

SUMMARY OF CONTENT

There are six papers in this issue of Petroleum Technology Development Journal. The first paper with the title *Advanced Digital Technology Solutions for Enhancing the Productivity of Marginal Oil and Gas Fields in Nigeria*¹ examines the challenges faced by the Nigerian government in achieving its long-stated dual objectives to increase crude oil reserves and daily production rate to 40 billion barrels and 3 million barrels per day, respectively, and proposes the effective deployment of advanced digital technologies solutions in enhancing the production potentials of the numerous marginal oil and gas fields located in the Niger Delta region of the country. The paper asserts that the marginal oil field development programme is an important aspect of its strategy to achieve this objective.

The second paper is on *Optimization of Biodiesel Production from Rubber Seed Oil Using a Bifunctional Catalyst Derived from Carbide Slag and Pig Bones*.² It explores the utilization of carbide slag from welder's waste as a crucial source of CaO for the development of a bi-functional heterogeneous catalyst, incorporating welder's waste and pig bones, in the simultaneous esterification and transesterification of Rubber seed oil for biodiesel production.

*Optimizing Oil Production In The Niger Delta: A Comparative Analysis of Gas Lift Continuous and Electrical Submersible Pump (ESP) Methods For The JK1 Well Using Prosper Nodal Analysis*³, the third paper provides a cost-effective and professional approach to address the challenge of declining rate of oil production from the oil well through a comparative analysis of artificial lift methods. It explores the performance of gas lift continuous and electrical submersible pump (ESP) in mitigating the declining productivity of the JK1 well, utilizing PROSPER software for comprehensive nodal analysis. The paper provides valuable insights into the selection and operation of artificial lift methods and also emphasizes the critical role of advanced nodal analysis tools like PROSPER in optimizing well performance.

The fourth paper on *Bioethanol Production from Rice Husk Using Naoh Pretreatment and Enzymatic Hydrolysis With Penicillium and Aspergillus Flavus*⁴ demonstrates the effectiveness of sodium hydroxide (NaOH) pretreatment followed by enzymatic hydrolysis by comparing enzymes from *Penicillium* and *Aspergillus flavus* to convert rice husk (RH) into fermentable sugars and bioethanol. The result of the research reveals that increasing NaOH concentration significantly enhances the breakdown of the lignocellulosic structure, leading to higher sugar yields. Also, fourier-transform infrared (FTIR) spectroscopy confirmed the presence of ethanol in the distilled samples, and the confirmatory potassium dichromate test verified the successful production of bioethanol.

*A Review of Strategies and Technologies of Corrosion Prevention of Seawater Pipelines*⁵ the fifth paper is on seawater pipelines and the challenges of corrosion due to the harsh marine environment, and how such corrosion can be prevented. The paper provides a detailed examination of the current strategies and technologies employed to combat corrosion in seawater pipelines. Also, the paper highlights recent advancements and research findings, offering a contemporary perspective on the most effective methods for preventing corrosion. It presents an integrated approach to corrosion prevention, combining traditional practices with cutting-edge

¹ Musa Kalam Abdulkadir

² Kessington Obahiagbon, Chisom Nwafor and David Ohimai Ahonkhai

³ Nura Makwashi, Tochukwu Gerald Ozeh, Muhammad Umar Garba

⁴ U. M. Dundere, N. O. Damudi N.O, N. S. Ahmad, A. Mahmud, F. Muhammad, B.Z. Bello, and A. Aliyu

⁵ Ibrahim Rasaq, Afolabi Oyewole Olusegun, Ibrahim Aminat Mojisola

innovations to enhance the durability and performance of seawater pipelines in various industrial applications.

The sixth paper is on *Developing Present and Future Skills for the Oil and Gas Industry in Nigeria: An Assessment of the Contribution of Petroleum Training Institute (PTI), Effurun, to Development of Manpower*.⁶ The paper highlights various roles and responsibilities that the PTI, plays in high technological training and skills, as well as human resources development for the oil and gas industry. It recommends that PTI should incorporate emerging technologies, sustainability practices, industry demands and other global perspectives into its curricula and training methodologies, to meet future oil and gas industry career challenges.

⁶ Bumie Samuel Ovuru, Adekunle Saheed Ajisebiyawo