

Design and Analysis of Chemical Engineering

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Journal of Chemical Engineering and Process Technology Volume 7, Issue 3, published 9 research articles with advanced technological inputs to elucidate novel chemical entities as therapeutic agents.

Shrestha in his study employed several advanced techniques like field emission scanning electron microscope (FE-SEM), scanning electron microscope coupled with energy dispersive X-ray (SEM-EDX), X-ray diffraction/X-ray powder diffraction (XRD/XRPD), and multiple internal reflectance (MIR) or attenuated transform reflectance – fourier transform infrared spectroscopy (ATR-FTIR) technique in order to study the chemical, structural, and elemental characterization of powdered *Pinus densiflora* pine cones, lignite and coconut shell-based activated carbon fiber (ACF), and powdered oyster shell prior employed for anionic surfactant sodium dodecyl sulfate (SDS) adsorption [1].

A study of Salama et al. investigated the commercially activated carbon for water purification to improve its adsorption capacity towards the removal of free chlorine from water. Carbons used in this study were characterized by SEM, N_2 adsorption-desorption, iodine number, FTIR and pHPZC techniques [2]. Odiba et al. in their research article designed a suitable micro reactor for the catalytic oxidation of volatile organic compounds. This paper suggests that the design of a micro reactor was based on simulation results obtained by using computational fluid dynamics (CFD) package of COMSOL Multiphysics [3].

Research article of Kostiv et al. discussed the crystallization of kainite from solutions in system K^+ , Mg^{2+} , Na^+ // Cl^- , SO_4^{2-} - H_2O [4]. Ghahdarjani et al. tried to investigate the role of Nano-fluid in cooling exothermic reaction. The study may provide conditions to control the generated heat during the reaction [5]. Hlawitschka et al.'s study detailed about the local analysis of CO_2 chemisorption in a rectangular bubble column using a multiphase euler-euler CFD code. The results of the investigations had shown a satisfactory agreement on comparing experimental and simulative data as well as from the literature with respect to parameters such as bubble velocity, concentrations and pH profiles [6]. Fattah's study detailed the potentiality of alcoholic

purification of abu-zaabal impure phosphoric acid for selective ion exchange recovery of uranium [7].

Mistry et al. involves the analysis of solid lipid micro particles generated via hot high-shear homogenization technique with tristearin as the main lipid component and phosphate buffer as the aqueous phase. This study tried to evaluate the effects of the study lipid and four non-ionic surfactants on particle size of solid lipid microparticles [8]. Gheni et al. had detailed about the naphtha catalytic upgrading to generate environment - friendly gasoline [9].

References

1. Shrestha S (2016) Chemical, Structural and Elemental Characterization of Biosorbents Using FE-SEM, SEM-EDX, XRD/XRPD and ATR-FTIR Techniques. J Chem Eng Process Technol 7: 295.
2. Salama RS, Kiwaan H, Mostafa MR (2016) Remediating Free Chlorine from Aqueous Solution Using Hydrous Zirconium Oxide Impregnated Carbons. J Chem Eng Process Technol 7: 296.
3. Odiba S, Olea M, Hodgson S, Adgar A, Russell PA (2016) Computational Fluid Dynamics in Microreactors Analysis and Design: Application to Catalytic Oxidation of Volatile Organic Compounds. J Chem Eng Process Technol 7: 297.
4. Kostiv IY, Basystiuk YI (2016) Crystallization of Kainite from Solutions in System K^+ , Mg^{2+} , Na^+ // Cl^- , SO_4^{2-} - H_2O . J Chem Eng Process Technol 7: 298.
5. Ghahdarjani AM, Hormozi F, Asl AH (2016) Application of Nano-Fluids to Heat Transfer Enhancement in Double-Walled Reactor. J Chem Eng Process Technol 7: 299.
6. Hlawitschka MW, Drefenstedt S, Bart HJ (2016) Local Analysis of CO_2 Chemisorption in a Rectangular Bubble Column Using a Multiphase Euler-Euler CFD Code. J Chem Eng Process Technol 7: 300.
7. Fattah NAAA (2016) Potentiality of Alcoholic Purification of Abu-Zaabal Impure Phosphoric Acid for Selective Ion Exchange Recovery of Uranium. J Chem Eng Process Technol 7: 301.
8. Mistry KR, Sarker DK (2016) SLNs can Serve as the New Brachytherapy Seed: Determining Influence of Surfactants on Particle Size of Solid Lipid Microparticles and Development of Hydrophobised Copper Nanoparticles for Potential Insertion. J Chem Eng Process Technol 7: 302.
9. Gheni SA, Jarullah AT, Razak GHA (2016) Naphtha Catalytic Upgrading for Production of Environmentally - Friendly Gasoline. J Chem Eng Process Technol 7: 303.