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Bulletin of Chemical Reaction Engineering & Catalysis, 11 (1), 2016, v

PREFACE, BCREC VOL. 11 NO. 1 YEAR 2016

DOI: 10.9767/bcrec.11.1.441.v-vii

Bulletin of Chemical Reaction Engineering & Catalysis (ISSN 1978-2993) is an international journal published by Department of Chemical Engineering, Diponegoro University, jointly with *Masyarakat Katalis Indonesia* - Indonesian Catalyst Society (MKICS). In Scopus coverage years 2011-2014, this journal reached the highest impact factor (by journalmetrics.com) in Indonesia and world ranked 39th or Q4 level in Scimago Catalysis category and world ranked 24th or Q3 level in Scimago Process and Chemistry Technology category. In addition, this journal has also good impact factor in Scimago Journal Ranking and Journal Metrics with SJR = 0.251; SNIP = 0.848; and IPP = 0.719 for coverage years 2011-2014. Since 2015, this journal has also been listed in Master Journal List of Thomson Reuters-Web of Science (Emerging Source Citation Index), and under evaluation to be indexed in Science Citation Index (Thomson Reuters - Web of Science). Thank you for great contribution to all respectful Authors, Peer-reviewers, and Editors.

This issue (BCREC, Volume 11, Issue 1, Year 2016) has published 16 articles. The published articles were selected from two international conferences, i.e. The *2nd International Conference on Chemical and Material Engineering 2015* (ICCME 2015) (29-20 September, 2015, Semarang, Indonesia) (http://econference.undip.ac.id/index.php/iccme/2015), and *The 2015 Global Conference on Polymer and Composite Materials (PCM 2015)* (16-18 May, 2015, Beijing, China) (http://www.cpcmconf.org/). **The papers have been selected and reviewed by Scientific Committee of the conferences and Peer-Reviewers of this journal consecutively**. This issue was authored and co-authored by 50 authors from 6 countries (Indonesia, Japan, United Kingdom, Sweden, New Zealand, and China).

In the first article, selective hydrogenation of biomass-derived furfural over supported Ni_3Sn_2 alloy focused on role of supports was highlighted by Rodiansono *et al.* [1]. They found that a highly active and selective hydrogenation of biomass-derived furfural into furfuryl alcohol was achieved using supported single phase Ni_3Sn_2 alloy catalysts. The Ni_3Sn_2 on TiO_2 and ZnO supports exhibited much lower reaction temperature to achieved >99% yield of furfuryl alcohol product compared with other supports. The effects of loading amount of Ni-Sn, reaction conditions (temperature and time profile) on the activity and selectivity towards the desired product are systematically discussed.

Electro-oxidation of ethanol on carbon supported PtSn and PtSnNi catalysts was studied by Hidayati and Scott [2]. They found that PtSn-based electro-catalysts have been identified as better catalysts for ethanol electro-oxidation. The third material is supposed to improve binary catalysts performance. Furthermore, the modification of Pt with Sn and SnNi improved ethanol and CO electro-oxidation.

In fourth article, Azis and Creaser [4] highlighted kinetic modeling of C_3H_6 inhibition on NO oxidation over Pt catalyst. In this paper, a detailed kinetic model of NO oxidation as well as low temperature C_3H_6 inhibition to simulate temperature-programmed reaction (TPR) data for NO oxidation over Pt/Al_2O_3. A steady-state microkinetic model based on Langmuir-Hinshelwood mechanism for NO oxidation was proposed. In addition, low temperature C_3H_6 inhibition was proposed as a result of site blocking as well as surface nitrite consumption. The model can explain the experimental data well over the studied temperature range.

Some articles about technology development for biodiesel production using heterogeneous solid catalysts were reported by Hadiyanto *et al.* [3], Istadi *et al.* [5], and Buchori *et al.* [8]. Two first authors found that *Anadara granosa* shells and $CaCO_3$ as well as K_2O/CaO-ZnO were good heterogeneous catalyst for biodiesel production from vegetables oil. The third author [8] found that promising biodiesel yield was obtained by using the hybrid catalytic-plasma reactor over active carbon and modified-carbon catalysts which was better than without plasma. Therefore, there were

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synergetic effects of non-thermal plasma and catalysis roles for driving the transesterification process.

Another article in this issue was focused on visible light photocatalytic properties of modified titanium dioxide nanoparticles via aluminium treatment studied by Ariyanti *et al.* [6]. They found that the modified TiO_2 is able to absorb up to 50% of visible light (400-700 nm) and shows a relatively good photocatalytic activity in organic dye (Rhodamine B) degradation under visible light irradiation compared with the commercial TiO_2.

Next article in this issue is about kinetics and thermodynamics of ultrasound-assisted depolymerization of κ-carrageenan by Ratnawati *et al*. [7]. They found that the results were compared to the result of thermal depolymerization by calculating the half life. The ultrasound assisted depolymerization of κ-carrageenan was faster than thermal depolymerization at temperatures below 72.2°C. Compared to thermal depolymerization, the ultrasound-assisted process has lower values of E_a, $\Delta G‡$, $\Delta H‡$, and $\Delta S‡$, which can be attributed to the ultrasonically induced breakage of non-covalent bonds in κ-carrageenan molecules.

Article focused on application of tin(II) chloride catalyst for high FFA jatropha oil esterification in continuous reactive distillation column was highlighted by Kusumaningtyas *et al*. [9]. They found the use of tin(II) chloride as solid Lewis acid catalyst to promote the esterification reaction of high Free Fatty Acid (FFA) jatropha oil in continuous reactive distillation column. This esterification system provided higher conversion than that of Amberlyst-15 heterogeneous catalyst and was comparable to that of homogenous sulfuric acid catalyst. The esterification reaction of high FFA jatropha oil was subsequently followed by transesterification reaction for the completion of the biodiesel production. The jatropha biodiesel product resulted from this two steps process could satisfy the ASTM and Indonesian biodiesel standard in terms of ester content (97.79 %), density, and viscosity.

The study about effect of Co and Mo loading by impregnation and ion exchange methods on morphological properties of zeolite Y catalyst was done by Anggoro *et al.* [10]. The Co-Mo/Zeolite Y catalyst with highest crystallinity was obtained by loading using ion exchange method. The addition of Co and Mo metals increased acidity, but decreased the yield of liquid fuels from coal tar. They concluded that the yields of liquid fuels and the composition of gasoline fractions from hydrocracking of coal tar were highly dependent on acidity of the catalyst.

Next two articles in this issue was written by Tristantini *et al*. [11] and Bahrin *et al*. [12] about kinetic studies of syngas composition effect on Fischer-Tropsch synthesis over cobalt and cobalt-rhenium alumina supported catalyst and the SO_2 adsorption using $CuO/\gamma\text{-}Al_2O_3$ adsorbent, respectively. The second authors group concluded that the shrinking core model was used in the kinetic study and with additional assumption of a spherical particle. Compared to film diffusion and pore diffusion controlling step models, the reaction rate limitation was the best to fit the experimental data. The first author groups concluded that rhenium (Re) metal on cobalt catalyst with composition $0.05\%Re\text{-}12\%Co/\gamma\text{-}Al_2O_3$ only gives effect as structural promoter, which only increases reactant conversion with the same product selectivity.

Analysis of chemical reaction kinetics behavior of nitrogen oxide during air-staged combustion in pulverized boiler was studied by Zhang & Zhang [13]. They presented a three-dimensional mesh model of the large-scale four corner tangentially fired boiler furnace using the GAMBIT pre-processing of the FLUENT software. From the results, they found that the air-staged has more regular velocity field, higher velocity of flue gas, higher turbulence intensity and more uniform temperature of flue gas. In addition, a lower negative pressure zone and lower O_2 concentration zone is formed in the main combustion zone, which is conducive to the NO of fuel type reduced to N_2, enhanced the effect of NOx reduction.

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Next article was focused on application of Al/B/Fe_2O_3 nano thermite in composite solid propellant by Deng *et al.* [14]. They found that the mechanical properties of HTPB propellant could be improved by the addition of a small quantity of Al/B/Fe_2O_3 nano thermite compared to when without the nano thermite. Thermal analysis indicated that the decomposition of ammonium perchlorate (AP) in HTPB propellant could be catalyzed by Al/B/Fe_2O_3 nano thermite, the high-temperature exothermic peak of AP was shifted to lower temperature by 70.8 °C when the content of Al/B/Fe_2O_3 nano thermite was 5%, and the heat released was enhanced by 70%. At the same time, the heat of explosion of HTPB propellant could also be enhanced by the addition of Al/B/Fe_2O_3 nano thermite.

Article focused on controlled synthesis of silver nanoparticles using double reductants and its voltammetric characteristics study was studied by Duan *et al.* [15]. The monodispersibility AgNPs with the average size of 20 nm have been successfully prepared via one-pot method using sodium borohydride and trisodium citrate as co-reductants. The introduction of sodium borohydride greatly accelerated the rate of nucleation, which can effectively solve the problem of broad size distribution. In this paper, the voltammetric characteristics of the AgNPs using Ag/AgCl solid-state voltammetry was also studied.

Last article in this issue was focused on the catalytic degradation performance of α-FeOOH doped with silicon on methyl orange studied by Lu *et al.* [16]. They found that the catalytic degradation property of α-FeOOH doped with silicon was 21.7% higher than that of α-FeOOH. The results showed that catalytic degradation of methyl orange was almost degraded thoroughly at the conditions that the concentration of α-FeOOH doped with silicon in the solution was 0.73 g/L, and the concentration of H_2O_2 was 0.231 mmol/L.

Currently, BCREC journal is an open access international journal. Therefore, readers can read and download any full-text articles for free of charge. Official website address of BCREC journal is: *http://bcrec.undip.ac.id*. Editor would like to appreciate and to call for papers all researchers, academicians, industrial practitioners focused on chemical reaction engineering and catalysis to contribute to this international journal.

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