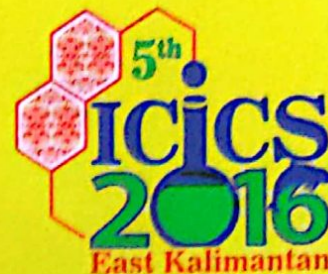


**The 5<sup>th</sup> International Conference of  
Indonesian Chemical Society**



**Innovative Chemistry Research for  
Biological, Geological and Marine  
Resources in Indonesia**



**Samarinda, 30 - 31 August 2016  
Swiss-Belhotel Borneo  
East Kalimantan**





**International Conference of the Indonesian Chemical Society  
2016**

**Organized by:**

**Himpunan Kimia Indonesia (HKI)**

**Chemistry Department, Faculty of Mathematics and Natural Sciences,**

**Mulawarman University**

**Education Agency of East Kalimantan Province**

**Awang Faroek Institute**

**Swiss Belhotel Borneo  
Samarinda – Indonesia**

**30 – 31 August 2016**

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Education Agency of  
East Kalimantan

**Foreward from the Head of Education Agency  
East Kalimantan Province**



**Dear Participants,**

On behalf of Education Agency of East Kalimantan Province, we thank you very much for this opportunity as the host of this event, we do appreciate to all of the committee who had conducted this 5<sup>th</sup> International Conference of Indonesian Chemical Society in East Kalimantan. Education Agency is very happy to facilitate this event and this is the first time of Education Agency in holding this conference. And Special thank you as well for the Rector of Mulawarman University, Indonesian Chemical Society of East Kalimantan, Chemical Department of Faculty of Sciences Mulawarman University, and the Director of Awang Faroek Institute that had collaborated a great International Conference. We do hope in the next coming time, the similar event might be conducted again. This conference brings good benefit for the chemical industry in East Kalimantan and other things might help chemists such as chemistry students, chemistry teachers, and chemical industry in East Kalimantan for the knowledge and advance technology in chemical in the world.

Furthermore, The Education Agency of East Kalimantan is proud to all of the participants who are participating this event. Success be with you all and enjoy the conference and will see you in the coming different event.

In short, we thank you and have a nice conference and enjoy your stay in Samarinda.

Yours sincerely,

**Dra. Hj. Dayang Budiati, MM**  
The Head of Education Agency of East Kalimantan Province  
SAMARINDA-INDONESIA



**Foreward from the Head of Indonesian Chemical Society  
East Kalimantan Province**



**Dear Participants,**

The Indonesian Chemical Society is one of non government organisation in Indonesia which accomodate the chemists to develop and share the knowledge of chemical in education, research, and industry as well.

In 2016, the Indonesian Chemical Society of East Kalimantan Branch Office is getting the great opportunity to hold the 5<sup>th</sup> International Conference of the Indonesian Chemical Society in Samarinda-East Kalimantan. In implementing the event, we collaborate with Education Agency of East Kalimantan Province, Mulawarman University, and Awang Faroek Institute.

At the same time, this International Conference will be conducted some events such as the 7<sup>th</sup> national meeting and congress of the Indonesian Chemical Society, the meeting of the head of Chemistry Department from all higher educations in Indonesia, and chemical instruments exhibition.

We do thank and welcome to all participants for the International Conference, the head and secretary of all branches of the Indonesian Chemical Society and the head of Chemistry Department in Indonesia.

Special thank you for the Governor of East Kalimantan and Education Agency that had given the financial support of these events. To all participants, please enjoy the conference and have a nice stay in Samarinda.

Your sincerely,

**Dr. Bohari Yusuf, M.Si**  
The Head of the Indonesian Chemical Society  
East Kalimantan Branch Office



## **Foreword from the Chairman of Organizing Committee**

Dear participants,

Rapid development in the field of chemistry has resulted in advance technology and research on various aspects in life such as in food technology and industry, pharmacy, drugs and environment. Research in chemistry becomes very important in improving quality of life and in early prevention of negative impacts emerging from development in science and technology.

Himpunan Kimia Indonesia (HKI) is an independent and non profit organization to facilitate communication among Indonesia chemists and other professionals from chemistry related fields. In 2016, HKI organize the 5<sup>th</sup> International Conference of the Indonesian Chemical Society (ICICS) in collaboration with Education Agency of East Kalimantan Province, HKI East Kalimantan Branch, Chemistry Department, Mulawarman Universty, and Awang Faroek Institute. ICICS 2016 with a theme "Innovative Chemistry Research for Biological, Geological and Marine Resources in Indonesia" will cover all key areas in chemistry fields. ICICS 2016 will offer generous opportunities for renowned Chemists, Chemical Engineers, and Industries across the globe to share ideas and knowledge in chemistry field. The conference is also aiming for exchanging information and networking among researchers. The conference will feature oral presentation, poster presentation, keynote Speech and industrial field trip to PT Badak NGL, Bontang.

I am very pleased that we have renowned keynote and invited speakers from USA, Australia, Japan, UK, and Indonesia who have high reputation and commitment in chemistry field. It is an honor and privilege to have them as speakers as I strongly believe that their contribution would be beneficial to the people working in this field.

On behalf of the organizing committee, I would like to welcome all of speakers and participants. Please enjoy the conference and our city, Samarinda.

**Dr. Rudi Kartika, M.Si**  
**Chair of Organizing Committe**

## **PROGRAM BOOK**

# **International Conference of the Indonesian Chemical Society 2016**

**Organized by:**

**Himpunan Kimia Indonesia (HKI)**

**Chemistry Department, Faculty of Mathematics and Natural Sciences,**

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**Education Agency of East Kalimantan Province**

**Awang Faroek Institute**

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Samarinda – Indonesia**

**30 – 31 August 2016**



**Conference Program**

<b>Date</b>	<b>Start</b>	<b>End</b>	<b>Agenda</b>
30-Agust	7:30 AM	4:00 PM	Exhibitions
	7:30 AM	8:30 AM	Registration
	8:30 AM	9:00 AM	Flash Presentation (10 x 3")
	9:00 AM	10:00 AM	Opening Ceremony * Welcome speech * Coffee break and traditional dance
	10:00 AM	10:45 AM	Plenary Session I Speaker: Dr. Nancy B. Jackson
	10:45 AM	12:10 PM	Plenary Session II Speaker: Prof. Alan Chaffee Prof. Dr. drh. Maria Bintang, MS.
	12:10 PM	1:30 PM	Lunch break and poster presentation
	1:30 PM	4:00 PM	Parallel Session and coffee break per room
Notes	12:00 PM	end	Check in invited speaker
	7:00 PM	10:00 PM	Welcome Dinner



Date	Start	End	Agenda
31-Agust	7:30 AM	4:00 PM	Exhibitions
	7:30 AM	8:30 AM	Registration
	8:30 AM	10:00 AM	Plenary Section III Speaker: Dr. Isaac Abraham Prof. Yana Maolana Syah
	10:00 AM	10:15 AM	Coffee break
	10:15 AM	10:45 AM	Flash Presentation (10 x 3")
	10:45 AM	11:30 AM	Plenary Session IV Speaker: Dr. Chie Aoki Utsubo
	11:30 AM	12:00 PM	Poster presentation and exhibitions
	12:00 PM	1:30 PM	Lunch break
	1:30 AM	4:00 PM	Parallel Session and coffee break per room
	4:00 PM	5:00 PM	Closing Ceremony * Award presentation (Best poster, student & non student I, II, III) * Closing speech * Photo session
<b>Satelite activity (Forum Ketua Jurusan Kimia Indonesia)</b>			
	8:00 AM	5:00 PM	Meeting of the Head of Chemistry Department and coffee break
	7:00 PM	8:00 PM	Dinner
	12:00 PM	end	Check out participants (flight schedule at 31 Aug)



**PROGRAM FOR ORAL PRESENTATION****PARALLEL SESSION**

Day 1, 30 August 2016

Room : A

Moderator : Prof. Dr. H. Baharuddin Hamzah, S. Farm., MS.

Time	Article Number	Presenter	Title
13.30-13.45	Invited speaker	Farida Kristina	Accuracy Enhancement of Aluminium (Al) and Silicon (Si) Analysis Result in Lube Oil by XRF Spectrophotometer Shimadzu EDX-900HS
13.45-14.00			
14.00-14.15	774-APP	Ramlan Silaban	Mathematical Model of Correlation Between Quality Parameters of Oil in Oleochemical Industry
14.15-14.30	678-GRE	Is Fatimah	Biosynthesis of ZnO Nanoparticles Using Essential Oil of <i>Ocimum citroodorum</i> in Microemulsion Systems
14.30-14.45	746-GEO	Agrippina Wiraningtyas	Extraction of Sodium Alginate from <i>Sargassum</i> sp. using Microwave Assisted Extraction (MAE)
14.45-15.00	Coffee Break		
15.00-15.15	789-GEO	Sutrisno	Mineralogical and Geochemical of in situ Araucarioxylon Wood Fossil from Mengkarang Formation Jambi Indonesia
15.15-15.30	658-GEO	Muhammad Yudhistira Azis	Analysis of organic micropollutants in Green mussels ( <i>Perna viridis</i> ) from Jakarta Bay, Jakarta and Mud Clams ( <i>Polymesoda erosa</i> ) from Segara Anakan Lagoon (SAL), Cilacap, Indonesia
15.30-15.45	640-THE	Yusthinus Thobias Male	Computational Study of Xanthone and Its Derivatives from Mangosteen ( <i>Garcinia Mangostana</i> L.) as Antioxidant Agents with DFT Method
15.45-16.00	762-THE	Akram La Kilo	Simulasi Atomistik Oksida Ceria (CeO <sub>2</sub> ) yang Didoping Oksida Trivalen



Day 1, 30 August 2016

Room : B

Moderator : Prof. Dr. Tutik Dwi Wahyuningsih, M.Si.

Time	Article Number	Presenter	Title
13.30-13.45	Invited speaker	Noor Hindryawati	Spent Bleaching Earth-Supported Potassium as Heterogeneous Base Catalyst for Methyl Ester Production from Waste Frying Oil
13.45-14.00			
14.00-14.15	822-NAN	Bambang Piluharto	Bacterial Cellulose-Based Materials for Ion Exchange Membrane Preparation
14.15-14.30	821-NAN	Roto	Sensitive Colorimetric Sensing of Pb(II) in Aqueous Solutions Using Silver Nanoparticles in the Presence of Dithizone
14.30-14.45	689-ORG	Beta Achromi Nurohmah	Progress Research: Pyrazole and Pyrazoline Derivate from Vanillin as Antimalarial Drug Candidates
14.45-15.00	Coffee Break		
15.00-15.15	709-ORG	Lisna Junaeni Muiz	Synthesis and Characterization of Biodegradable Film Chitosan and Carboxymethyl Chitosan to Substitute Silver Wound Healer Plaster
15.15-15.30	748-ORG	Masruri	Study Multicomponent Reaction of Pinonic Acid with Urea and Vanillin
15.30-15.45	756-ORG	Bambang Purwono	Synthesis of Imidazole Derivatives from Vanillin as an Anion Sensor
15.45-16.00	872-BIO	I Nengah Wirajana	Enhancement of $\alpha$ -L-Arabinofuranosidase Secretion in <i>Saccharomyces cerevisiae</i> Harboring pYHM1-Af by Regulating Induction Temperature and Post-Secretory Loss



Day 1, 30 August 2016

Room : C

Moderator : Prof. Dr. Daniel, M.Si.

Time	Article Number	Presenter	Title
13.30-13.45	660-ESS	Nur Illiyyin Akib	Preparation of Theophylline in Ethosome as Vesicular Carrier for Transdermal Delivery System
13.45-14.00	690-AGR	Sri Wahyuni	Shelf Life Prediction of Rice Analog Product, Instant Wikau Maombo Substituted with Mung Bean Flour ( <i>Phaseolus radiatus</i> ), Through Aslt (Accelerated Shelf Life Testing) Method with Sorption Isotherm Approach
14.00-14.15	752-AGR	Edi Suryanto	Singlet Oxygen Quenching Activity of Ethanol Extract and Solvent Fractions of Corn Cob ( <i>Zea mays</i> )
14.15-14.30	767-AGR	Deasy Liestianty	Chemical Composition of Spirulina Extract Microcapsulated in Different Combination of Gum Arabic, Maltodextrin and Dextrin Caramel
14.30-14.45	712-AGR	Nurchayo Iman Prakoso	An Investigation of Insect Ovipositing Repellent Activity of <i>Piper betle</i> Linn Leaf Extracts to <i>Batrocera carambolae</i>
14.45-15.00	Coffee Break		
15.00-15.15	783-AGR	Margareta Novian Cahyanti	Analysis of Amino Acids on Teukak (Fermented Sweet Potato Flour)
15.15-15.30	808-AGR	Anton Rahmadi	Study of Vitamata Consumption to Glucose, Total Cholesterol, and Uric Acid on Blood Levels of the Research Subjects
15.30-15.45	861-AGR	Hamka Nurkaya	Isolation of Cellulase-Producing Bacteria from Solid Waste Palm Oil Industry
15.45-16.00	753-AGR	Tagor Siregar	The Characteristics and Free Radical Scavenging Activity of Zinc Oxide Nanoparticles (Znops) Synthesized from Noni ( <i>Morinda citrifolia</i> L.) Fruits and Leaves Extracts



## ISOLATION OF CELLULASE-PRODUCING BACTERIA FROM SOLID WASTE PALM OIL INDUSTRY

**Hamka\***, Mujibu Rahman, Khusnul Khotimah, Theresia Adi Susanti  
Study Program of Plantation Product Processing Technology – Samarinda State Polytechnic of  
Agriculture, Indonesia  
\*Email: hamka\_nurkaya@yahoo.com

### Abstract

Indonesia as one of the country's largest producer and supplier of palm oil, as it also as a producer of solid waste in the form of oil palm empty fruit bunch that is not used optimally. Here is needed the most attention in the utilization of cellulosic waste as a raw material that has a low cost value if utilized through a fermentation process to produce high-value products. Oil palm empty fruit bunch as a source of cellulose can be degraded by specific organisms, including fungi, bacteria, actinomycetes, and the lower animals (insects). In this study focused on isolating the cellulase-producing bacteria of oil palm empty fruit bunch and determine the potential activity of cellulase enzymes to degrade cellulose using carboxy methyl cellulose (CMC) as a carbon source and enrichment media in the form of mineral salts. There are eight (8) isolates of bacteria were obtained and identified by the Gram staining method and colony morphology of bacterial cells. Two (2) of bacteria isolates were shown cellulase activity by clearing zone marked on surface of CMC agar medium with a use Congo red solution (1% v/v) and destained by NaOH solution of 1 M.

**Keywords:** *Carboxy Methyl Cellulose, Bacteria, Cellulase, Oil Palm Empty Fruit Bunch, Clear Zone*

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## CONFERENCE SECRETARIAT

- **Chemistry Department, Faculty of Mathematics and Natural Sciences, FMIPA, Mulawarman University,** Jalan Barong Tongkok, No. 4, Gunung Kelua campus, Samarinda, East Kalimantan 75123, Indonesia. Telp. +62541 747974
- **Awang Faroek Institute,** Jalan M. Yamin, No.20 Samarinda, East Kalimantan 75123, Indonesia. Telp. +62541 4121914

