

SAJSET

ISSNo: 2992-3581

SAVANNAH JOURNAL OF SCIENCE
AND ENGINEERING
TECHNOLOGY

SAJSET, 2024
VOLUME 2
ISSUE 3



Savannah Journal of Science and Engineering Technology
Is licensed under a Creative Commons Attribution-Non-Commercial 4.0
International License
INDEX BY: Google Scholar;

**SAVANNAH JOURNAL OF SCIENCE AND
ENGINEERING TECHNOLOGY
2024**

SAVANNAH JOURNAL OF SCIENCE AND ENGINEERING TECHNOLOGY, VOLUME 2, ISSUE 3



Editorial Board Members

Editor in Chief

Engr. Prof. Abdulkabir Raji

Department of Mechanical Engineering, Faculty of Engineering, Modibbo Adama University, Yola, Nigeria:

Specialisation: Metallurgical and materials engineering. **Publications:** [Google Scholar](#); [Scopus](#).

Email: a.raji@mau.edu.ng; editorial@sajsetjournal.com.ng

Associate and Managing Editor

Engr. Dr. Abdullahi Mohammed Usman

Senior Lecturer at Department of Mechanical Engineering, Faculty of Engineering, Modibbo Adama University Yola, Nigeria: **Specialisation:** Sustainable energy and engineering materials, building and industrial energy efficiency,

industrial carbon footprint and greenhouse gas assessment and analysis, indigenous technology. **Publications:** [Google Scholar](#); [Scopus](#). **Email:** amusman@mau.edu.ng; editor.sajset@gmail.com

Editorial Advisors

- **Engr. Prof. A. A. Kareem:** Department of Chemical Engineering, Faculty of Engineering, Modibbo Adama University, Yola, Nigeria.
- **Engr. Prof. B. Aliyu:** Department of Agriculture and Environmental Engineering, Faculty of Engineering, Modibbo Adama University, Yola, Nigeria.
- **Prof. A. M. Sadik:** Department of Soil Science, Faculty of Agriculture, Modibbo Adama University, Yola, Nigeria.
- **Prof. Adamu Bakari Girei:** Faculty of Medicine, Modibbo Adama University, Yola, Nigeria.
- **Prof. M. A. Hassan:** Department of Mechanical Engineering, Faculty of Engineering, Modibbo Adama University, Yola, Nigeria.

Editorial Board Members

- **Assoc. Prof. Dr. Mohammad Kamil Abdullah:** Associate Professor at Faculty of Mechanical and Manufacturing Engineering, University Tun Hussein Onn Malaysia, Johor, Malaysia: **Specialisations:** Energy management, efficiency and policy, renewable energy, building sustainability, thermo- fluid applications **Publications:** [Google Scholar](#); [Scopus](#). **Email:** mkamil@uthm.edu.my
- **Engr. Prof. Dahiru Yahaya Dasin:** Professor at Department of Mechanical Engineering, Faculty of Engineering, Modibbo Adama University, Yola, Nigeria: **Specialisations:** Renewable energy engineering, **Publications:** [Google Scholar](#); [Scopus](#). **Email:** dahirudasin@mau.edu.ng
- **Engr. Dr. Timothy Musa Chiroma:** Associate professor at department of Chemical Engineering Faculty of Engineering, Modibbo Adama University, Yola, Nigeria: **Specialisation:** Process and Environmental Engineering **Publications:** [Google Scholar](#); [Scopus](#). **Email:** timothymusachiroma@gmail.com
- **Dr. Abdulazeez Umar Raji:** Associate Professor at Department of Architecture, Faculty of Earth and Environmental Science, Bayero University Kano, Nigeria: **Specialisations:** Sustainable housing delivery, building energy efficiency, carbon foot print, design-build, construction management, **Publications:** [Google Scholar](#); [Scopus](#). **Email:** auraji.esm@buk.edu.ng

- **Engr. Dr. Ahmadu Umaru Babayi:** Associate Professor at Department of Agricultural and Environmental Engineering, Faculty of Engineering, Modibbo Adama University, Yola, Nigeria: **Specialisations:** Soil and water engineering, **Publications:** Google Scholar; Scopus. **Email:** aubabayi@mau.edu.ng; ababayi234@yahoo.com
- **Dr. Mansur Abdulrasheed:** Senior Lecturer at Department of Microbiology, Faculty of Science, Gombe State University, Gombe State, Nigeria: **Specialisations:** Environmental biotechnology, microbiology, bioremediation, ecotoxicology, biomonitoring and molecular biology. **Publications:** Google Scholar; Scopus. **Email:** a.mansur@gsu.edu.ng
- **Ts. Dr. Djamal Hissein Didane:** Senior Lecturer at Faculty of Mechanical and Manufacturing Engineering, University Tun Hussein Onn Malaysia, Johor, Malaysia: **Specialisations:** Renewable energy, renewable energy technologies, techno-economic assessments of renewable energy resources, wind energy and solar energy. **Publications:** Google Scholar; Scopus. **Email:** djamal@uthm.edu.my
- **Engr. Dr. Nura Usman:** Lecturer at Department of Civil Engineering, Hassan Usman Katsina Polytechnic, Katsina, Katsina State, Nigeria: **Specialisations:** Civil engineering, highway and transportation. **Publication:** Google Scholar; Scopus. **Email:** nuragafai@gmail.com, nura.usman@hukpoly.edu.ng
- **Dr. Mohammed Kabir Aliyu:** Lecturer at Faculty of Civil Engineering and Built Environment, University Tun Hussein Onn Malaysia, Johor, Malaysia: **Specialisations:** Geo-environmental, environmental engineering, water resources management, solid waste management, soil and water engineering, wastewater treatment, Remediation of contaminated sediments/soil, Air pollution and control. **Publications:** Google Scholar; Scopus. **Email:** kabir@uthm.edu.my
- **Dr. Abdulkadir Hassan Disina:** Senior Lecturer at Department of Cyber Security, Faculty of Computing, Nigerian Army University Biu, Borno State Nigeria: **Specialisations:** information technology, cyber security, and cryptography, **Publications:** Google Scholar; Scopus. **Email:** Disina.hassan@naub.edu.ng
- **Dr. Awwal Hussain Nuhu:** Senior Lecturer at Department of Chemistry, Faculty of Science, Bauchi State University Gadau, Bauchi State, Nigeria: **Specialisations:** analytical chemistry, environmental and chemistry, material science metallurgy, **Publications:** Google Scholar; Scopus. **Email:** awwalhussain@basug.edu.ng
- **Dr. Zaharaddeen Abubakar Pindar:** Senior Lecturer at Department of Cyber Security, Faculty of Computing, Nigerian Army University Biu, Borno State Nigeria; Jaiz Bank, Garki Area 3 Abuja, Nigeria **Specialisations:** Information security, cryptography, and internet of things **Publication:** Google Scholar; Scopus. **Email:** deenpindar@gmail.com
- **Dr. Abdulhameed Umar Abubakar:** Senior Lecturer at Department of Civil Engineering, Faculty of Engineering, Modibbo Adama University, Yola, Adamawa State, Nigeria: **Specialisations:** Materials & Structures, **Publications:** Google Scholar; Scopus. **Email:** abdulhameed.umar@mau.edu.ng
- **Dr. Ibrahim Anka Salihu:** Senior Lecturer at Department of Software Engineering, Faculty of Natural and Applied Sciences, Nile University of Nigeria, Abuja FCT, Nigeria: **Specialisations:** Software engineering (software quality & testing, software development methods, cloud computing, internet of things, **Publications:** Google Scholar; Scopus. **Email:** Ibrahim.salihu@nileuniversity.edu.ng
- **Dr. Shuaibu Babaji Sunusi:** Lecturer I, Department of Microbiology, Faculty of Science, Kaduna State University Kaduna, Kaduna State, Nigeria: **Specialisations:** Microbiology (Medical Microbiology), **Publications:** Google Scholar; Scopus. **Email:** sanusishuaibu@gmail.com
- **Engr. Dr. Yahya Ismail Akolawole:** Lecturer, Department of Civil Engineering, Faculty of Engineering, Modibbo Adama University, Yola, Adamawa State, Nigeria: **Specialisations:** Structures, **Publications:** Google Scholar; Scopus. **Email:** ismakola2012@gmail.com

Table of Content

S/No.	Articles	Page
1.	Phytochemical screening and antimicrobial activity of the root of <i>Anogeissus leiocarpus</i> Malgwi, D. W., Kefas W.S., Ezekiel, D. and Nibras, M. A.	052 – 056
2.	Application of response surface methodology for optimization of biodiesel production process parameters Yami, A. M., Ibrahim, M. E., Raji, A. and Abba, A. H.	057 – 066
3.	Investigation of developmental relationship between west and east African regions using socio-economic indicators Rasheed, B. A. and Dalah, M. C.	067 – 074
4.	Identification and classification of high impedance fault on a medium voltage distribution line using radial base function neural network (RBFNN) Ahmad, U., Salisu, S., Jibril, Y. and Almustapa, M. D.	075 – 082
5.	The impact of adjusting turning constant of bisquare psi function on some robust estimators in the presence of outliers Rasheed, B. A. and Dalah, M. C.	082 – 087
6.	Investigation into the effect of Abattoir effluent on opendug wells and boreholes at Zangon Shanu Zaria Kaduna Mohammed, A. A. and Usman, N.	088 – 093
7.	A logistic function for Expectation-Maximization Algorithm with split and merge Ahmed, H., Abdulkadir, A., Lasisi, K. E. and Hassan, H.	094 – 102
8.	An artificial neural network (ANN) model for predicting HIV infection among adolescents in Adamawa State Haruna, U. D. and Samuel, M.	103 - 109