

# Research Publications 2018

- 1) Haider, J., Qyyum, M.A., Hussain, A., Yasin, M., Lee, M. Techno-economic analysis of various process schemes for the production of fuel grade 2,3-butanediol from fermentation broth (2018) *Biochemical Engineering Journal*, 140, pp. 93-107
- 2) Eliseus, A., Bilad, M.R., Nordin, N.A.H.M., Khan, A.L., Putra, Z.A., Wirzal, M.D.H., Aslam, M., Aqsha, A., Jaafar, J. Two-way switch: Maximizing productivity of tilted panel in membrane bioreactor (2018) *Journal of Environmental Management*, 228, pp. 529-537.
- 3) Khurram, M.S., Choi, J.-H. Effect of lower bed height on collapse velocity in the two-stage bubbling fluidized-bed with a standpipe for solid transport (2018) *Korean Chemical Engineering Research*, 56 (6), pp. 864-870.
- 4) Sohail, A., Sherin, L., Li, Z., Chaudhry, Q.A. Embodied modeling approach to explore tumour cells drug resistance (2018) *Complex Adaptive Systems Modeling*, 6 (1), art. no. 3
- 5) Hussain, A., Riaz, A., Qyyum, M.A., Lee, M. Design trade-offs in a column with side-reactor configuration for improving selectivity in multiple reaction systems (2018) *Chemical Engineering and Processing - Process Intensification*, 134, pp. 86-96.
- 6) Al-Muhtaseb, A.H., Jamil, F., Al-Haj, L., Zar Myint, M.T., Mahmoud, E., Ahmad, M.N.M., Hasan, A.O., Rafiq, S. Biodiesel production over a catalyst prepared from biomass-derived waste date pits (2018) *Biotechnology Reports*, 20, art. no. e00284
- 7) Kim, D., Won, Y.S., Khurram, M.S., Joo, J.B., Choi, J.-H., Ryu, H.-J. A model for predicting transport velocity in gas fluidized-beds (2018) *Advanced Powder Technology*, 29 (12), pp. 3070-3078
- 8) Shehzad, N., Tahir, M., Johari, K., Murugesan, T., Hussain, M. Improved interfacial bonding of graphene-TiO<sub>2</sub> with enhanced photocatalytic reduction of CO<sub>2</sub> into solar fuel (2018) *Journal of Environmental Chemical Engineering*, 6 (6), pp. 6947-6957.
- 9) Aslam, M., Ahmad, R., Yasin, M., Khan, A.L., Shahid, M.K., Hossain, S., Khan, Z., Jamil, F., Rafiq, S., Bilad, M.R., Kim, J., Kumar, G. Anaerobic membrane bioreactors for biohydrogen production: Recent developments, challenges and perspectives (2018) *Bioresource Technology*, 269, pp. 452-464.
- 10) Khan, A., Ali, M., Ilyas, A., Naik, P., Vankelecom, I.F.J., Gilani, M.A., Bilad, M.R., Sajjad, Z., Khan, A.L. ZIF-67 filled PDMS mixed matrix membranes for recovery of ethanol via pervaporation (2018) *Separation and Purification Technology*, 206, pp. 50-58.
- 11) Aslam, M., Ahmad, R., Kim, J. Recent developments in biofouling control in membrane bioreactors for domestic wastewater treatment (2018) *Separation and Purification Technology*, 206, pp. 297-315.
- 12) Akhtar, J., Yaqub, M.I., Iqbal, J., Sheikh, N., Saba, T. Way forward in meeting energy challenges in Pakistan (2018) *International Journal of Ambient Energy*, 39 (8), pp. 904-908.
- 13) Zagho, M.M., AlMaadeed, M.A., Majeed, K. Thermal properties of TiO<sub>2</sub>NP/CNT/LDPE hybrid nanocomposite films (2018) *Polymers*, 10 (11), art. no. 1270.
- 14) Ahmed, A., Abu Bakar, M.S., Azad, A.K., Sukri, R.S., Phusunti, N. Intermediate pyrolysis of *Acacia cincinnata* and *Acacia holosericea* species for bio-oil and biochar production (2018) *Energy Conversion and Management*, 176, pp. 393-408.

- 15) Ilyas, A., Muhammad, N., Gilani, M.A., Vankelecom, I.F.J., Khan, A.L. Effect of zeolite surface modification with ionic liquid [APTMS][Ac] on gas separation performance of mixed matrix membranes (2018) *Separation and Purification Technology*, 205, pp. 176-183.
- 16) Chawla, M., Rafiq, S., Jamil, F., Usman, M.R., Khurram, S., Ghauri, M., Muhammad, N., Al-Muhtaseb, A.H., Aslam, M. Hydrocarbons fuel upgradation in the presence of modified bi-functional catalyst (2018) *Journal of Cleaner Production*, 198, pp. 683-692.
- 17) Ullah, Z., Khan, A.S., Muhammad, N., Ullah, R., Alqahtani, A.S., Shah, S.N., Ghanem, O.B., Bustam, M.A., Man, Z. A review on ionic liquids as perspective catalysts in transesterification of different feedstock oil into biodiesel (2018) *Journal of Molecular Liquids*, 266, pp. 673-686.
- 18) Asghar, H., Ilyas, A., Tahir, Z., Li, X., Khan, A.L. Fluorinated and sulfonated poly (ether ether ketone) and Matrimid blend membranes for CO<sub>2</sub> separation (2018) *Separation and Purification Technology*, 203, pp. 233-241.
- 19) Khan, Z., Yusup, S., Kamble, P., Naqvi, M., Watson, I. Assessment of energy flows and energy efficiencies in integrated catalytic adsorption steam gasification for hydrogen production (2018) *Applied Energy*, 225, pp. 346-355.
- 20) Eliseus, A., Putra, Z.A., Bilad, M.R., Nordin, N.A.H.M., Wirzal, M.D.H., Jaafar, J., Khan, A.L., Aqsha Energy minimization of a tilted panel filtration system for microalgae filtration: Performance modeling and optimization (2018) *Algal Research*, 34, pp. 104-115.
- 21) Faisal, A., Zhou, M., Hedlund, J., Grahn, M. Zeolite MFI adsorbent for recovery of butanol from ABE fermentation broths produced from an inexpensive black liquor-derived hydrolyzate (2018) *Biomass Conversion and Biorefinery*, 8(3), pp. 679-687.
- 22) Khan, Z., Yusup, S., Ahmad, M.M., Inayat, A., Naqvi, M., Sheikh, R., Watson, I. Integrated catalytic adsorption steam gasification in a bubbling fluidized bed for enhanced H<sub>2</sub> production: perspective of design and pilot plant experiences (2018) *Biofuels, Bioproducts and Biorefining*, 12 (5), pp. 735-748.
- 23) Jang, N., Yasin, M., Kang, H., Lee, Y., Park, G.W., Park, S., Chang, I.S. Bubble coalescence suppression driven carbon monoxide (CO)-water mass transfer increase by electrolyte addition in a hollow fiber membrane bioreactor (HFMBR) for microbial CO conversion to ethanol (2018) *Bioresource Technology*, 263, pp. 375-384.
- 24) Ahmad, R., Aslam, M., Park, E., Chang, S., Kwon, D., Kim, J. Submerged low-cost pyrophyllite ceramic membrane filtration combined with GAC as fluidized particles for industrial wastewater treatment (2018) *Chemosphere*, 206, pp. 784-792.
- 25) Rizwan, M., Mujtaba, G., Memon, S.A., Lee, K., Rashid, N. Exploring the potential of microalgae for new biotechnology applications and beyond: A review (2018) *Renewable and Sustainable Energy Reviews*, 92, pp. 394-404.
- 26) Dong, Y., Shah, S.N., Pranesh, M., Prokkola, H., Kärkkäinen, J., Leveque, J.-M., Lassi, U., Lethesh, K.C. Azepanium based protic ionic liquids: Synthesis, thermophysical properties and COSMO-RS study (2018) *Journal of Molecular Liquids*, 264, pp. 24-31.
- 27) Ali, A., Bilal, M., Khan, R., Farooq, R., Siddique, M. Ultrasound-assisted adsorption of phenol from aqueous solution by using spent black tea leaves (2018) *Environmental Science and Pollution Research*, 25 (23), pp. 22920-22930.

- 28) Irfan, M., Moniruzzaman, M., Ahmad, T., Osman, O.Y., Mandal, P.C., Bhattacharjee, S., Hussain, M. Stability, interparticle interactions and catalytic performance of gold nanoparticles synthesized through ionic liquid mediated oil palm leaves extract (2018) *Journal of Environmental Chemical Engineering*, 6 (4), pp. 5024-5031.
- 29) Ashfaq, M., Li, Y., Wang, Y., Qin, D., Rehman, M.S.U., Rashid, A., Yu, C.-P., Sun, Q. Monitoring and mass balance analysis of endocrine disrupting compounds and their transformation products in an anaerobic-anoxic-oxic wastewater treatment system in Xiamen, China (2018) *Chemosphere*, 204, pp. 170-177.
- 30) Shaheen, F., Aziz, M.H., Fatima, M., Khan, M.A., Ahmed, F., Ahmad, R., Ahmad, M.A., Alkhuraiji, T.S., Akram, M.W., Raza, R., Ali, S.M. In vitro cytotoxicity and morphological assessments of GO-ZnO against the MCF-7 cells: Determination of singlet oxygen by chemical trapping (2018) *Nanomaterials*, 8 (7), art. no. 539.
- 31) Ali, A., Shehzad Bashir, F., Raza, R., Rafique, A., Kaleem Ullah, M., Alvi, F., Afzal, M., Ghauri, M., Belova, L.M. Electrochemical study of composite materials for coal-based direct carbon fuel cell (2018) *International Journal of Hydrogen Energy*, 43 (28), pp.
- 32) Shah, N.S., Rizwan, A.D., Khan, J.A., Sayed, M., Khan, Z.U.H., Murtaza, B., Iqbal, J., Din, S.U., Imran, M., Nadeem, M., Al-Muhtaseb, A.H., Muhammad, N., Khan, H.M., Ghauri, M., Zaman, G. Toxicities, kinetics and degradation pathways investigation of ciprofloxacin degradation using iron-mediated H<sub>2</sub>O<sub>2</sub> based advanced oxidation processes (2018) *Process Safety and Environmental Protection*, 117, pp. 473-482.
- 33) Zubair, M., Kim, H., Razaq, A., Grimes, C.A., In, S.-I. Solar spectrum photocatalytic conversion of CO<sub>2</sub> to CH<sub>4</sub> utilizing TiO<sub>2</sub> nanotube arrays embedded with graphene quantum dots (2018) *Journal of CO<sub>2</sub> Utilization*, 26, pp. 70-79.
- 34) Shehzad, N., Tahir, M., Johari, K., Murugesan, T., Hussain, M. A critical review on TiO<sub>2</sub> based photocatalytic CO<sub>2</sub> reduction system: Strategies to improve efficiency (2018) *Journal of CO<sub>2</sub> Utilization*, 26, pp. 98-122.
- 35) Nawaz, R., Rashid, N., Ali, Z., Khan, A.U., Nazir, M.S., Ul-Haq, N. Effects on Thermal and Ablative Properties of Phenolic Resin (Novolac) Blended Acrylonitrile Butadiene Rubber (2018) *Fibers and Polymers*, 19 (6), pp. 1318-1326.
- 36) Charfi, A., Park, E., Aslam, M., Kim, J. Particle-sparged anaerobic membrane bioreactor with fluidized polyethylene terephthalate beads for domestic wastewater treatment: Modelling approach and fouling control (2018) *Bioresource Technology*, 258, pp. 263-269.
- 37) Imran, S.M., Salman, A., Shao, G.N., Haider, M.S., Abbas, N., Park, S., Hussain, M., Kim, H.T. Study of the electroconductive properties of conductive polymers-graphene/graphene oxide

nanocomposites synthesized via in situ emulsion polymerization (2018) *Polymer Composites*, 39 (6), pp. 2142-2150.

- 38) Shah, S.N., Pranesh, M., Raj, J.J., Mutalib, M.I.A., Lethesh, K.C., Ghanem, O.B., Ullah, Z. De-acidification of crude oil using supported ionic liquids phases (2018) *Separation and Purification Technology*, 196, pp. 96-105.
- 39) Kamble, P., Khan, Z., Gillespie, M., McCalmont, J., Donnison, I., Watson, I. Robust instrumentation and control systems for gasification of biomass (2018) *European Biomass Conference and Exhibition Proceedings, 2018 (26thEUBCE)*, pp. 516-520.
- 40) Khan, A.N., Waheed, Q., Jan, R., Yaqoob, K., Ali, Z., Gul, I.H. Experimental and theoretical correlation of reinforcement trends in acrylonitrile butadiene styrene/single-walled carbon nanotubes hybrid composites (2018) *Polymer Composites*, 39, pp.
- 41) Aslam, M., Yang, P., Lee, P.-H., Kim, J. Novel staged anaerobic fluidized bed ceramic membrane bioreactor: Energy reduction, fouling control and microbial characterization (2018) *Journal of Membrane Science*, 553, pp. 200-208.
- 42) Lee, S.H., Lee, K.-S., Sorcar, S., Razzaq, A., Grimes, C.A., In, S.-I. Wastewater treatment and electricity generation from a sunlight-powered single chamber microbial fuel cell (2018) *Journal of Photochemistry and Photobiology A: Chemistry*, 358, pp. 432-440.
- 43) Ahmad, N., Abnisa, F., Wan Daud, W.M.A. Liquefaction of natural rubber to liquid fuels via hydrous pyrolysis (2018) *Fuel*, 218, pp. 227-235.
- 44) Ahmad, N., Dayana, S.A.S., Abnisa, F., Mohd, W.A.W.D. Natural rubber, a potential alternative source for the synthesis of renewable fuels via Hydrous Pyrolysis (2018) *IOP Conference Series: Materials Science and Engineering*, 334 (1), art. no. 012004.
- 45) Javed, U., Farooq, R., Shehzad, F., Khan, Z. Optimization of HNO<sub>3</sub> leaching of copper from old AMD Athlon processors using response surface methodology (2018) *Journal of Environmental Management*, 211, pp. 22-27.
- 46) Shahzad, Y., Saeed, S., Ghori, M.U., Mahmood, T., Yousaf, A.M., Jamshaid, M., Sheikh, R., Rizvi, S.A.A. Influence of polymer ratio and surfactants on controlled drug release from cellulosic microsponges (2018) *International Journal of Biological Macromolecules*, 109, pp. 963-970.
- 47) Qadeer, S., Mahmood, S., Anjum, M., Ilyas, N., Ali, Z., Khalid, A. Synchronization of lipid-based biofuel production with waste treatment using oleaginous bacteria: A biorefinery concept (2018) *Process Safety and Environmental Protection*, 115, pp. 99-107

- 48) Tahir, Z., Ilyas, A., Li, X., Bilad, M.R., Vankelecom, I.F.J., Khan, A.L. Tuning the gas separation performance of fluorinated and sulfonated PEEK membranes by incorporation of zeolite 4A (2018) *Journal of Applied Polymer Science*, 135 (10), art. no. 45952,
- 49) Ahmed, A., Hidayat, S., Abu Bakar, M.S., Azad, A.K., Sukri, R.S., Phusunti, N. Thermochemical characterisation of *Acacia auriculiformis* tree parts via proximate, ultimate, TGA, DTG, calorific value and FTIR spectroscopy analyses to evaluate their potential as a biofuel resource (2018) *Biofuels*, pp. 1-12
- 50) Ghanem, O.B., Shah, S.N., Lévêque, J.-M., Mutalib, M.I.A., El-Harbawi, M., Khan, A.S., Alnarabiji, M.S., Al-Absi, H.R.H., Ullah, Z. Study of the antimicrobial activity of cyclic cation-based ionic liquids via experimental and group contribution QSAR model (2018) *Chemosphere*, 195, pp. 21-28
- 51) Shehzad, N., Johari, K., Murugesan, T., Tahir, M. Graphene Oxide as An Efficient Photocatalyst For Photocatalytic Reduction of CO<sub>2</sub> Into Solar Fuel (2018) *International Journal of Automotive and Mechanical Engineering*, 15 (1), pp. 4909-4918.
- 52) Rashid, N., Park, W.-K., Selvaratnam, T. Binary culture of microalgae as an integrated approach for enhanced biomass and metabolites productivity, wastewater treatment, and bioflocculation (2018) *Chemosphere*, 194, pp. 67-75
- 53) Suleman, H., Maulud, A.S., Shah, S.N., Man, Z., Mutalib, M.I.A. Thermodynamic modelling of liquid-liquid extraction systems involving ionic liquids: A new approach (2018) *Journal of Molecular Liquids*, 252, pp. 18-23.
- 54) Majeed, K., AlAli AlMaadeed, M., Zagho, M.M. Comparison of the effect of carbon, halloysite and titania nanotubes on the mechanical and thermal properties of LDPE based nanocomposite films (2018) *Chinese Journal of Chemical Engineering*, 26 (2), pp. 428-435.
- 55) Yang, M., Rehman, M.S.U., Yan, T., Khan, A.U., Oleskowicz-Popiel, P., Xu, X., Cui, P., Xu, J. Treatment of different parts of corn stover for high yield and lower polydispersity lignin extraction with high-boiling alkaline solvent (2018) *Bioresource Technology*, 249, pp. 737-743.
- 56) Khalid, B., Rahim, A., Gilani, M.A., Muhammad, N., Younus, A.R., Tabassum, S., Iqbal, J., Alharthi, A.I. In situ immobilization of CuO on SiO<sub>2</sub>/graphite matrix, modified with benzimidazolium-1-acetate ionic liquid: Application as catechol sensor (2018) *Journal of Molecular Liquids*, 251, pp. 450-457
- 57) Ahmed, A., Abu Bakar, M.S., Azad, A.K., Sukri, R.S., Mahlia, T.M.I. Potential thermochemical conversion of bioenergy from *Acacia* species in Brunei Darussalam: A review (2018) *Renewable and Sustainable Energy Reviews*, 82, pp. 3060-3076

- 58) Fazal, T., Mushtaq, A., Rehman, F., Ullah Khan, A., Rashid, N., Farooq, W., Rehman, M.S.U., Xu, J. Bioremediation of textile wastewater and successive biodiesel production using microalgae (2018) *Renewable and Sustainable Energy Reviews*, 82, pp. 3107-3126.
- 59) Tahir, H., Shahzad, Y., Waters, L.J., Hussain, T., Yousaf, A.M., Mahmood, T., Sheikh, R. Impact of processing methods on the dissolution of artemether from two non-ordered mesoporous silicas (2018) *European Journal of Pharmaceutical Sciences*, 112, pp. 139-145.
- 60) Amin, M.R., Al-Harhi, M.A., Imran, S.M., Hussain, M. Effect of Nanoparticles on Mechanical and Flame-retardant Properties of Polyether-Block-Polyamide Polymer Nanocomposites (2018) *Polymer - Plastics Technology and Engineering*, 57 (1), pp. 38-45.
- 61) Ur-Rehman, M., Khurram, M.Sh., Rafiq, S., Memon, Sh.A., Ghauri, M., Jamil, F., Jaffery, M.H., Doggar, M.Gh. Modeling of organic Rankine cycle for suitable working fluid in HYSYS for power generation in Pakistan (2018) *Bulgarian Chemical Communications*, 50 (2), pp. 254-264
- 62) Syachruddin, A.R., Syukur, A., Suryaningsih, S., Rahmawati, R., Khan, A.L. Effect of shell color and nursery depth on the growth of pearl oyster *pinctada maxima* in Tekalok West Nusa Tenggara Indonesia (2018) *Indonesian Journal of Science and Technology*, 3 (2), pp. 105-114.
- 63) Nawari, N.I.M., Bilal, M.R., Nordin, N.A.H.M., Mavukkandy, M.O., Putra, Z.A., Wirzal, M.D.H., Jaafar, J., Khan, A.L. Exploiting the interplay between liquid-liquid demixing and crystallization of the PVDF membrane for membrane distillation (2018) *International Journal of Polymer Science*, 2018, art. no. 1525014
- 64) Attique, S., Batool, M., Jalees, M.I., Shehzad, K., Farooq, U., Khan, Z., Ashraf, F., Shah, A.T. Highly efficient catalytic degradation of low-density polyethylene Using a novel tungstophosphoric acid/kaolin clay composite catalyst (2018) *Turkish Journal of Chemistry*, 42 (3), pp. 684-693.
- 65) Tahir, M. Photocatalytic carbon dioxide reduction to fuels in continuous flow monolith photoreactor using montmorillonite dispersed Fe/TiO<sub>2</sub> nanocatalyst (2018) *Journal of Cleaner Production*, 170, pp. 242-250.
- 66) Majeed, K., Arjmandi, R., Hassan, A. Mechanical and oxygen barrier properties of LDPE/MMT/MAPE and LDPE/MMT/EVA nanocomposite films: A comparison study (2018) *Journal of Physical Science*, 29 (1), pp. 43-58.
- 67) Gilani, M.A., Tabassum, S., Gul, U., Mahmood, T., Alharhi, A.I., Alotaibi, M.A., Geesi, M., Sheikh, R., Ayub, K. Copper-doped Al<sub>12</sub>N<sub>12</sub> nano-cages: potential candidates for nonlinear optical materials (2018) *Applied Physics A: Materials Science and Processing*, 124 (1), art. no. 14.
- 68) Bhatti, H.T., Ahmad, N.M., Niazi, M.B.K., Alvi, M.A.U.R., Ahmad, N., Anwar, M.N., Cheema, W., Tariq, S., Batool, M., Aman, Z., Janjua, H.A., Khan, A.L., Khan, A.U. Graphene Oxide -PES-Based

Mixed Matrix Membranes for Controllable Antibacterial Activity against *Salmonella typhi* and Water Treatment (2018) *International Journal of Polymer Science*, 2018, art. no. 7842148

- 69) Jamshaid, A., Iqbal, J., Hamid, A., Ghauri, M., Muhammad, N., Nasrullah, A., Rafiq, S., Shah, N.S. Fabrication and Evaluation of Cellulose-Alginate-Hydroxyapatite Beads for the Removal of Heavy Metal Ions from Aqueous Solutions (2018) *Zeitschrift für Physikalische Chemie*.