

# Publications

## Chemical and Petroleum Engineering

Year 2022

### Journals

1. M.A. Javed, A. Zafar, **S. Al-Zuhair**, A. El Badawy, A. Aly Hassan (2022) Exogenous carbon substrates for biohydrogen production and organics removal using microalgal-bacterial co-culture. *ACS Sustainable Chemistry & Engineering*, 10, 47, 15490–15500
2. S. Al-Mardeai, E. Elnajjar, R. Hashaikeh, B. Kruczek, B. Van der Bruggen, **S. Al-Zuhair** (2022) Membrane Bioreactors: A Promising Approach to Enhanced Enzymatic Hydrolysis of Cellulose. *Catalysts (MDPI)*, 12, 1121.
3. E. Galiwango, M. Ismail, M.S. Ahmad, **S. Al-Zuhair** (2022) Effect of Thermo-responsive Switchable Solvents on Microalgae Cells' Disruption and Non-isothermal Combustion Kinetics. *Biomass Conversion and Biorefinery (Springer)* – 12, 275–3288
4. A. Al Qayoud, **S. Al-Zuhair** (2022) Dynamic Modelling of Enzymatic Hydrolysis of Oil Using Lipase Immobilized on Zeolite. *Sustainability (MDPI)*, 14, 8399
5. R. Shomal, W. Du, **S. Al-Zuhair** (2022) Immobilization of Lipase on Metal-Organic frameworks for biodiesel production. *Journal of Environmental Chemical Engineering (Elsevier)* 10, 107265
6. R. Almansouri, W. Du, **S. Al-Zuhair** (2021) Reaction-Diffusion Model to Describe Biodiesel Production using Lipase Encapsulated in ZIF-8. *FUEL (Elsevier)* 311, 122630
7. M.A. Javed, A.M. Zafar, A.A. Hassan, A.A. Zaidi, M. Farooq, A. El Badawy, T. Lundquist, M.M.A. Mohamed, **S. Al-Zuhair** (2022) The role of oxygen regulation and algal growth parameters in hydrogen production via biophotolysis. *J. of Environmental Chemical Engineering*, 10, 107265
8. Y. Li, H. Zhou, L. Dai, D. Liu, **S. Al-Zuhair**, W. Du (2022) Immobilization of lipase from *Thermomyces lanuginosus* in magnetic macroporous ZIF-8 improves lipase reusability in biodiesel preparation. *ACS Omega*, 7, 274–280
9. S. Al-Mardeai, E. Elnajjar, R. Hashaikeh, B. Kruczek, B. Van der Bruggen, **S. Al-Zuhair** (2022) Simultaneous enzymatic cellulose hydrolysis and product separation in a radial flow membrane bioreactor. *Molecules (MDPI)*, 27, 288
10. L. Ali, H.A. Mousa, M. Al-Harashseh, **S. Al-Zuhair**, B. Abu-Jdayil, M. Al-Marzouqi, M. Altarawneh (2022) Removal of Bromine from the non-metallic fraction in printed circuit board via its Co-pyrolysis with alumina. *Waste Management (Elsevier)* 137, 283–293
11. Mlhem, A., Abu-Jdayil, B., Tong-Earn, T., & Iqbal, M. (2022). Sustainable heat insulation composites from date palm fibre reinforced poly ( $\beta$ -hydroxybutyrate). *Journal of Building Engineering*, 54, 104617. <https://doi.org/10.1016/j.jobbe.2022.104617>
12. Abu-Jdayil, B., Mourad, A. H. I., Hussain, A., & Al Abdallah, H. (2022). Thermal insulation and mechanical characteristics of polyester filled with date seed wastes. *Construction and Building Materials*, 315, 125805. <https://doi.org/10.1016/j.conbuildmat.2021.125805>
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14. Al Abdallah, H., Abu-Jdayil, B., & Iqbal, M. Z. (2022). Improvement of mechanical properties and water resistance of bio-based thermal insulation material via silane treatment. *Journal of Cleaner Production*, 346, 131242. <https://doi.org/10.1016/j.jclepro.2022.131242>
15. Abdalla, Abdelmoneim, et al. "Low-fat akawi cheese made from bovine-camel milk blends: Rheological properties and microstructural characteristics." *Journal of Dairy Science* 105.6 (2022): 4843-4856. <https://doi.org/10.3168/jds.2021-21367>
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17. Abu-Jdayil B., Al Abdallah H., Mlhem A., Alkhatib S., El Sayah A., Hussein H., Althabahi A., AlAydaros A. (2022). Utilization of Polyurethane Foam Dust in Development of Thermal Insulation Composite. *Buildings*, 12, 126. <https://doi.org/10.3390/buildings12020126>
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  20. Raza, M., Abdallah, H. A., Abdullah, A., & Abu-Jdayil, B. (2022). Date Palm Surface Fibers for Green Thermal Insulation. *Buildings*, 12(6), 866. <https://doi.org/10.3390/buildings12060866>
  21. Ali, L., Mousa, H. A., Al-Harashsheh, M., Al-Zuhair, S., Abu-Jdayil, B., Al-Marzouqi, M., & Altarawneh, M. (2022). Removal of Bromine from the non-metallic fraction in printed circuit board via its Co-pyrolysis with alumina. *Waste Management*, 137, 283-293. <https://doi.org/10.1016/j.wasman.2021.11.025>
  22. Al Abdallah, H., Abu-Jdayil, B., & Iqbal, M. Z. (2022). The Effect of Alkaline Treatment on Poly (lactic acid)/Date Palm Wood Green Composites for Thermal Insulation. *Polymers*, 14(6), 1143. <https://doi.org/10.3390/polym14061143>
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  30. Vinodh, R.; Babu, R.S.; Sambasivam, S.; Gopi, C.V.V.M.; **Alzahmi, S.**; Kim, H.-J.; de Barros, A.L.F.; Obaidat, I.M. Recent Advancements of Polyaniline/Metal Organic Framework (PANI/MOF) Composite Electrodes for Supercapacitor Applications: A Critical Review. *Nanomaterials* **2022**, 12, 1511. <https://doi.org/10.3390/nano12091511>
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  32. Kumar, Y.A.; Das, H.T.; Guddeti, P.R.; Nallapureddy, R.R.; Pallavolu, M.R.; **Alzahmi, S.**; Obaidat, I.M. Self-Supported Co<sub>3</sub>O<sub>4</sub>@Mo-Co<sub>3</sub>O<sub>4</sub> Needle-like Nanosheet Heterostructured Architectures of Battery-Type Electrodes for High-Performance Asymmetric Supercapacitors. *Nanomaterials* **2022**, 12, 2330. <https://doi.org/10.3390/nano12142330>
  33. Moniruzzaman, M.; Anil Kumar, Y.; Pallavolu, M.R.; Arbi, H.M.; **Alzahmi, S.**; Obaidat, I.M. Two-Dimensional Core-Shell Structure of Cobalt-Doped@MnO<sub>2</sub> Nanosheets Grown on Nickel Foam as a Binder-Free Battery-Type Electrode for Supercapacitor Application. *Nanomaterials* **2022**, 12, 3187.

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39. **Mamdouh T. Ghannam**, Basim Abu-Jdayil, Mohamed Y. E. Selim, and Nabil Esmail, "Comparison of Synthetic and Natural Polymers-Oil Emulsions in Terms of Viscous and Elastic Behaviors", *Petroleum Science and Technology*, doi.org/10.1080/10916466.2022.2072332 (2022).
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#### Conferences

1. A. Alraeesi, E. Al-Ameri<sup>1</sup>, A. Giwa, **S. Al-Zuhair**, H. Taher (2022) Switchable solvents for regeneration and reusability of peat-derived biochars used in environment management. 4<sup>th</sup> Euro-Mediterranean Conference for Environmental Integration (EMCEI-22), Tunisia, 2022.
2. S. AlMardeai and **S. Al-Zuhair** (2021) Dynamic Model of Glucose Diffusion in a Novel Membrane Bioreactor. The Canadian Chemical Engineering Conference (CCEC), Oct., 2022.
3. Tannous, J. H. (2022). Non-catalytic sulfur ring-opening of thiophenes in the absence of molecular hydrogen. Seventh International Conference on Water, Energy and Environment (ICWEE), Nov., 2022
4. N. Ghasem, Regeneration of an Aqueous Potassium Lysinate to Capture CO<sub>2</sub> in A Membrane Unit, Proceedings of the 9<sup>th</sup> International Conference on Fluid Flow, Heat and Mass Transfer (FFHMT'22) Niagara Falls, Canada – June 08-10, 2022.
5. **Tang, J.**, Castaneda, P., Marchesin, D., & Rossen, W. R. (2022). Foam-Oil Displacements in Porous Media: Insights from Three-Phase Fractional-Flow Theory. Paper presented at the **ADIPEC**, Abu Dhabi, UAE, October 2022.
6. Wei, B., Mao, R., Tian, Q., Lei, W., **Tang, J.**, Wang, D., & Lu, J. (2022). Mechanically-Robust Nanocellulose Engineered Preformed-Particle-Gel for Conformance Control in Fractured Tight Reservoirs: Transport Through Proppant-Packed Porous Media. Paper presented at the **SPE Annual Technical Conference and Exhibition**, Houston, Texas, USA, October 2022.
7. Wei, B., Mao, R., Tian, Q., Xu, X., Wang, L., **Tang, J.**, & Lu, J. (2022). Conformance Improvement in Fractured Tight Reservoirs Using a Mechanically Robust and Eco-Friendly Particle Gel PG. Paper presented at the **SPE Improved Oil Recovery Conference**, Virtual, April 2022.

#### Book Chapters

1. N. Ghasem, Modeling and simulation of membrane-assisted separation of carbon dioxide and hydrogen from syngas, in: *Adv. Synth. Gas Methods, Technol. Appl. Vol. 4 Syngas Process Model. Appar. Simul.*, 2022: pp. 199–218. <https://doi.org/10.1016/B978-0-323-91879-4.00019-9>.

#### Patents

1. **US Patent 11,499,132 B1**: Membrane bioreactor for simultaneous enzymatic Cellulose Hydrolysis and Product Separation
2. Abu-Jdayil, B., M. Raza, H. Al Abdallah - Thermal Insulating Material from Date Palm Surface Fibers and a Method of Making Same, US Patent 11255052; February 22, 2022. <https://patents.google.com/patent/US11255052B1/en>
3. Abu-Jdayil, Basim, Waleed Khalil Ahmed, Amged Elhassan, and Mohsin Raza. "Biodegradable composite insulation material and method of making the same." U.S. Patent 11,359,095, issued June 14, 2022. <https://patents.google.com/patent/US11359095B1/en>