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Editorial

Special Issue on "Biotechnology for Sustainability and Social Well Being"

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Bioprocessing is a very important part of biotechnology that utilizes living organisms and their components to produce various types of products. The products and services that depend on bioprocessing can be grouped into the following: (1) biopharmaceuticals, which involve the production of therapeutic compounds, vaccines, and diagnostic components; (2) specific bio-based chemicals, such as biofuels, food, and agricultural products, as well as fine chemicals derived from and/or by living organisms and other types of bioproducts; (3) environmental management aids that use bioprocessing to treat, control, or remediate pollutants and toxic components. Bioprocessing is one of the key factors in several emerging industries of biofuels, used in the production of biogas, bioethanol, and biodiesel; industrial enzymes; waste management through biotechnology; new vaccines; and many more. The term bioprocessing is always referred to as a biotechnology method that produces products and provides services that are environmentally friendly, sustainable, and renewable.

The important role of bioprocessing has attracted interest from researchers in terms of finding suitable bioprocesses that can enhance production or process efficiency. The Asian Federation of Biotechnology (AFOB) has set 12 academic divisions that cover all biotechnological areas. Most of these areas require bioprocess technology for the production of their desired products. To promote the recent technologies and findings in biotechnology, AFOB Malaysia Chapter (AFOB-MC) organized the 2nd AFOB Malaysia Chapter International Symposium 2019 (AFOBMCIS 2019), which was held in Putrajaya, Malaysia, from the 20th to 23rd October 2019. The theme of the symposium was "Biotechnology for Sustainability and Social Well Being" and it comprised 12 technical sessions—namely, (1) agricultural and food biotechnology; (2) applied microbiology; (3) biopharmaceutical and medical biotechnology; (4) biocatalysis and protein engineering; (5) bioprocess and bioseparation engineering; (6) bioenergy and biorefinery; (7) environmental biotechnology; (8) marine biotechnology; (9) nanobiotechnology, biosensors, and biochips; (10) systems and synthetic biotechnology; (11) tissue engineering and biomaterials; and (12) bioindustry promotion and bioeducation. All of the authors of the accepted contributions at AFOBMCIS 2019 related to bioprocessing were invited to submit manuscripts to *Processes* under this Special Issue on Bioprocessing.

This Special Issue, "Biotechnology for Sustainability and Social Well Being", invited manuscripts from academicians as well as industry players who are working on biotechnology and green technology-related processes. Authors were invited to submit original research articles covering topics which include, but are not limited to, the following areas: (1) bioprocess; (2) bioproducts; (3) bio-based chemicals; (4) biomaterials; (5) fermentation, etc. The manuscripts were regularly submitted, selected, and reviewed by the regular system and accepted for publication. This Special Issue, "Biotechnology for Sustainability and Social Well Being", aims to incorporate and introduce the advances in bioprocess as well as green technologies to the new generation of academicians and industry players. In this Special Issue on "Biotechnology for Sustainability and Social Well Being", we have accepted and published 17 high-quality and original articles. These research papers cover theoretical, numerical, and experimental approaches on the latest developments in biopro-

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cessing and biotechnology, as well as green technologies that bridge conventional practices and the Industry 4.0 concept. The Special Issue operated a rigorous peer-review process with a single-blind assessment and at least two independent reviewers, hence resulting in our final acceptance of these published high-quality papers.

Apart from that, this Special Issue also attracted one quality review paper and five feature article papers. The review provides insights on the use of renewable sources such as *Jatropha curcas* L. as a biodiesel feedstock in Malaysia [1]. This review paper emphasizes the potential of *Jatropha curcas* as an eco-friendly biodiesel feedstock to promote socio-economic development and meet significantly growing energy demands, even though there are many challenges for its implementation as a national biodiesel and the program might require a long period to be realized. The proposed use of this feedstock is promising, as it shows lower carbon and greenhouse gases emissions. Apart from that, there are five papers selected as feature papers, with topics covering biohydrogen production, rapid monitoring process for bacteria, the optimization of fermentation process for bacteria, nanofiltration and transesterification enhancement by lipase, and liquid biphasic separation for protein recovery. The study on biohydrogen production investigates the effects of alginate and chitosan entrapped in biofilm formations on activated carbon [2]. A positive response to the higher growth of hydrogen-producing bacteria was obtained in the work. Another study on the cultivation of *Lactobacillus pentosus* was conducted with rapid monitoring through the spectrophotometer method [3]. The method developed can rapidly determine the lag phase of *Lactobacillus* in breast milk, which is useful in assessing the bacteria growth curve and growth behavior of the strain. Furthermore, one of the studies applied the isolation, identification, and optimization of a new γ-aminobutyric acid (GABA)-producing *Bacillus cereus* strain from soy sauce [4]. Response surface methodology was used to obtain a high concentration of the GABA strain under optimal fermentation conditions. There is also a study on nanofiltration membrane separation to concentrate lipase for biodiesel production [5]. The nanofiltration membrane technology developed showed a comparable fatty acid methyl ester (FAME) composition to that of commercial lipase, which improves its applicability and scalability. The last featured study shows the application of a Liquid Biphasic Flotation (LBF) system to extract proteins from *Persicaria tenella* leaf [6]. The efficient, environmental friendly, and cost-effective liquid separation method showed a good reliability with a high protein recovery and separation efficiency. All these five feature papers were selected based on a rigorous review process carried out by international independent reviewers assigned by the journal's office.

On the other hand, there are 16 technical research papers which were accepted in this Special Issue. All these selected 16 technical research papers were contributed by participants who attended the 2nd Asian Federation of Biotechnology (AFOB) Malaysia Chapter International Symposium 2019 (AFOBMCIS 2019). The Asian Federation of Biotechnology (AFOB) is a non-profit organization established in 2008. Its incorporation was agreed upon by delegates from Asian countries during the IBS 2008 conference, 12–17 October held in Dalian, China. Preparative meetings for the formation of AFOB had been held four times prior to its official establishment (27th April, Songdo Technopark, Incheon, Korea, KSBB 2007 National Spring Meeting; 5th and 7th November, Taipei International Convention Center, Taipei, Taiwan, APBioChEC 2007 Meeting; April 18th, Jeonju City, Korea, KSBB 2008 (National Spring Meeting)). The delegates from the participating Asian countries discussed the launching of the AFOB during the meetings. The International Federation bears the name Asian Federation of Biotechnology, abbreviated to "AFOB", hereafter referred to as "The Federation". All the accepted papers in this Special Issue are of high quality and were specially selected by international experts before being invited to submit a paper to this issue.

We strongly believe that the novel bioprocesses and green biotechnologies presented in this issue will be useful in assisting the global community in working towards fulfilling the Sustainable Development Goals (SDG) of the United Nations. The guest editors thank the authors for their contribution to this new knowledge and the reviewers for their valuable

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