

# Program Book

## The **5<sup>th</sup>** **ISIBio** 2018 International Symposium on Innovative Bio-Production Indonesia

**October, 10<sup>th</sup> 2018**



**Research Center for Biotechnology - Indonesian Institute of Sciences**

Jl. Raya Bogor Km 46, Cibinong 16911, Jawa Barat | Tlp. (021) 8754627 Fax. (021) 8754588

**IPB International Convention Center | Botani Square Building 2<sup>nd</sup> Floor | Jl. Raya Pajajaran Bogor**

**International Symposium on  
Innovative Bioproduction Indonesia 2018  
(ISIBio2018)**

*Innovative Bio-Production in Indonesia (Ibiol) :  
Integrated Bio-Refinery Strategy to Promote Biomass  
Utilization using Super-Microbes for Fuel and  
Chemicals Production*

**Organized by :  
Research Center for Biotechnology  
Indonesian Institute of Sciences (LIPI)**

**IPB International Convention Center  
Bogor – Indonesia**

**October, 10<sup>th</sup>2018**

## Foreword from the Chairman of Organizing Committee

Biorefinery is the sustainable processing of integrates biomass conversion processes and equipment to produce fuels, power, and chemicals from biomass. The biorefinery concept is analogous to today's petroleum refineries, which produce multiple fuels and products from petroleum. Industrial biorefineries have been identified as the most promising route to the creation of a new domestic bio-based industry. The aims of ISIBio2018 are gathering renowned scientists, Professors and professional researcher, young researchers, Business delegates and student communities accross the globe under a single roof, where they discuss the research, achievements and advancements in biorefinery and bioprocess engineering.

The development of the integrated biorefinery was identified as crucial part of achieving alternative fuel production goals. Throughout its stages of development, the integrated biorefinery will utilize input from all of other platform as well as the existing biofuels industry. The research and development of biomasses and the biochemical and thermochemical conversion platforms will allow the integrated biorefinery to continually increase its diversity and complexity further increasing effectiveness, efficiency, and productivity. The theme of ISIBio2018 is *Innovative Bio-Production in Indonesia (Ibiol) :Integrated Bio-Refinery Strategy to Promote Biomass Utilization using Super-Microbes for Fuel and Chemicals Production*

The topics are:

1. Feed Stock/Potential Biomass:
2. Energy Crops, Microalgae, Forest and Agriculture Residues, Marine Bio-mass, etc
3. Technology Development for Biorefinery:
4. Biomass Treatment, Hydrolysis of Biomass, Fermentation Process, Extraction, Separation and Purification, Design of Bioreactors and Photobioreactors, Process Control Engineering and Biochemical conversion.
5. Bio-based Material and Chemicals:
6. Bio-based Materials, Platform Chemicals, High Value Bioproducts.
7. Feasibility Studies for Biorefinery:
8. Political Evaluation, Economic Study, Enviromental Evaluation, Life Cycle Assessment.

Hopefully, the symposium can lead the advancement toward research and collaboration in Biorefinery field around the international level.

**Dr. Ade Andriani**

Chairman of Organizing Committee

**Program**  
**“The 5<sup>th</sup> International Symposium on**  
**Innovative Bioproduction Indonesia (ISIBio2018)”**  
**10<sup>th</sup> October 2018**

<b>Time</b>	<b>Activity</b>
08.30-09.00	Registration, coffee
09.00-09.30	Welcome Speech ( <b>Director of Research Center for Biotechnology LIPI</b> )
	Welcome Speech ( <b>Mr. Ryo OGAWA from JICA Indonesia Office</b> )
	Opening Remarks ( <b>Deputy Chair of Life Sciences LIPI</b> )
09.30-09.40	Photo Session
09.40-11.30	Plenary Speaker, Session 1 (Presentation & Discussion)
	<b>Prof. Dr. Bambang Prasetya</b> (Indonesia Project Leader of JST-JICA SATREPS Integrated Biorefinery Project, National Standardization Agency of Indonesia)
	<b>Prof. Dr. Chiaki Ogino</b> (Japan Project Leader of JST-JICA SATREPS Integrated Biorefinery Project, Kobe University)
	<b>Dr. Puspita Lisdiyanti</b> (Research Center for Biotechnology LIPI)
11.30-12.30	<b>Press Conference, Poster session</b>
12.30-13.30	Lunch break
13.30-15.00	Plenary speaker, Session 2 (Presentation & Discussion)
	<b>Dr. Euis Hermiati</b> (Coordinator Output 1 JST-JICA SATREPS Integrated Biorefinery Project, Research Center for Biomaterial LIPI)
	<b>Prof. Dr. Hideki Nakayama</b> (Nagasaki University)
	<b>Dr. Fahrurrozi</b> (Coordinator Output 2 JST-JICA SATREPS Integrated Biorefinery Project, Research Center for Biotechnology LIPI)
	<b>Dr. Ario Betha Juanssilfero</b> (Research Center for Biotechnology LIPI)
15.00-16.30	Plenary speakers, Session 3 (Presentation & Discussion)
	<b>Ahmad Thontowi, M.Si</b> (Coordinator Output 3 JST-JICA SATREPS Integrated Biorefinery Project, Research Center for Biotechnology LIPI)
	<b>Dr. Kiyotaka Hara</b> (University of Shizuoka)
	<b>Dr. Yenny Meliana M.Si</b> (Coordinator Output 4 JST-JICA SATREPS Integrated Biorefinery Project, Research Center for Chemistry LIPI)
	<b>Manaek Simamora, MBA</b> (Coordinator Output 5 JST-JICA SATREPS Integrated Biorefinery Project, Innovation Center of LIPI)
16.30-16.40	Closing Remarks

## **Impact Ionic Liquid [Emim]OAc to Cellulose Hydrolysis Activities of Indigenous Microorganisms (IMO's) on Cassava Peels Substrat**

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### *Abstract*

An ionic liquid (IL), 1-ethyl-3-methylimidazolium acetate ([Emim]OAc), was used as pretreatment catalyst follow by hydrolysis of cellulose on cassava peels using local selected indigenous microorganisms (IMO's). Under 20% (w/v) loading mass of substrate and liquid fermentation condition, cellulolytic of cellulose activities and growth of IMO's were investigated under a series of IL concentration. Optimal temperature and pH were 37 °C and 5.6 respectively. Enzyme activity was determined by analyzing the hydrolysis of carboxymethylcellulose (CMC) at 37 °C using the dinitrosalicylic acid. In general, 0.1 M of IL did not inhibit cell growth significantly. In addition, the hydrolytic activities of obtained-cellulases were most active in presence of 0.1 M of IL, while 0.5 M of IL pushed down the activity into an half and 1.0M extremely was losing the activity. The optimum experimental conditions for hydrolysis of pretreated cassava peels using 0.1 M of [Emim]OAc was established at 37 °C, for 72 h when yield of glucose rose up to 65%.

**Keywords:** *ionic liquid, indigenous microorganisms, cellulose hydrolysis, cassava peels*

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# CERTIFICATE

No. B-2667/IPH.2/KS.02.05/X/2018

This is to certify that

Heri Satria

has participated as a

*Participant*

in International Symposium on Innovative Bio-Production Indonesia  
Indonesia, October 10<sup>th</sup>, 2018

The **5<sup>th</sup>**  
**ISIBio 2018**  
in International Symposium on Innovative Bio-Production Indonesia

Acting Director,  
Research Center for Biotechnology-LIPI



Dr. Syamsidah Rahmawati



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