±0.01 sample A to 0.20±0.15 sample D for vitamin B1 and 3.01±1.10 sample C to 0.43±0.05 Sample F for vitamin B2. The highest value (22.26±1.63 mg/100ml) vitamin C and lowest value (0.20±0.15 mg/100ml) vitamin B1 were recorded for sample A and D respectively. Results of the mineral analysis also revealed that sample G and sample B recorded the highest mineral contents for Na (14.17±0.05 mg) and Ca (13.67±0.02 mg) respectively, while the lowest mineral contents recorded were Fe (0.07±0.01 mg) in sample F and phosphorus (0.12±0.01 mg) in sample C. Similarly, the preservative contents of the sampled fruit juices showed the highest sulphur dioxide (0.10±0.01 %) in sample D and lowest value (0.03± 0.02 %) in sample B while sodium benzoate highest value (0.16 ± 0.02 %) in sample D and lowest value (0.03±0.01) in sample E were recorded. Results of ANOVA performed also revealed that the vitamin and mineral contents of each fruit juice sample vary significantly ($P<0.05$) from each other and were within the WHO recommended values except for vitamin B2 (3.01±1.10 mg/100ml) in sample C which showed value higher than WHO recommended daily allowance. Thus, the fruit juice samples are suitable for consumption.

Key words: Fruit Juice, Vitamins, Minerals, Preservatives and Afikpo.

2024/SOSC43

SENSORY EVALUATION AND PHYSICOCHEMICAL PROPERTIES OF COOKIES PRODUCED FROM WHEAT AND ACHA FLOUR WITH DATE SYRUP AS SUGAR SUBSTITUTE

Obi, Maryjane, A.
Department of Food Technology,
Federal Polytechnic, Oko, Nigeria
Obiadamj@gmail.com
08039352752

ABSTRACT

This study was carried out to determine the sensory properties and Physicochemical Analysis of cookies produced with a blend of wheat-acha flour sweetened with date fruit syrup in the given proportions; (100:0:0), (0:100:50), (50:50:50), (100:0:100) and (50:50:100) with their given codes as WS1(control sweetened with sugar), AD2, WAD3, AD4, and WAD5 respectively. These cookie samples were evaluated for their Sensory characteristics and Physicochemical Analysis using standard methods. Results of the sensory evaluation carried out statistically (P>0.05) showed that WS1(7.32) was the most accepted amongst all samples followed by WAD5 (7.14) while AD2(6.26) was the least accepted by the panelists. The result of the physicochemical analysis on selected cookie samples; WAD3, AD4, and WAD5 showed that all cookie samples were slightly acidic and ranged from WAD5(5.20) – AD4(5.30) on the pH scale, Calcium(195.19 –387.57mg/100g) for AD4 and WAD5, Magnesium(84.39 - 113.50mg/100g) for AD4 and WAD3, Iron(3.37 – 3.69mg/100g) for WAD3 and WAD5, Potassium(40.17 – 48.69mg/100g) for WAD3 and AD4, Total titrated acid(0.42 – 0.69%) for WAD5 and WAD3 and Total soluble solids(32.60 –36.16°Brix) for WAD3 and WAD5 respectively. From this result, cookies produced with 50% Wheat flour, 50% acha flour, and 50ml date syrup are richer in magnesium and have the most titrated acids. Cookies with 100% acha flour and 100ml Date syrup had higher potassium concentration and pH while sample WAD5 had higher concentrations of calcium, iron, and total soluble solids. It is recommended that cookies with acceptable sensory qualities and enhanced nutritional properties be produced with wheat, acha, and date fruit syrup.

Keywords; Sensory, physicochemical, Cookies, Acha flour, Date syrup.

2024SOSC44

THE ROLE OF GLUTATHIONE IN ASTHMA –A REVIEW

Ajayi, A. A; Vining-Ogu I .C; Aja, O. A and Ngobidi, K.C

Biochemistry Unit, Department of Science Laboratory Technology
Akanu Ibiam Federal Polytechnic, Unwana.
Corresponding author: ajayiadekunlea@gmail.com

ABSTRACT

The roles of glutathione were reviewed in mitigating the chronic inflammatory lung disease called asthma. Asthma is a chronic inflammatory disorder of the airways associated with airway hyperresponsiveness and airflow limitation in response to specific trigger such as oxidative stress. The condition is induced by cellular mechanism to elicit variety of symptoms including recurring coughing, chest tightness, shortness of breath and frequent wheezing in the patient. Interactions between environmental triggers, inflammatory cells and structural cells result in the generation of reactive oxygen species including the generation of isoprostanes. The resulting inflammations are mediated or triggered by the release of various cytokine, histamines and prostalglandins amongst others. The 8-iso-PGF-2 alpha (a prostalglandin) enhances the permeability of cells to oxidative stress and mediate airway hyperresponsiveness, obstructions and remodelling. Increase in glutathione intake is capable of reducing 8-iso-PGF-2 alpha in the blood which will depletes the reactive oxygen species and consequently prevent hyperactivity, relieves acute hyper responsiveness/airflow limitations, regulate inflammatory cell infiltration/cytokine synthesis and enhance the release of bronchial smooth muscle contractions for proper airflow and breathing. The management of this condition might be enhanced through regular dietary intake of gluthation precursors (cysteine, glycine, glutamate and methionine) or supplements for the amelioration of the asthmatic symptoms.

Keywords: glutathione, asthma, prostalglandins, airways, cytokines, inflammation.

2024/SOSC45

TRENDS IN THE ELIMINATION OF VECTORS AND TREATMENT OF MALARIA: A REVIEW

[1*]Egwurochi, Wilson I., [1]Onwe, Rachel U., [1]Igwe, Amarachi; [2]Ngobidi, Kerian. C. and [2]Okoro, Otuu I.,[1]Egbule, Cynthia U.,[1]Igwe, Amarachi M.,[1]Nnachi, Antoinette S. and [1]Uwakmfon Udoakpan.

[1]Microbiology Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana

[2]Biochemistry Research Unit, Department of Science Laboratory Technology, Akanu Ibiam Federal Polytechnic, Unwana

*Corresponding author: egwurochiwilson@yahoo.com
08038686856

ABSTRACT

Malaria transmission in Africa is facilitated by different species of *Anopheles* mosquitoes, which have different behaviors and vectorial capacities. Generally, the four major vector species are *Anopheles gambiae*, *Anopheles funestus*, *Anopheles coluzzii*, and *Anopheles arabiensis*, which are the most anthropophilic *Anopheles* species in the world. These vectors has over the years resisted most of the used methods aimed at their eliminations. Thereby resulting to more endemicity of malaria. It is on the strength of this that this review on malaria pandemic: review of trends in elimination of vectors and treatment was conceived. Several factors in the environment aid in the spread or decline in the transmission of malaria from the environment, these environmental factors included Natural (Climate-based factors, temperature) environment and Human-made environment. To ensure eradication of malaria, several new trends have been initiated. These new trends included use of combined Permethrin (a pyrethroid) and pyriproxyfen in the production of mosquito nets, Indoor residual spraying (IRS), Improving housing, Use of Zooprophylaxis and insecticide-treated livestock, Larval control measures, biologica methods. However, following infection, malaria should be treated with antimalarial drugs based on diagnosis.

Key word: Trends, Malaria, Elimination, Vector

2024/SOSC46
COMPARATIVE NUTRITIONAL AND ANTINUTRITIONAL CONTENT OF SELECTED CONDIMENTS (AFZELIAAFRICANA AND DETARIUMMICROCAPUM) USED AS THICKENER IN THE PREPARATION OF SOUP

***[1]Danladi, G. J., [1]Anyiam, C. C., [2]Anyiam, C. A. and [1]Ugwuanyi, C. C.**
[1]Biochemistry Research Unit, Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, P.M.B 1007 Afikpo, Ebonyi State, Nigeria.
[2]Department of Food Technology,
Akanu Ibiam Federal Polytechnic Unwana, P.M.B 1007 Afikpo, Ebonyi State, Nigeria.
*Corresponding Author E-mail: danladijeremiah@gmail.com
+2348100113021

ABSTRACT

Proximate, mineral, vitamin and antinutritional contents of D. microcarpum (Ofo) and A. Africana (Akparata) used as soup thickener were investigated using standard procedures. Proximate analysis showed moisture contents of 11.82+ 0.01% in D.microcarpum, 7.14+0.01% in A.africana. Crude fibre contents ranged from 1.76+0.01% in D. microcarpum to 2.94+0.01% in A.africana. Crude fat ranged from 5.02 +0.01% in D. microcarpum to 6.10+0.02% in A.africana. Crude protein ranged from 8.72+ 0.02% in D. microcarpum to 14.95+0.01% in A.africana; while carbohydrate content ranged from 65.19+0.02% in D.microcarpum to 69.23+0.00% in A.africana. Ash content ranged from 3.4+ 0.02% (D.microcarpum) to 4.03+0.01% in A.africana. The analysis of the vitamin contents of the two seeds used as thickener showed the presence of vitamin A and vitamin C. The vitamins A and C level of D.microcarpum was higher compare with A. Africana. The vitamin A levels ranged from (1.05+0.01Mg/100g) in D.microcarpum to 0.78+0.02 Mg/100g in A. Africana and vitamin C (2.33 + 0.01 Mg/100g) in D.microcarpum, 1.39+0.01Mg/100g in A. Africana seed. The test for mineral content of the two samples showed that the spices contain calcium, potassium, phosphorus, iron and Zinc. The potassium concentration of the two thickener were quite high. Also the thickener contain high concentrations of calcium. A. Africana contains the lowest phosphorus level of (9.77±0.02 mg/100g) when compared with D. africana, which possess (12.89±.01mg/100g) respectively. Zinc content ranged from 7.53±0.0mg/100g in D.microcarpum to 8.92±0.01mg/100g in A.africana. The iron (Fe) concentrations appeared to be the lowest compared with other minerals in the two samples. Therefore, processing of these seeds into condiments (soup thickener) should be encouraged due to their good nutritional values, but more interest should be given to the condiment made from A. Africana (akparata) due to its higher nutrient.

Keywords: proximate, minerals, vitamins, antinutrients, soup thickener

2024/SOSC47

DESIGN AND CONSTRUCTION OF A 10 METRE RADIO BROADCASTING AND TRANSMITTING FM DEVICE

[1]ONI, OLUWABUNMI AYANKEMI
onioluwabunmia@gmail.com
08023826646
[2]IDOWU OLUWAYEMI ISAIAH
08088681180
[1,2]The Polytechnic Ibadan

ABSTRACT

This project focuses on developing an FM transmitter within the standard FM broadcastrange of 88 - 108MHz. The system consists of several components. The microphone captures the audio signal, which is then amplified in the audio frequency (AF) stage. The modulator combines the modulating signal (audio) with the carrier wave, and the resulting modulated signal is further amplified in the radio frequency (RF) stage. Finally, the signal is transmitted through the antenna. This project offers valuable practical experience and involves aspects of both electronics and telecommunication engineering. By successfully completing this project, a functional FM transmitter will be developed. This transmitter can be utilized for educational purposes, such as broadcasting lectures or other relevant content within the designated frequency range.

Keywords: FM Transmitter, Frequency Modulation (FM), Carrier Wave, Modulation,
Antenna, Power Supply, Voltage, Range

2024/SOSC48

DEVELOPMENT OF A CRIMINAL KEYWORD SPOTTING SYSTEM

[1]ONI, OLUWABUNMI AYANKEMI ***onioluwabunmia@gmail.com***
08023826646
[2]JOHNSON SAMUEL OLADIMEJI
08180985587
[1,2,]The Polytechnic Ibadan

ABSTRACT

The Flutter-based Criminal keyword Spotting System is a dynamic application designed to deliver real-time speech-to-text conversion and precision-driven keyword detection. Created with the aim of augmenting security and content oversight, this inventive system seamlessly translates spoken words into text, effectively pinpoints specified keywords, and offers results through an intuitively crafted user interface. Empowered by the 'livespeechtotext' integration, the system aptly captures live speech input and transforms it into easily comprehensible text, further enriched by an advanced keyword analysis logic that expertly identifies and timestamps relevant keywords. Augmented by an instinctual design, animated user interface, and finely tuned keyword recognition capabilities, the system resonates with remarkable efficacy across real-world contexts. Its robust foundation in cutting-edge technologies positions it for fluid evolution and adaptation to evolving speech patterns, rendering it a versatile asset across varied domains within speech analysis and monitoring.Upon experimental validation, the system demonstrated a commendable 74.28% average accuracy across 35 comprehensive tests.

Keyword: ***Audio recording, Speech recognition, Acoustic model, Phoneme, Spectrogram,***
Feature extraction, Machine learning, Deep learning

2024/SOSC49

THE ATTITUDE OF STUDENT TOWARD COMPUTER BASED TEST (CBT)

[1]ONI, OLUWABUNMI AYANKEMI
onioluwabunmia@gmail.com
08023826646
[2]JIMOH, ISA OPEYEMI
08101657673
[3]KAZEEM, KAUSARAT OMOWUNMI
08031875168
[1,2,3]The Polytechnic Ibadan

ABSTRACT

This study examined the attitude of the students towards Computer Based Test (CBT) at the Polytechnic of Ibadan, Nigeria. Qualitative method of research was used in this context, why the method of obtaining data was a Google form survey using a well-structured questionnaire. The study population consists of 961 Undergraduate students of the Polytechnic Ibadan who have enrolled and tested under the CBT mode of assessment either at the Institution ICT Centre or during their JAMB examination period. The analysis was based on students of different departments. This study survey shows that the majority of the institution students would prefer the use of CBT for future exams but also have various suggestions on how to improve the CBT standard in the institution for better usage in future. This study has also shown that most students would have less anxiety when using CBT for exams which will be a positive improvement on how the students perform in the exam.

Keywords: CBT, JAMB, ICT, Assessment, Chart, Analysis, Attitude

2024/SOSC50

COMPARATIVE ANALYSIS OF FORMALDEHYDE IN FROZEN FOODS USING pH AND ULTRAVIOLET-VISIBLE SPECTROPHOTOMETER

[1]Mbonu O.F., [2]Udeozor P.A., [3]Osai I.T., [4]Ikeagwuani C.O., [4]Diribe C.I.

[1,4]Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State, Nigeria

[2]Evangel University, Akeze, Ebonyi State, Nigeria

[3]Federal College of Agriculture Ishiagu Ebonyi State

[4]Alex Ekwueme Federal University, Ndidi Alike, Ebonyi State.

ABSTRACT

Studies were carried out to evaluate the levels of formalin in the frozen cat fish (Conydors
semiaquilus), tilapia fish (Oreochromis niloticus) as compared with that of broiler and old layer Chicken samples from meat shops situated within Lagos metropolis, Lagos State, using analytical procedures and instrumentation. The samples were thawed, homogenized with trichloroacetic acid and assayed for formalin determination using pH and UV/Visible spectrophotometer. Formalin was detected in the meat and fish samples though in small quantities. The mean levels of formalin in the chicken meat and fish, frozen cat fish (Conydors semiaquilus), tilapia fish (Oreochromis niloticus) were 2.1 ± 0.01, 4.4 ± 10.25, 2.8 ± 0.01, 0.6 ±002 and that of broiler and old layer chicken samples were 3.7 ± 8.42, 2.66 ± 0.36, 2.96 ±15.43, and 2.0 ±7.26 respectively. The food samples contained mean formalin levels in the following decreasing order; cat fish > tilapia fish > broiler > old layer chicken. The formalin levels in the imported meat and fish samples were statistically higher than in the chicken meat samples. The mean levels of formalin in the samples from the meat shops situated within Lagos metropolis were above the recommended permissible limits. The average pH level in the Chicken samples were; Akute, 6.39, Ijora, 6.09, Yaba, 6.02 for Old layers and 6.36, 6.63, 6.26 for Broiler, while, for the Fish samples, Akute, 5.83, Ijora, 5.85, Yaba, 5.68 for Cat Fish, while for Tillapia Fish, the mean pH where found to be; 5.98, 5.55 and 569 respectively, indicating acidity in the samples with the fish samples more acidic. The consumption of these food items is therefore a serious health risk especially over a prolonged exposure, considering the health debilities associated with high dose of formalin to animals and by extension humans.

Key Words: Formaldehyde, pH, UV-Visible Spectrophotometer, Fish and meat

2024/SOSC51

PHARMACOLOGICAL PROPERTIES AND MEDICINAL IMPORTANCE OF CLOVE (*Syzygium aromaticum*) PLANT: A REVIEW

IGARA, CHINTUA E, *OJONG, ENKOM O. AND UDEH, CHIKAODINAKA C.
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State.
*Corresponding authors' email: enkomojong@gmail.com (07039869139)

ABSTRACT

The review examined the pharmacological properties and medicinal importance of clove
(*Syzygium aromaticum*) plant. Many plant species have been reported to have pharmacological activities attributable to their phyto-constituents such as glycosides, saponins, flavonoids, steroids, tannins, alkaloids, terpenes, among others. Syzygium aromaticum (clove) is a traditional spice that has been used for food preservation and possesses various pharmacological activities which include analgesic, antioxidant, anticancer, antiseptic, anti-depressant, antispasmodic, anti-inflammatory, antiviral, antifungal and antibacterial activity. S. aromaticum is rich in many phytochemicals such as: sesquiterpenes, monoterpenes, hydrocarbon, and phenolic compounds, eugenyl acetate, eugenol and β-caryophyllene which are the most significant phytochemicals in clove oil. Pharmacologically, S. aromaticum has been examined toward various pathogenic parasites and microorganisms, including pathogenic bacteria, Plasmodium, Babesia, Theileria parasites, Herpes simplex and hepatitis C viruses. In addition, eugenol, an essential oil from clove has revealed protective capacity against CCl 4 induced hepatotoxicity and showed a potential lethal efficacy against the multiplication of various parasites including Giardia lamblia, Fasciola gigantica, Haemonchus contortus and Schistosoma mansoni. Thus, clove as the most important spice of the world, as judged from the world trade has physical, mental and emotional health benefits and represent one of the Mother Nature's premier antiseptic.

Keywords: Pharmacological, Medicinal Activity, Clove, Eugenol.

2024/SOS52

PHENOLOGY OF SELECTED PLANT SPECIES IN NWAMBA COMMUNITY FOREST IN NDUBIA IZZI LOCAL GOVERNMENT AREA (L.G.A), EBONYI STATE.

***Obasi, S.E., OtuChristian, G., Nkama,O.J., Ezeh, E. L., Chukwunwike, O.O.S, Oko, P.O., Okparauka, I.I,**
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, P.M.B. 1007, Afikpo, Ebonyi State.
Corresponding Author: stellaeobasi@gmail.com , Tel: 08032717293

ABSTRACT

Phenology can be defined as scientific study of the seasoning timing of life events in nature and the impact of change on different organisms, their ecosystems and their survival. In plants, it is related with dates of plant growth and development phenomenon, such as leaf flushing, flowering or fruiting etc. The study is aimed to provide information on species periods of leaf flushing, flowering and fruiting of selected plant species of Nwamba community forest in Ndubia Izzi L.G.A, Ebonyi State. A total of 25 species of economic importance was tagged in the forest sites and monitored for leaf flushing, flowering and fruiting noting the months of each of the phenophase for a period of 24 months. The phenology results showed highest percentage of leaf flushing and fruiting during the dry season. However, 20 and 12 of species fruited in- between the seasons in 2017 and 2018, respectively. In 2017, the percentages were 4, 12, 24 and 64% for flowering−leaf flushing–fruiting, flowering–fruiting, flowering−leaf flushing and leaf flushing–fruiting, respectively while in 2018, the percentages were 8, 24, 36 and 40% for flowering−leaf flushing–fruiting, flowering−fruiting, flowering−leaf flushing and leaf flushing−fruiting, respectively during the dry season. This information shows changes in time of proper seed collection, mass seedling propagation for reforestation and phenological events. Therefore, understanding phenological records will be better equipped to plan for the impact of climate change on plants, animals, recreation, forestry and farming.

Keywords: Phenology, climate change, Phenophase, Information, Plant species.

2024/SOSC53

CONCURRENT ENGINEERING DESIGN AND PRODUCTION OF AUTOMATED CHARCOAL PRESSING IRON

Tommy, S. D.[1] , Onah, T. O.[2] , Nwoke, O. N.[3*], Ugboaja, O.I.[4], and Alum, J.O[5].
[1]Works and Engineering Services Division,
Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State
[2]Department of Mechanical and Production Engineering,
Enugu State University of Science and Technology Enugu, Enugu State, Nigeria.
[3]Department of Mechatronics Engineering Technology,
Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State, Nigeria.
[4,5]Department of Mechanical Engineering Technology,
Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State, Nigeria.
* Corresponding Author-- Nwoke, O. N.: obinnanwk@yahoo.com

ABSTRACT

This work focuses on the design and development of an automated charcoal pressing Iron (ACPI) using concurrent engineering approach. The concept leverages on thermoelectric generator technology that harvests heat energy from charcoal combustion and uses the captured temperature differential between the burning charcoal in the combustion chamber (cc) of the pressing Iron and the external ambient environment to generate electricity which energizes a 5V DC mini blower fan that intermittently sends oxygen into the charcoal combustion chamber at the prompt of a heat sensor for maintenance and sustenance of the combustion process. The design which incorporates a thermostatic control system utilizes Three Dimensional Computer Aided Design (3D CAD) of Solidworks and Altium Designer software environments to facilitate ease of system components integration. Components production employs laminated object manufacturing (LOM) processes in the development of patterns for investment casting of the Soleplate embedded charcoal compartment unit, lid and handle base. Protective plating of key surfaces uses heat resistant ceramic composite for conductive heat loss reduction. The evaluated efficiency indicates that this designed ACPI is 68.3% more efficient than the traditional charcoal pressing Iron (TCPI). As a proposed household appliance in rural area without electricity, this innovation offers modern convenient alternative to the TCPI.

Keywords: Automated Charcoal Pressing Iron, Thermoelectric Generator, Low Watt Mini Fan, Thermostatic Control System, Enhanced Cloth Ironing Efficiency

2024SOS54

THE BIOLOGICAL ACTIVITIES OF METAL COMPLEXES OF BENZOYL ANTIPYRINE LIGANDS

[1]EZENWEKE L.O.,[2]OKOYE G.U AND [3*]ESONWUNE A.A.

[1]Department of Pure and Industrial Chemistry,
Chukwuemeka Odumegwu Ojukwu University. 08033564455
[2]Federal ministry of Health, Department of Public Health,
Port Health Services Ikeja, Lagos State,
gokoye4@gmail.com 07032922081/08074111188
[*3]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana Ebonyi State.
*Corresponding author's e-mail: anacletuseso@gmail.com
07089313906/08052850209

ABSTRACT

Antipyrine was introduced into the drug regimen as a drug for the treatment of some organisms until its resistance by some microbes dominated the scene and the need for further research becomes a necessity. The activity of the 4-acylpyrazolone and its Schiff base necessitated the need for the modification of antipyrine which is one of the pyrazolone derivatives to investigate the biological activity. 4-Benzoyl antipyrine was synthesized and further reacted with 2-hydroxylaniline to form a Schiff base. Metal complexes of the Schiff base were prepared and characterized by IR, UV and other physicochemical properties. Biological activities were carried out against the bacterial and fungal species of *Staphylococus aureus*, *E.Coli*, *Samonella* species and *Candida albicans* by Agar cup method. The antimicrobial activities reflect that the L_1 and L_2 ligands show similar activity on the organisms, while the metal complex of Hg recorded varied activities with Mn complex recording the lowest activity. The metal complex of Ni has the highest activity on the organism while the Cu complex recorded the lowest activity.

Keywords: Antipyrine, 4-Benzoylantipyrine, Metal Complexes, Schiff base, Antifungal, Antibacterial, Acylation, spectra

2024/SOSC55

PHYTOREMEDIATION OF HEAVY METALS FROM SOILS IN A MECHANIC WORKSHOP ENVIRONMENT IN IBENO, EKET LOCAL GOVERNMENT AREA, AKWA IBOM STATE.

Chukwunwike, O. O. S., Suleiman, J.B. and Obasi, S.E.
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State.
*Corresponding author's email: Chukwunwikeobinna@gmail.com.

ABSTRACT

This study was on assessment of phytoremediation of selected heavy metals namely, Pb, Cd, Cr, As, Al, Hg and Cd from a mechanic workshop polluted soil using Euphorbia tithymaloides, Vernonia gigantea, and Perperomia pellucida plants. Soil samples were collected from Ibeno Eket, Akwa Ibom State and were transported to the Botanical Garden of Science Laboratory technology department, Akanu Ibiam Federal Polytechnic, Unwana. The soil sample were analyzed in the laboratory using the acid digestion method i.e (aqua regia) a combination of (HNO_3 and HCl) to decompose the soil sample. Atomic absorption spectrophotometer was used to analyze the soil sample to know the concentrations of selected heavy metals detected in the soil sample. Three bags each containing 3.0.grams of analyzed soil sample with different concentration of heavy metal with Cd having highest value of 0.272mg while Al with the lowest value of 0.04mg were used to grow selected plants namely Euphorbia tithymaloides, Vernonia gigantea, and Perperomia pellucida plant species respectively for 60 days. Results after second phase of analysis shows that the elevated levels of heavy metals before planting in six heavy metals which are Pb, Cd, Cr, As, Al, and Hg were seen to be reduced as Cd which had an initial concentration of 0.272mg recorded a lower average value of 0.02mg and Al was reduced from a significant 0.04mg to 0.01mg in the three bags in the final concentration.The results shows there was an elevated concentration of heavy metals in the soil sample before planting and these concentrations were reduced after harvesting. The result also shows that the three plants Euphorbia tithymaloides, Vernonia gigantea and Perperomia pellucida showed good ability to reduce these heavy metal concentrations.

Keywords: phytoremediation; plant species; heavy metals; aqua regia.

2024/SOSC56

SEQUESTERING OF HEAVY METALS USING LOCAL CLAYS FROM UNWANA COMMUNITY IN EBONYI STATE, NIGERIA

[1]Ikeagwuani, C. O., [1]Ukoha, P. U. and [1]Mbonu, F. O.
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State, Nigeria.
E-mail: ikeagwuanichidube@gmail.com

ABSTRACT

The potential of using of Unwana clay, located in Akanu Ibiam Federal Polytechnic of Ebonyi State, for the adsorption/sequestering of heavy metals was investigated. Batch method was employed at ambient temperature for the study of the sequestering process. The results fitted to the Langmuir isotherm. The adsorption capacity (Q_o) calculated from the Langmuir isotherm was 61.3 mg Pb(II) $g^{-1}$and 26.8 mg Cu(II) g^{-1}at a pH of 7.0 at 25ºC for the Unwana clay particle size of 200 mesh. This study revealed that heavy metal cations from aqueous solution can be adsorbed successfully in significant amounts by Unwana clay. The results of this study implies that Unwana clay represents a good sorption material for heavy metals in solution and this could open up new possibilities and potential commercial uses of Unwana clay.

Keywords: Sequestering, Adsorption,Unwana clay, Heavy metals

2024/SOSC57

Mechanisms of Metal Toxicity and Effects on Human Diseases

***[1]Lawrence Olusegun Ajala, [2]Nwogo Ajuka Obasi, [1]John Ama Ibiam**
[3]Chukwudum Albert Anyiam, [1]Cynthia Chioma Anyiam
[1]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana, Nigeria.
[2]Department of Medical Biochemistry,
Alex Ekwueme University, Alike Ndufu, Nigeria.
[3]Department of Food Technology,
Akanu Ibiam Federal Polytechnic, Unwana, Nigeria.
* Correspondence author email: segunajala001@gmail.com

Abstract

Metal toxicity is a significant concern in environmental and occupational health due to the
widespread presence of metals and their potential adverse effects on human health. This review explores the mechanisms underlying metal toxicity and its implications for human diseases. Metals such as lead, mercury, arsenic, cadmium, and chromium are well-known toxicants that can disrupt cellular homeostasis through various mechanisms, including oxidative stress, inflammation, interference with essential biological processes, and disruption of signaling pathways. These mechanisms can lead to a range of adverse health effects, including neurotoxicity, nephrotoxicity, hepatotoxicity, carcinogenesis, and reproductive disorders. Moreover, metal exposure has been linked to the development and progression of numerous human diseases, including neurodegenerative disorders (such as Alzheimer and Parkinson diseases), cardiovascular diseases, respiratory diseases, renal diseases, and cancer. Understanding the molecular and cellular mechanisms underlying metal toxicity is essential for elucidating the pathogenesis of metal-induced diseases and developing effective strategies for prevention and intervention. Emerging research suggests potential interventions including chelation therapy, antioxidant supplementation, and lifestyle modifications to mitigate metal toxicity and its associated health risks. Overall, elucidating the mechanisms of metal toxicity provides valuable insights into the pathogenesis of human diseases and informs strategies for prevention and treatment.

Keywords: Metal toxicity; Molecular mechanisms; Metabolic pathways; Human diseases; Intervention strategies; Health impacts

2024SOSC58

A REVIEW ON THE TOXICOLOGICAL EFFECT OF HEMATOLOGICAL AND HEMATOPOIETIC PARAMETERS OF FISHES

[1]Okwuosa, Obinna Ben*, [2]Amadi-Ibiam Christina O., [1]Uchendu, Damian O. and [1]Mbada Deborah Godwin

[1]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana
[2]Department of Fisheries and Aquaculture,
Ebonyi State University, Nigeria
Corresponding author: okwuosaobinnaben@gmail.com

ABSTRACT

Hematological evaluation is commonly used to assess the physiological state of fish. It includes red blood cell parameters, white blood cell parameters, and the number of thrombocytes per blood volume unit. The aim of this paper was review articles on the toxicological influence of toxic substances such as metal ions, pesticides etc or other anthropogenic aquatic pollutants, as well as pharmaceuticals such as immunomodulators, antimicrobial and antiparasitic therapeutics, or anesthetics on hematological and hematopoictic parameters of fishes. Hematological evaluation is one of the basic tools (often accompanied by biochemical and histopathological analysis) used to assess the influence of organic and inorganic substances on fish. It is, therefore, applicable in both ecotoxicology and pharmacotoxicology. The advantages of this research method are the lack of need for specialized laboratory equipment and low costs, and the limitations are the need for extensive experience among the personnel performing the tests. One of the recommended methods of supplementing routinely determined hematological parameters is assessing the cellular composition and activity of hematopoietic tissue. As there is very little scientific data available on the issue of the effects of xenobiotics on the cellular structure of fish head kidney hematopoietic tissue, filling this gap should be considered an urgent need. Therefore, it is recommended that research should be conducted with the simultaneous use of hematological and hematopoietic analysis as reliable and complementary methods of assessing the impact of toxic substances on fish.

Keyword: Hematology, Fish, Hematpoietic, Toxicology, Aquaculture

2024/SOSC59

REVIEW ON NON-FOOD INDUSTRIAL APPLICATIONS OF FISH

[1]Okwuosa, Obinna Ben*,[2]Amadi-Ibiam Christina O.,[1]Ezeh, Eucheria Lilian and [1]Anya Divine Chimezie

[1]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana
[2]Department of Fisheries and Aquaculture,
Ebonyi State University, Nigeria
Corresponding author: okwuosaobinnaben@gmail.com

ABSTRACT

From ancient times fish has always been considered as an important human food item. The
purpose of this article is to introduce other non-food uses of fishes that is beside consumption and that fish can also be used as a raw material for the industrial production of different products. In this article therefore such products have been described. Among them, the conventional fish products described herein include isinglass, pituitary gland, chitin, chitosan, pearl essence, fish skin leather, fish protein hydrolysates and concentrates, fish meal and scrap, fish oil, collagen, gelatin, glue, fish silage, pet food and wet feed from fish, fish fertilizer and compost. These products have important applications in aquaculture, agriculture, food, cosmetics and other industries. Different nonconventional hi-tech fish products has been reported such as novel antimicrobial proteins from skin mucus, enzymes, insulin, protamine, blood proteins, salcotonin, antifreeze proteins, hydroxyapatite, burn treatment bandage, albumins, fishbone calcium powder, biochar, biopolymer, bioplastics, fish industry derived rinse water recovery. These products have many significant applications in chemical, biomedical and pharmaceutical industries. Economical, logistic, environmental and technological considerations from fish waste valorization perspectives has also been presented to evaluate feasibility of industrial-scale production of these products.

Keywords: Non-food, fish-products, fish, Aquaculture

2024/SOSC60

DETERMINATION OF TOTAL FLAVONORDS CONTENT OF ORANGE FLESHED SWEET POTATO AND OTHER INDIGENOUS ABAKALIKI SWEET POTATO ACCESSIONS

[1]Ezeh, Eucheria Lilian and [1]Okwuosa, Obinna Ben*,
[1]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana
Corresponding author: okwuosaobinnaben@gmail.com

ABSTRACT

Plants are a potential source of natural flavonoids which functions as antioxidant substances capable of scavenging free superoxide radicals. Hence, this study was carried out to evaluate the flavonoids contents of orange flesh sweet potato (OFSP) compared to other Abakaliki indigenous sweet potato (AISP); accessions. Different cultivars of OFSP were collected from National Food Crop Research Institute, Umudike while Abakaliki indigenous potato accessions were collected from local farmers and used for this study. In the laboratory, the samples were crushed into slurry using electrical blender and used for the analysis of their flavonoids contents. The result revealed that the flavonoids content differed significantly ($p<0.05$) ranging from 1394.22±0.02 mg/kg to 1788.62±0.02 mg/kg in orange flesh sweet potato cultivars and from 1603.83±0.02 mg/kg to 1788.62±0.02 mg/kg in Abakaliki indigenous sweet potato accessions. The result of the comparative analysis showed that flavonoids contents were higher in both peel and flesh of AISP accessions compared to their OFSP counterpart. This study has shown that Abakaliki indigenous sweet potato accessions contains more flavonoids hence, possess more antioxidant potentials compared to the OFSP. There is need to consume more of it so as to harness its health benefits in reducing oxidative stress.

Keywords: Plant, Flavonoid, antioxidant, Orange, Potato

2024/SOSC61

THE ROLE OF TECHNICAL AND SCIENCE EDUCATION IN COMBANTING FLOOD MEANCE IN OUR CITIES

By

[1]Nwabineli E.O, [2]Ogonna S. Nwokyo , and [1]Azubuike, Thaddeus, C**

[1]Department of Ceramic & Glass Technology
Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State.
[2]Department of Civil Engineering,
Federal Polytechnic, Oko, Anambra State, Nigeria.
**Corresponding author; colonochieema@gmail.com

ABSTRACT

Flooding refers to the overflowing or inundation of water onto normally dry land. It typically occurs when excessive rainfall, snowmelt, or the overflow of bodies of water such as rivers, lakes, or oceans exceeds the capacity of the natural or artificial drainage systems in an area. Flooding can also be caused by dam failures, storm surges, or tidal waves. When flooding occurs, water can spread over large areas, submerging homes, infrastructure, agricultural fields, and natural landscapes. It can have devastating consequences, causing property damage, loss of crops, displacement of people, and even loss of life. The severity of flooding depends on factors such as the volume and duration of the rainfall, the topography of the land, the condition of drainage systems, and human activities that may have altered natural waterways. There are different types of flooding, including river flooding, flash flooding, coastal flooding, and urban flooding. River flooding happens when rivers overflow their banks, often due to prolonged rainfall or melting snow. Flash flooding occurs rapidly and with little warning, usually in urban areas or small basins, and can be caused by intense rainfall or dam failures. Coastal flooding is caused by storm surges or high tides, which push water onto coastal areas. Urban flooding occurs in cities due to the high percentage of impervious surfaces like roads and buildings, which prevent water from infiltrating the ground. Efforts to mitigate the impact of flooding include the construction of flood control infrastructure like dams, levees, and floodwalls, improving drainage systems, land-use planning to avoid construction in flood-prone areas, and early warning systems to alert people to evacuate if necessary.

2024/SOSC62

GEOMORHOLOGY AND POOR CIVIL ENGINEERING LAND USE AS THE MAJOR CAUSATIVE FACTOR OF GULLY EROSION IN OKO - EKWUOBIA AREAS OF ANAMBRA STATE

By

[1]Nwabineli E.O, [2]Ogonna S. Nwokyo, and [1]Azubuike Thaddeus C.**

[1]Department of Ceramic & Glass Technology
Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State
[2]Department of Civil Engineering,
Federal Polytechnic, Oko, Anambra State, Nigeria.
**Corresponding author: colonochieema@gmail.com

ABSTRACT

Gully erosion is a common phenomenon in Oko- Ekwobia areas of Anambra State, constituting an important threat to life and general development. This paper shows that natural factors like lithology, geomorphology, rainfall pattern (amounts, intensities, and frequencies) and poor vegetation cover (stripped-off due to developmental projects) influences gully and soil erosion in the study area. Other factors include Rapid population growth and human developmental activities in the areas of agriculture, infrastructural development, mineral sand mining and Poor civil engineering practices which can have severe consequences, particularly when it comes to building foundations. The foundation is a critical element in any structure, providing the necessary support to ensure stability and safety. When civil engineering practices fall short of the required standards, it can lead to various negative impacts on building foundation. This can lead to structural instability, causing the building to settle unevenly or even collapse in extreme cases. Insufficient attention to soil conditions, load calculations, and structural analysis can compromise the overall stability of the foundation. Soil erosion-induced problems on hydro geological system of the water sources in the study area includes, siltation of rivers, foundation failures, streams, abrasion of Rivers, Eutrophication, reduction in sanitation and water quality.

Key words; Erosion, Rainfall pattern, geomorphology, population, climatic condition

2024/SOSC63

OPTIMIZATION OF MECHANICAL PROPERTIES OF ALUMINIUM-SILICON SYSTEM FOR ENHANCED SERVICE PERFORMANCE VIA CONTROLLED AGEING

Tommy, S. D.[1], Onah, T. O.[2], Nwoke, O. N.[3]*, Ugboaja, O.I.[4] and Alum, J.O[5].

[1]Works and Engineering Services Division,
Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State
[2]Department of Mechanical and Production Engineering,
Enugu State University of Science and Technology Enugu, Enugu State, Nigeria.
[3]Department of Mechatronics Engineering Technology,
Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State, Nigeria.
[4,5]Department of Mechanical Engineering Technology,
Akanu Ibiam Federal Polytechnic, Unwana, Ebonyi State, Nigeria.
* Corresponding Author-- Nwoke, O. N.: obinnanwk@yahoo.com

ABSTRACT

This study focuses on the optimization of ageing conditions for enhanced mechanical properties of Aluminium-Silicon system using volume fractions examination. The microstructure of the composite was systematically optimized during production by keeping the percentage of Aluminium-Silicon and Ferrosilicon constant while varying the percentage volume fractions of Silicon Carbide (SiC). Samples were produced for hardness, impact and tensile test specimens used for determination of key mechanical characteristics. The specimens were subjected to laboratory based accelerated solution heat treatment, quenching and artificial ageing. An array of comprehensive mechanical properties examination and characterization in line with the appropriate specifications of the American Society for Testing and Materials Standard manuals which include tensile, hardness, impact and fatigue endurance tests were undertaken to investigate changes in the elastic modulus, tensile and impact strengths; and toughness behaviours of the composites. The design of experiment was based on Taguchi Robust Parameter Design Concept and the analyses of variance (ANOVA) were conducted for the data set using MiniTab and SPSS statistical tools. A correlation coefficient was established, and regression model generated. The optimization of the ageing conditions revealed that the composition-optimized material exhibits enhanced mechanical properties with addition of varying percentage volume fractions of SiC. The findings from this work provide valuable insight into the ageing behaviour of Aluminium-Silicon, thus enabling the optimization of the material's performance and longevity in diverse engineering applications.

Keywords: Composite Strength Optimization, Ageing Conditions, Enhanced Mechanical Properties

2024SOSC64

UNRAVELING THE MOLECULAR SIGNALING PATHWAYS IN INFLAMMATION: A COMPREHENSIVE REVIEW

Suleiman Joseph Bagi[1*]., Chukwunwike Obinna Sunday[1]., Ndukwe Esther Ijeoma[1]

[1]Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana, Afikpo Ebonyi State, Nigeria
*Correspondence: Email: bagisuleiman@yahoo.com , Tel: 2348036908357

ABTSRACT

Inflammation is a complex biological process that plays a critical role in the body & defense against pathogens and injury. Unraveling the molecular signaling pathways underlying inflammation is crucial for understanding the mechanisms driving these processes and developing effective therapeutic interventions. This comprehensive review provides an in-depth analysis of the molecular players, signaling cascades, and regulatory mechanisms involved in inflammation. It explores the roles of key cellular players, including neutrophils, macrophages, and lymphocytes, in initiating and modulating inflammatory responses. The review also delves into the intricate network of inflammatory mediators, such as cytokines, chemokines, prostaglandins, and reactive oxygen species, highlighting their contributions to the inflammatory cascade. Furthermore, it elucidates the activation and regulation of major signaling pathways, including Toll-like receptor (TLR) signaling, NF-κB signaling, MAPK signaling, and inflammasome activation. Additionally, it examines the interplay between inflammation and tissue regeneration, shedding light on the roles of stem cells, extracellular matrix remodeling, angiogenesis, and epigenetic regulation in the restoration of tissue homeostasis. Similarly, it discusses therapeutic approaches targeting these molecular signaling pathways, including anti-inflammatory therapies, stem cell-based interventions, biomaterials, and gene therapy. Unanswered questions and future directions are also identified, highlighting areas for further investigation and emerging technologies. Overall, this comprehensive review provides a valuable resource for researchers and clinicians interested in understanding the molecular intricacies of inflammation and developing novel strategies to modulate inflammatory responses and promote tissue regeneration.

Key Words: Inflammation, Toll-like receptor (TLR) signaling, NF-κB signaling, MAPK signaling, and inflammasome activation

2024SOSC65

Blockchain Smart Contract Use cases and Applications

Augustine Chidiebere Onuora[1] Adannaya Uneke Gift-Adene[2] Nonye Emmanuel Maidoh[3] , Inya Ogbonnia Umeh[4] and Mercy Ikem Ebere[5]

[1,2,3,4]Department of Computer Science,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State.
[5]Department of ICT
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State.

ABSTRACT

In the digital revolution driven by blockchain technology, smart contracts emerge as a paradigm-shifting tool, poised to redefine traditional business practices across multiple domains. Smart contracts stand as a cornerstone of innovation, promising to revolutionize the way we engage in business trustlessly. Driven by the pioneering spirit of exploration, this research delves into the expansive realm of smart contract use cases and applications, seeking to unveil the transformative potential they hold. Through meticulous analysis and case studies, this research illuminates the diverse array of scenarios where smart contracts can revolutionize processes, enhance accountability, and streamline operations in sectors such as finance, supply chain management, healthcare, and government services. By fostering collaboration and innovation, we seek to unlock the full potential of smart contracts, ushering in a new era of efficiency, integrity, and trust in the digital age while illuminating the path towards unlocking the untapped opportunities presented by smart contracts, reshaping the future of digital economies and organizational paradigms.

KEYWORDS: Decentralization, Blockchain, dApps, Network, Smart Contract, digital, business, Solidity

2024SOSC66

Decentralized Cloud Storage: A Comprehensive Review

Augustine Chidiebere Onuora[1] Ikedilo, Obiora Emeka[2] Iweama, Williams[3] Rowland
Chidi Aguwamba[4] and Ali Sunday Ogbonnia[5]
Department of Computer Science,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State.
Department of Office Technology and Management,
Akanu Ibiam Federal Polytechnic Unwana, Afikpo, Ebonyi State.

ABSTRACT

In the era of data-driven innovation, Decentralized Cloud Storage (DCS) emerges as a disruptive force, offering a decentralized alternative to traditional cloud storage solutions. This comprehensive review, delves into the intricate landscape of Decentralized Cloud Storage, examining its principles, architectures, and applications. Through meticulous analysis of existing literature and case studies, this research provides a thorough overview of the underlying technologies and protocols driving Decentralized Cloud Storage platforms. By exploring the benefits, challenges, and potential use cases of Decentralized Cloud Storage, this study aims to shed light on its transformative impact on data storage, privacy, and security in the era of decentralized computing. As organizations and individuals increasingly seek alternatives to centralized data storage, this review serves as a valuable resource for understanding the evolution and future prospects of Decentralized Cloud Storage.

KEYWORDS: Decentralize, Blockchain, Storage, Network, Storage Provider, Nodes, P2P, Cloud, Data

2024/SOSC67

ENVIRONMENTAL NOISE ASSESSEMENT AND ITS IMPACTS ON RESIDENTS WITHIN THE EKE MARKET AREAS OF AFIKPO, EBONYI STATE

Igbo, N. E., Igbo, M. E., Nwauzor, J. N., and Kalu, J.
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic, Unwana.
Email address: michaeligbo2@gmail.com

ABSTRACT

The perception of sounds in our day to day life experiences is of major importance to our individual wellbeing. Noise is any sound that is undesired by the recipient in everyday life, it is an unwanted sound typically characterized by the intensity, frequency, periodicity and direction of the sound. Environmental noise, like any other forms of pollution has wide ranging adverse health, social and economic effects. It has been found that noise interferes with behavior including communication, relaxation and sleep. The result showed that the noise number index (NNI) day-night level (LDN) and noise pollution (LPN) were27.4dB(A), 67.5dB(A) and 76.25dB(A) respectively. Thus, the result revealed that there are more noise during the day when compared tonight.

2024SOSC68

SUSCEPTIBILITY PROFILE OF *Escherichia coli* AND *Shigella spp* ISOLATED FROM LETTUCE SOLD IN EKE MARKET AFIKPO EBONYI STATE .

UGBO, U. I. I* AND UCHENDU, D. O.
Department of Science Laboratory Technology
Akanu Ibiam Federal Polytechnic, Uwnana Ebonyi State.
*Email of Corresponding Author: ugboenyi9992@gmail.com

ABSTRACT

Vegetables may undergo microbial spoilage by a huge array of pathogenic bacteria, fungi, viruses and parasites majorly because they grow near soil which is the reservoir of all types of pathogens. The aim of this study is to determine the susceptibility profile of E. coli and Shigella app isolated from lettuce sold in Eke, Afikpo Ebonyi state. The samples of fresh lettuce was purchased from six (6) different lettuce vendors. Twenty (20g) of lettuce was soaked in 100ml of sterile peptone water contained in a beaker for 30 minutes to dislodge contaminating microbe. Afterwards, ten fold serial dilution was carried out. The prepared media were inoculated using the third dilutions by pour plate method and incubated at 37 degree centigrade for 24 hours. The isolates were identified using Microbiological standards such as gram staining and biochemical tests. The susceptibility test was determined using disc diffusion method. The result showed that the different samples of lettuce were contaminated with E. coli and Salmonella spp. E. coli was susceptible to Tarivid (27mm), Ciprofloxacin (29mm) and resistant to Amoxicillin, Sparfloxacin, Augmentin and Gentamycin. while Salmonella spp was susceptible to Septrin (22mm) and Ciprofloxacin(22mm). E. coli recorded 60% susceptibility and 40% resistance while Salmonella spp recorded 80% resistance and 20% susceptibility to the tested antibiotics. This high percentage of resistance observed may be attributed to indiscriminate and misuse of antibiotics which is the major causes of antibiotics resistant. The result showed that the different lettuce samples were contaminated with pathogenic bacteria and these bacteria showed high resistances to the tested antibiotics, Improved sanitation measures during cultivation, harvesting, transportation, storage and processing should be employed and proper usage of antibiotics in agriculture should be adopted.

Keywords: Susceptibility, Antibiotics, Resistance, disc diffusion.

2024SOSC69

THE DETERMINANTS OF FEMALE LABOUR FORCE PARTICIPATION IN NIGERIA

By

***MADU, CHUKWUNONSO., EGELE, UMUNNA., ELEM-UCHE, OGBONNIA., OKEAHIALAM, A. H., IGWE, N.O.**

Department of Mathematics/Statistics,
Akanu Ibiam Federal Polytechnic, Unwana. P.M.B 1007 Afikpo, Ebonyi State.
*Corresponding Author: +2348039508685, email:
chukwunonsomadu37@gmail.com

ABSTRACT

This study examined the determinants of female labour force participation in Nigeria and the relationship between the identified determinants on female labour force participation. Data for this study was collected using questionnaire method and analyzed using probit multiple regression analysis to achieve the model Y female = -0.003 Household size + 0.039 Age + 0.005 Marital Status – 0.004 Education + 0.500 Income . The study identified that household size and education negatively influence female labour force participation while age, marital status, and income positively influence female labour force participation in Nigeria and they also have significant effect on the female labour force participation in Nigeria. The study recommends therefore that the government should improve on its involvement and programs in the determinants of female labour force participation.

Keywords: Labour force participation, Probit regression analysis.

2024/SOSC70

OpenCourseWare: A legacy of possibilities, reshaping the Polytechnic educational system and visibility in learning application development.

***Joseph Osahon Idemudia, **Omoregbee Helen Otaninyenuwa**
Department of Computer Science
*Akanu Ibiam Federal Polytechnic Unwana, Nigeria
**Edo State Polytechnic, Usen, Nigeria
*Corresponding author: jidemudia@akanuibiampoly.edu.ng (0803-582-0124)
**otahenomo@gmail.com

Abstract:
This study was designed to achieve paradigm shift in teaching and learning of Application development for Mobile Computing at all levels of Computer Science departments in the Polytechnics education system by harnessing the power of digital age. Learning and teaching curriculum are supported notably. Teaching and learning are no longer limited to classroom time and spaces. Learning materials contain in OpenCourseWare, provide learners –Students opportunity to gain knowledge beyond their routine class room environment. Teachers can publish structured course material open on an online platform for student and self-learner to access and download course material. It sustained the Policy of the Polytechnic as the bedrock of technical emancipation in Nigeria that offer highly technical, scientific, as well as research-oriented education to students.
Keywords: Mobile computing, routine class, structured course material, online platform

2024SOSC71

Handling and Evaluation of Tin Oxide Nanoparticle Generated Using a Ball Milling Methods

***Nwauzor J. N., Suleman, O. K., Igbo, M. E. & Kalu, J.**
Department of Science Laboratory Technology
Akanu Ibiam Federal Polytechnic Unwana Afikpo Ebonyi State.
Corresponding author Email: jnnwauzor@akanuibiampoly.edu.ng

ABSTRACT

Tin oxide (SnO 2) nanoparticle samples were prepared by mechanical grinding method using a ball milling machine. The optical properties were studied using UV-Vis spectrophotometer within a range of 200-1100nm. The micro and crystalline size of the nanoparticles were studied using x-ray diffractometer (XRD) and scanning electron microscopy (SEM). The compositional analysis was carried out using energy dispersive x-ray spectroscopy (EDXS). Observation of the electrical properties of the nanoparticle was carried out using an electrical four- point probe system. The XRD pattern in the 2θ range from 20 to 70 0 revealed that tin oxide had a tetragonal structure with an average particle size of 5.85nm. The SEM result showed that the nanoparticles were well dispersed and non-uniformity in the shape of developed nanoparticles was observed. The EDXS results showed the elemental analysis of the nanoparticles under consideration. Tin oxide nanoparticles contained oxygen, tin and carbon. The four-point probe electrical resistivity result shows that tin oxide had a sheet resistance of 6.9x10 6 Ω. From the results, tin oxide nanoparticles showed an absorbance of 78%. Finally, the bandgap energy of tin oxide was found to be 3.59eV.

Keywords: Nanoparticles, Mechanical grinding, Bandgap energy

2024SOSC72

A Truly Transformative Use of Internet-of-Things (IoT) Smart Solution: The Role of Optimizing the Combination of Structured and Unstructured Data with Cognitive Analytics.

***Joseph Osahon Idemudia, Adannaya Uneke Gift-Adene PhD**
Department of Computer Science,
Akanu Ibiam Federal Polytechnic, Unwana, Afikpo.
* jidemudia@akanuibiampoly.edu.ng 0803-582-0124
adabeekee@yahoo.com 0802-600-9839

ABSTRACT

The computing community is desirous of ways to sustaining smart systems. Consequently, it places a demand to the development of Internet–of-Things (IoT) smart solutions which underscore the convergence of several technologies, and cloud-based capabilities needed to bring physical things online. However, there is a growing concern of data transmission latency in the Internet-of-Things technology. More so, previous studies had shown that IoT devices generates large volumes of unstructured and structured data across protocols precipitating an ecosystem of Internet-of-Things (IoT) with huge data packets of low speed that can inhibit network bandwidth and high response times that deliver data cut short of user need. Therefore, A Truly Transformative" expression is not just an adjective of convenience. It stresses the need of a technique capable of reducing the challenges of combining several types of data into a cognitive analytics, for a time-sensitive solution. A time-sensitive smart solution is a function of data that are real-time devour of all forms of latency for an effective data transmission. The paper aimed to pave way for a seamless minimization of data combinational problems for sustaining Internet-of-Things smart solutions in a smart ecosystem.

Keywords: Smart Solutions, Internet of Things (IoT), Convergence, Cloud, Unstructured data, Structured data, Latency.

2024/SOSC73

ADVANCE PRESERVATION TECHNIQUES FOR FOOD PRODUCTS: TRADITIONAL AND MODERN APPROACHES

[1*]Briggs, T.A., [2]Okata-Nwachukwu Maria Okwudili, [3]Eseni Eberechi Goodness, [4]Nwauzor Jonathan Nnamdi
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana
*Corresponding Author: abelbriggstams@gmail.com

ABSTRACT

Food preservation refers to keeping foods with the desired features or nature for as long asfeasible after being prepared. Proper preservation is important to store the foodstuffs for alonger period without spoilage. However, the preservative must not be toxic to humans. Different techniques are used widely, including traditional and modern methods, to eliminate microbial contamination and avoid the rancidity of fat. Food preservation has been practised for centuries, with salting generally recognized as the earliest form of preservation. Foods preserved using a combination of procedures remain stable and safe even when not refrigerated. They have high sensory and nutritional characteristics dueto the mild processes used. Care must also be taken to preserve foodstuffs' nutritional value, texture, and flavour. Food can spoil due to environmental, enzymatic, or microbiological processes. In this mini-review, traditional techniques for preservation such as salting, freezing, sugaring, smoking, and many more, as well as modern techniques such as pasteurization, pulse electric, dehydration, antimicrobial agents, irradiation, high-pressure technology, and hurdle technology, and many more are used to preserve food
items.

2024/SOSC74

DIAGNOSTIC METHOD OF INFECTIOUS DISEASE; TRADITIONAL AND MODERN APPROACHES

[1]Demason Shirley J, [2*]Briggs, T.A., [3]Okata-Nwachukwu Maria Okwudili, [4]Eseni Eberechi Goodness and [5]Nwauzor Jonathan Nnamdi.
Department of Science Laboratory Technology,
Akanu Ibiam Federal Polytechnic Unwana
*Corresponding Author: abelbriggstams@gmail.com

ABSTRACT

The diagnosis of infectious diseases is critical for effective patient management and public health control. This review compares traditional and modern diagnostic methods, highlighting their respective advantages and limitations. Traditional methods, including microscopy, culture, and serological assays, offer valuable insights but often require time and expertise. In contrast, modern approaches such as molecular techniques (e.g., PCR and NAATs) provide rapid and highly sensitive detection of pathogens. Despite their efficiency, modern methods may be costlier and reliant on sophisticated equipment. Integration of both approaches in diagnostic algorithms can optimize accuracy and efficiency in disease detection, aiding in timely interventions and improved patient outcomes. The continual evolution of diagnostic technologies promises further enhancements in infectious disease diagnosis, paving the way for more effective disease control strategies.

2024/SOSC75

Unveiling Public Sentiment in Nigeria 2023 Election: A Comparative Analysis of Distant Supervision and Algorithm Performance for Tweet Classification

Goodluck Ikwudiuto Emereonye[1], Goerge Onyemachi[2] , Peace Oguguo Ezzeh[3]
[1,2]Department of Computer Science
Akanu Ibiam Federal Polytechnic Unwana
[3]Department of Computer Science
Federal College of Education (Technical) Asaba

ABSTRACT

Over the years, the need to generate sensible insights from a body of text has led to the
application of diverse data mining techniques. Many of which involves the use of large amount of annotated corpus which consumes time and money, and may introduce both human error intentional and unintentional biases. To tackle this challenge, a model that adopts distant supervision method for labelling tweets using Annotate-Sample-Average (ASA) was trained. This aided the classification of word according to their sentiment polarity and that facilitated the detection of the sentiment at tweet level. The classifier was retrained with 8 different algorithm and tested with the 6HumanPosNeg dataset. Their evaluation parameters showed that the L2 regularized loss support vector classification is more effective with an F-score of 0.64 and accuracy of 65.84%.

Keywords: Text Mining, Distant Supervision, Nigeria's 2023 Election, Affective Tweets,
Annotate-Sample-Average, Algorithm

2024/SOSC76

QUICK RESPONSE (QR) CODE-BASED IDENTITY CARD PROCESSING AND AUTHENTICATION SYSTEM FOR EDUCATIONAL INSTITUTIONS

Eme, Ogwo; Ibiam Sopuruchi Essen ; Oti Joyce Ifeoma; Oji Anthony Idam, Godson, Chinatu Chikezie
Department of Computer Science,
Akanu Ibiam Federal Polytechnic, Unwana, Nigeria

ABSTRACT

The use of an efficient identity card processing system is crucial for enhancing security, improving data management and streamlining administrative process in educational institutions. This paper presents the design and implementation of a QR code-based Identity and Processing System using Akanu Ibiam Federal Polytechnic Unwana as a case study. This work was motivated to assist authorities of educational institutions overcome the challenges noticed in the existing card processing systems, which include the inability of the existing identification process to check the genuineness of an identification card, the ease of counterfeiting of students' Identity Cards and the absence of security features on students' identity cards. We proposed a system that enables quick and reliable verification of card holder information, enhances access control, and improves overall efficiency in identity card management. We adopted Object-Oriented Analysis and Design Methodology (OOADM) for our system analysis and design while we used PHP and My SQL for the system implementation. With the QR based system, the staff can easily verify the authenticity of a student by scanning the QR code embed in the student's Identity and details of the students are displayed after the QR codes have been scanned.

Keywords: QR Code, Identity Card System, Card Authentication System, Data management, Educational Institution