

Auburn University Biosystems Engineering

Bioprocess Engineering Research Focus Area 2023 Publications

- Ashish Bhattarai*, Ayden Kemp**, Hossein Jahromi, Sagar Kafle*, Sushil Adhikari. 2023. Thermochemical characterization and kinetics of biomass, municipal plastic waste, and coal blends and their potential for energy generation via gasification. *ACS Omega*. Vol. 8(48). Pg. 45985-46001.
- Rohit Kalvakaalva, Mollie Smith, Stephen A Prior, G Brett Runion, Emmanuel Ayipio, Caroline Blanchard, Daniel Wells, David Blersch, Sushil Adhikari, Rishi Prasad, Terril R Hanson, Brendan T Higgins. 2023. Life cycle assessment of a decoupled biofloc aquaponics facility across seasons. *Journal of Cleaner Production*. Vol. 429. Pg. 139356.
- Bijoy Biswas*, Tawsif Rahman*, Manish Sakhakarmy*, Hossein Jahromi, Mohamed Eisa, Jonas Baltrusaitis, Jasmeet Lamba, Allen Torbert and Sushil Adhikari. 2023. Phosphorus adsorption using chemical and metal chloride activated biochars: Isotherms, kinetics and mechanism study. *Heliyon*. Vol. 9. e19830.
- Tawsif Rahman*, Hossein Jahromi, Poulami Roy*, Ashish Bhattarai*, Mohamed Ammar, Jonas Baltrusaitis, and Sushil Adhikari. 2023. Depolymerization of household plastic waste via catalytic hydrothermal liquefaction. *Energy & Fuels*. Vol. 37 (17), pg. 13202–13217.
- Daniel A Meadows, Delaney E Clouse, Sushil Adhikari, Virginia A Davis. Prediction of structural properties of activated carbons derived from lignocellulosic biomass components using mixture design of experiments. *Materials Chemistry and Physics*. Vol. 303. Pg. 127715.
- Poulami Roy*, Tawsif Rahman*, Robert L Jackson, Hossein Jahromi, Sushil Adhikari. Hydrocarbon biolubricants from hydrotreated renewable and waste derived liquid intermediates. *Journal of Cleaner Production*. Vol. 409. Pg. 137120.
- Samuel Krebsbach, Jianzhou He, Sushil Adhikari, Yaniv Olshansky, Farshad Feyzbar, Leonard C Davis, Tae-Sik Oh, Dengjun Wang. Mechanistic understanding of perfluorooctane sulfonate (PFOS) sorption by biochars. *Chemosphere*. Vol. 30. Pg. 138661.
- Poulami Roy*, Hossein Jahromi, Tawsif Rahman*, Jonas Baltrusaitis, El B. Hassan, Allen Torbert, Sushil Adhikari. 2023. Hydrotreatment of pyrolysis bio-oil with non-edible carinata oil and poultry fat for producing transportation fuels. *Fuel Processing Technology*. Vol. 245, pg. 107753.
- Z. Sun, Y. Wei, X. Song, B.T. Higgins, Z. Huang, W. Hao, M. Li. 2023. Using a microbial fuel cell to balance the carbon-nitrogen mismatch in submerged fixed-bed reactors for the resilient treatment of mariculture wastewater. *Journal of Water Process Engineering*. 53. 103629.
- Wang, Q., E. Childree**, J. Box**, M. López-Vela, D. Sprague*, J. Cheronos*, B.T. Higgins¹. 2023. Microalgae can promote nitrification in poultry processing wastewater in the presence and absence of antimicrobial agents. *ACS ES&T Engineering*. 3(4): 568-579.
- Venkatachalam, P., Sriariyanun, M., Shanmugam, S. R., Selvasembian, R. 2024. Biochar as a catalyst in Biorefineries: A sustainable recovery of waste materials. *Applied Science and Engineering Progress*, 17 (2), 7290.
- Sivaraman, S.*, Shanmugam, S. R., Veerapandian, B.*, Venkatachalam, P. 2023. Understanding the pyrolysis kinetics, thermodynamic, and environmental sustainability parameters of *Sesamum indicum* crop residue. *Environmental Research Communications*, 5, Article No. 125013.
- Veerapandian, B.*, Kumara Raja, T., Shanmugam, S. R., Saraweddy, K. K.*, Mani, K. P., Venkatachalam, P. 2023. In vitro drug release and stability assessment of tailored Levan-Chitosan biocomposite hydrogel. *Iranian Polymer Journal*. <https://doi.org/10.1007/s13726-023-01229-x>.
- Veerapandian, B.*, Shanmugam, S.R., Sivaraman, S.*, Sriariyanun, M., Karuppiyah, S., Venkatachalam, P. Production and Characterization of Microbial Levan Using Sugarcane (*Saccharum* spp.) juice and Chicken Feather Peptone as a Low-cost Alternate Medium. *Heliyon* (2023), 9 (6), June 2023, e17424.
- Krishnan, S.*, Sivaraman, S.*, Jothipandian, S.*, Venkatachalam, P., Shanmugam, S.R., Paramasivam, N. Bioprospecting of aqueous phase from pyrolysis of plant waste residues to disrupt MRSA biofilms. *Biofouling* (2023), 39 (2), 231-243.
- Luan, D., Li, S., Wang, Y., and Wang, Y., 2023. Non-thermal effects of microwave on amino acids in rainbow trout (*Oncorhynchus mykiss*) fillets during microwave sterilization. *Food Research International*, DOI: 10.1016/j.foodres.2023.113352.
- Wang, S., Zhang, J., Wang, Y., Zhu, Q., Wang, X., and Luan, D., 2023. Effects of microwave pasteurization on the quality and shelf life of low sodium and intermediate moisture Pacific saury (*Cololabis saira*). *Foods*, DOI: 10.3390/foods12102000.
- Li, X., Liu X., Lai, K., Fan, Y., Liu, Y., Wang, Y., and Huang, Y., 2023. Effects of acetic, malic and citric acids on the large deformation behaviors of fish gelatin gels. *Journal of Texture Studies*, DOI: 10.1111/jtxs.12767.
- Hao, Yi ; Zhang, Mengmeng; Liu, Boqiang; Ma, Wenya; Dong, Qingfeng; Fan, Min; Wang, Yifen; Li, L., 2023. Nonmigrating active antibacterial packaging: Antimicrobial mechanism against *Staphylococcus aureus* and its application in large yellow croaker. *ACS Sustainable Chemistry & Engineering*, DOI: 10.1021/acssuschemeng.2c07273.

- Wang, P., Wang, Y., Peng, Y. and Liu, S., 2023. Non-isothermal crystallization kinetics of polypropylene homopolymer/impact copolymer composites. *Journal of Thermal Analysis and Calorimetry*, DOI: 10.1007/s10973-023-11985-w.
- Ma, Y., Guo, N., Li, X., Jiang, Z., Zhang, D., Guo, L. and Wang, Y. 2023. Development of an efficient recombinant protein expression system in *Clostridium saccharoperbutylacetonicum* based on the bacteriophage T7 system. *ACS Synthetic Biology*, 12 (10), 3092.
- Wang, H., Hu, C., Wang, Y., Zhao, Y., Jin, C., Guo, L. 2023. Elucidating microalgae-mediated metabolism for sulfadiazine removal mechanism and transformation pathways. *Environmental Pollution*, 327, 121598.
- Xing, D., Li, Z., Wang, Y., Deng, S., Jin, C., Zhao, Y., Guo, L. 2023. The comprehensive impact of phosphorus sources on microalgae biochemical metabolism and phosphorus transformation. *Journal of Water Process Engineering*, 51, 103477.