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This issue (BCREC, Volume 10, Issue 3, Year 2015) has published 12 articles with various topics in catalysis materials synthesis, catalytic energy conversion, nano-technology, kinetics studies, advanced technology for chemical reaction, and catalytic polimerization. This issue was authored and co-authored by 50 authors from 7 countries (Indonesia, India, Russian Federation, United States of America, China, Algeria, and Brazil).

In the first article, a review article about utilization of renewable and waste materials for biodiesel production as catalyst was studied by Kumar *et al.* [1]. This review discussed industrially derived and naturally occurring materials containing calcium, sodium, potassium etc. for biodiesel production. About 60 research articles and patents have been reviewed and the findings were analysed in this article for developing industrial scale heterogeneous catalytic pilot plant facilities for biodiesel production. They concluded that the efficient and economic utilization of natural renewable and waste materials of various industries and biomass having non-homogeneous composition is a new dimension of research for biodiesel production.

Production of oleic acid ethyl ester catalyzed by crude rice bran (*Oryza sativa*) lipase in a modified fed-batch system was studied by Prastowo *et al.* [2]. They focused on the combination (the modified fed-batch system) of a constant substrate molar ratio (ethanol/oleic acid) during the reaction and the addition of zeolite powder into the reaction system which resulted in higher final ester conversions (90-95.7%). This was due to not only applying the appropriate amount of ethanol that may not denaturize lipase but also absorbing the water in the reaction system. This finding hypothesized that lipase leads to reverse the esterification synthesis towards the formation of early reactants (ethanol and oleic acid).

In third article, Lopes *et al.* [3] highlighted the mass spectrometry study of modified zeolite with transition metals (Cu and Fe) for removal of methylene blue from aqueous medium. In this paper, the characteristics of removal of methylene blue dye employing zeolites modified with transition metals (Cu, Fe) were studied. Modified zeolites showed a remarkable activity in H_2O_2 decomposition and in the discoloration an organic dye in aqueous medium. In addition, modification of the zeolite with transition metal proved to be an interesting pathway to produce efficient catalysts for the oxidation of organic molecules.

Another article about in-situ polymerization of styrene to produce polystyrene/montmorillonite nanocomposites was reported by Mrah *et al.* [4]. In this study, it was found that a reactive cationic surfactant cetyltrimethylammonium bromide (CTAB) was synthesized for intercalation of montmorillonite Mmt, a Maghnite type of clay.

Another article in this issue was focused on synthesis of Pd-containing catalysts of Suzuki cross-coupling based on amino-functionalized hypercrosslinked polystyrene studied by Nikoshvili *et al.* [5]. They found that the catalyst developed allows achieving conversion of 4-bromoanisole higher than 98% for less than 1 h at mild reaction conditions and in the absence of a phase transfer agent. Catalyst reduction was found to result in formation of small Pd nanoparticles (about 3 nm in diameter) and a large number of Pd clusters, which are highly active in Suzuki-Miyaura cross-coupling.

Next article in this issue is about successful growing of silver nanoparticle chains (AgNPs) within the internal spaces of single wall carbon nanotube (SWCNT) by Alimin *et al.* [6]. The use of ethanol in the liquid phase adsorption could produce relatively long silver nanoparticle chains encapsulated in the nanotubes (AgNPs-SWCNT). A significant decrease of nitrogen uptake and radial breathing mode (RBM) as well as tangential mode (G band) upshifts of AgNPs-SWCNT specimen suggest that the nanoparticles have been encapsulated in the internal tube spaces of the nanotube.

Article focused on reduction of nitroarenes to aromatic amines with sodium borohydride in the presence of selenium and actived carbon was highlighted by Cai & Zhou [7]. A selenium and actived carbon (AC) catalyst has been applied for the selective reduction of nitroarenes to their corresponding amines, respectively, using sodium borohydride ($NaBH_4$) as a reducing source under mild conditions. The catalyst can be easily recovered after catalytic reaction and readily reused for 4 cycles with consistent activity hence reduces the cost of the catalyst. They claimed that the advantages of this method were high selectivity, ease of operation, high yields of the amines and no equipment of pressure apparatus, and offers an economical, state and environmentally benign alternative to the currently available procedures.

The study about the oxidation of CO using base metal (Cu and Co) catalysts was done by Rattan & Kaur [8]. A series of copper cobalt with different mole ratios were prepared for the oxidation of CO. The results showed that the catalyst prepared by co-precipitation method is good in terms of activity for CO oxidation. A kinetic study was also performed on the selected catalysts.

Next article in this issue was written by Rahmawati *et al.* [9] focusing on the optical properties and photo catalytic activity of ZnS-TiO_2/Graphite under ultra violet and visible light radiation. They concluded that ZnS deposition on TiO_2/Graphite allows increasing of band gap energy. However, it provide the photon absorption increasing under visible radiation, then it become active. Meanwhile, under UV irradiation, the photon absorption of ZnS-TiO_2/Graphite is lower than TiO_2/Graphite. It represents the contribution of ZnS to reduce the possibility of electron-hole recombination.

Non-catalytic and γ-Al_2O_3 catalyst-based degradation of glycerol by sonication method was studied by Kalla *et al.* [10] in order to study the effect of the addition of the catalyst γ-Al_2O_3 on the degradation of glycerol by using sonication method. They concluded that the ultrasonic wave radiation could degrade glycerol with conversion about 2.92%-59.95% without employing catalyst. Meanwhile the conversion of glycerol increased with adding γ-Al_2O_3 catalyst and the yield was improved when sonication time and temperature were added.

Next article was focused on influence of the mesoporous polymer matrix nature on the formation of catalytically active ruthenium nanoparticles by Sulman *et al.* [11]. They reported about ruthenium nanoparticles formation and stabilization by hypercrosslinked polystyrene and the catalytic properties of the nanocomposites obtained. It was established that the tertiary amine group of the support influences both formation of ruthenium nanoparticles, and their catalytic properties in the selective hydrogenation of D-glucose. The catalysts on the basis of HPS showed activity twice higher in comparison with the commercial catalyst Ru/C.

Last article in this issue was focused on biomass catalytic pyrolysis process to produce the combustible gases with the high calorific value studied by Kosivtsov *et al.* [12]. They found that the

pore size of the mineral strongly affects the catalytic activity and provides the processing of the hydrocarbons forma-tion reactions. Bentonite clay was found to be the most effective catalyst for the biomass pyrolysis process. The use of bentonite clay as an addition to peat allows improving structural (strength, porosity) and sorption characteristics (sorption rate) of the molded compositions and can serve as a catalyst dur-ing its subsequent thermal conversion. The amount of gases obtained using natural aluminosilicate as a catalyst increased by 2 times compared to the non-catalytic process. The calorific value of the products obtained was higher due to the light hydrocarbons formation.

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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