

PREFACE

Indonesian Polymer Journal (Majalah Polimer Indonesia, MPI, ISSN 1410-7864) is a national journal published and imprinted by the Indonesian Polymer Association (Perhimpunan Polimer Indonesia, HPI). MPI is a peer-reviewed journal in Polymer research. It publishes original research in all areas of polymer science and technology, including synthesis and polymer reaction, polymer process and composite, polymer characterization, functional polymer and development, and polymer for energy and environment. Since 1998, MPI published in Bahasa Indonesia. Starting from 2016, MPI provides publishing both articles in English and Bahasa Indonesia. We publish two editions every year. Thank you for the exceptional contribution to all respectful authors, peer-reviewers, and editors.

This issue (Ind. Poly. Jour., Volume 21, Issue 2, Year 2018) has published 5 articles from SNP XII 2018 event (4 articles in Bahasa Indonesia and 1 article in English). This issue was authored and co-authored by 20 authors from Indonesia. This issue has available online since November 2018 for the regular issue of December 2018.

In this issue, there are two articles that focus on bioplastics including a review of the latest developments and prospects for biomass-based bioplastics by *Adi et al.* and Life Cycle Assessment (LCA) of bioplastics, shopping bags made of recycled plastic, and goodie bags by *Abidin et al.* In the latest developments and prospects for biomass-based bioplastics article, *Adi et al.* reports that the use of petrochemical plastic is slowly damaging the environment indirectly and will become a serious threat in the near future due to the time it takes to degrade. The appearance of bioplastic, a biodegradable plastic, is already the solution of this unavoidable problem. Moreover, some bioplastic has the quality, even surpassing the petrochemical counterparts based on their mechanical and thermal properties. Taking a viewpoint from the business prospect, bioplastics excel petrochemical plastics in both specific energy demand and green environmental support. In the Life Cycle Assessment (LCA) article of bioplastics, recycled plastic shopping bags, and goodie bags, *Abidin et al.* reported that bioplastics have the lowest energy requirements, carbon emissions, land requirements, and water requirements. However, it has a higher shopping bag price per sheet. Thus, bioplastic is the most environmentally friendly bag when compared to shopping bags made from recycled plastic and goodie bags even though the price that has to be paid by consumers is double the price for other bags per sheet.

Another article focused on the interaction of the chitosan-poly acrylic acid polyblend membrane as an ion conductor with the *Ab Initio* method by *Ramadhan et al.* They reported that the interaction of the chitosan-poly acrylic acid polyblend membrane is formed from the chitosan amine group bond and the acrylic acid carboxylic group (10N ----- H21) with a bond distance of 1.47 Å and an angle of 112.04°. The interaction of chitosan-poly acrylic acid acrylic membrane with one water molecule was also studied. The study results showed that the change in the interaction energy between chitosan-poly acrylic acid and one water molecule was 179.759 kJ mol⁻¹. There are three hydrogen bonds formed, namely 23H ----- O39, 39O ---

---- H21, and 41H ----- O32. The strength of the hydrogen bond is in the medium range, which ranges from 1.55–1.72 Å.

There is also an article focused on reducing sugar production from cassava starch degradation through sonification process with stirring by *Puspasari et al.* On their article, they aimed to study several sonication processes on the concentration of reducing sugars produced. The sonication process was carried out on 1/20 (w/v) starch suspension at 20 kHz operating frequency, 50% amplitude, and 60 °C temperature for various time processes (15–120 minutes) for stirring 250 rpm. They reported that based on the results of DNS analysis, the longer the process has obtained the increase in the concentration of reducing sugars and the maximum concentration of 0.133 mg mL⁻¹. SEM image results showed that some starch granules were damaged (broken), and from the results of XRD analysis, it was found that the degree of crystallinity was decreased.

The last article on this issue focused on hydrolysis of microcrystalline cellulose (SM) polymer from green algae (*Cladophora sp.*) by *Prasetia et al.* Isolation of cellulose in the algae *Cladophora sp.* carried out in two stages, the first stage namely delignification with 0.5 M NaOH for 24 hours at 60 °C. This process aims to separate cellulose from other compounds such as lignin, carbohydrates, organic acids, and resins. The presence of these compounds can inhibit acid penetration before the hydrolysis process. The second stage is hydrolysis using hydrochloric acid (HCl). This process aims to break the issue of cellulose purification. This will have an impact on the characteristics of the SM. The purpose of this study was to determine the effect of hydrolysis with HCl solutions at various concentrations (2.5; 5.0; and 7.5%) on the characteristics of SM from *Cladophora sp.* (SMC). They reported that HCl concentration variations in the hydrolysis process have an effect on the alpha, beta, and gamma cellulose content of the microcrystalline cellulose *Cladophora sp.* However, this was not found in pharmaceutical, XRD, and SEM testing. In this test, the results were not significantly different. The use of 7.5% HCl (SMC-3) produced the best microcrystalline cellulose because of the largest alpha cellulose content so that it has the highest purity.

Currently, Indonesian Polymer Journal is an open access national journal. Readers can read and download any full-text articles free of charge. Official website address of Indonesian Polymer Journal is: <http://hpi-polimer.org/mpi>. The Editor would like to appreciate and to call for papers all researchers, academicians, industrial practitioners focused on all areas of polymer science and technology to contribute to this journal.

Editorial Board

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