ICCS IV

4th International Conference on Chemical Sciences

Presents this certificate to

Dr. Erizal Zaini

FOR ATTENDING THE CONFERENCE
AS POSTER PRESENTER
PADANG, 16-17 SEPTEMBER 2015

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CHAIRPERSON

4th ICCS 2015

International Conference on Chemical Sciences

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16-17 September 2015

Theme:
"The Role of Chemistry for Life Sustainability from Basic to Applied Research"

4th ICCS

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Topics :
Biotechnology, Biochemistry, Biomolecular Medicine, Biomedical Science, Medicinal Chemistry, Food and Drug Analysis, Applied and Industrial Chemistry, Separation Science, Material Science and Catalysis, Environmental Analysis, Bioenergy, Pigment and Rubber Industries, Sampling and Sensor Analysis

Presented by:
Analytical Environmental Chemistry Laboratory
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TOPIC OF THE CONFERENCE

All topics related to the Chemical Sciences but not limited to:

1. Biotechnology, Biochemistry and Biomolecular Medicine
2. Biomedical Science
3. Medicinal Chemistry
4. Food and Drug Analysis
5. Applied and Industrial Chemistry
6. Separation Science
7. Material Science and Catalysts
8. Environmental Analysis
9. Bioenergy, Pigment and Rubber Industries
10. Sampling and Sensor Technology

SCIENTIFIC INFORMATION

PLENARY LECTURERS

Prof. Takashi Yashiro, PhD
Jichi Medical University
Japan

"A new concept of cellular and structural Biology in anterior pituitary gland".

Takashi Yashiro, received his MD and PhD from School of Medicine, Jikei Medical University, Tokyo on 1978 and 1984, respectively.He well known as Professor of Anatomy at Medical School in Japan. He became assistant and Associate Professor at St. Marriana University School of Medicine, Vice Director Shimoda General Hospital and become full Professor at Jichi Medical University on 1998. He published morethan 80 scientifc publication in international refereed journals. On 2010 he Yoshimura Prize (Japan Society for Pituitary Research)

Prof. Dayar Arbain, PhD
Andalas University
Indonesia

"Inventory, chemical and antimicrobial study of Sumatran lower plants"

Dayar Arbain, received his Bachelor and Drs of Pharmacys and Aphotecery from Andalas University. Then he continues his study at University of Western Australia and received his PhD degree in Organic chemistry on 1986.
Dayar Arbain is well known in Indonesia and all over the world as Natural Product chemist especially for Sumatran traditional medicinal plants. He published morethan 45 scientific articles in various international refereed journals.

Prof. Rahmiana Zein, PhD
Andalas University
Indonesia

"Recent Progress on Biosorption of Heavy Metals and Dyes from Wastewater Using Low-Cost Biosorbents"

Rahmiana Zein, received her Bachelor degree from Andalas University, followed by Master and Doctor of Enginering degree from Gifu University Japan.
She is well known as active professor in Analytical Environmental Chemistry, Andalas University. She has published many scientific articles in reffered international journals.

Prof. Mutsuhiro Shima, PhD
Gifu University
Japan

"Tailored Synthesis of Magnetic Nanostructures"

Mutsuhiro Shima, education has been placed at Graduate School of Engineering, University of Maryland (USA) and Graduate School of Engineering, Kyoto University. His carrer mostly at USA (University of Maryland, 1994-1999, National Institute of Standars and Technology, 1997-1999; Massachusetts Institute of Technology, 1999-2002 and Rensselaer Polytechnic Institute, 2002-2008). He is also members of Electrochemical Society, Materials Research Society, IEEE Magnetics, Metal Society of Japan and Magnetic Society of Japan.

KEYNOTE LECTURERS

Prof. Yutaka Takaguchi, Okayama University, Japan

"Fabrication and photo sensitizing properties of coaxial nanohybrids having single-walled carbon nanotube"

Prof. Prihardi Kahar, Kobe University, Japan

"Molecular design of yeast strain for effective production of fine chemicals from real biomass substrates"

Ass. Prof. Oki Muraza, King Fahd University of Petroleum & Minerals, Saudi Arabia

"Conversion of alcohol to hydrocarbon fuels: Opportunity for cost-effective catalysts"

Prof. Masaji Watanabe, Okayama University, Japan

"Chemical and biological application of mathematical techniques, "Modeling and simulation"

Assoc. Prof. Dr. Tatas H.P. Brotosudarmo, Machung University, Indonesia

"Structural changes of photosynthetic apparatus during light adaptation"

Prof. Hye Jin Lee, Kyungpook National University, Korea.

"Ultrasensitive bioaffinity sensing platforms incorporating gold nanoparticles".

Assoc. Prof. Lim Lee Wah, Gifu University, Japan

"Microwave-assisted fabrication of stationary phases for capillary liquid chromatography"

Prof. Taufiq-Yap Yun Hin, University Putra Malaysia, Malaysia

"Strenghtening renewable energy industry from oil palm biomass"

Prof. Mamoru Koketsu, Gifu University, Japan

"Increased Bioavailability of Tricin-Amino Acid Conjugates via a Prodrug Approach"

Dr. Abdul Muizz Pradipto

"On The Use of Quantum Chemistry Methods in Transition Metal Oxide Materials"

PP-12

Influence of Milling Process to Efavirenz Solubility

Erizal Zaini[1], Deni Wahyu[2], Maria Dona Octavia[2] and Lili Fitriani[1]
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ABSTRACT

Efavirenz is a NNRTI (Non-nucleoside Reverse Transcriptase Inhibitors) class antiretroviral which specific to HIV type 1. It is categorized as class II of Biopharmaceutical Classification system (BCS) with low solubility but high permeability. Therefore, the aim of this study was to figure out the influence of the milling process to the solubility of Efavirenz. Milling process was done using Nanomilling for 30, 60 and 180 minutes. The milled and unprocessed Efavirenz was characterized by X-ray diffraction, Scanning Electron Microscopy (SEM), spectroscopy infra-red (IR), Differential Scanning Calorimetry (DSC), assay test and solubility test. The X-ray diffraction showed a decline on peak intensity on the diffractograms compared to unprocessed Efavirenz.The SEM graph depicted the change from crystalline to amorphous habit after milling process. The spectrum IR showed that there was no difference between milled and unprocessed Efavirenz. Thermal analysis which performed by DSC showed that there was a reduction on endotherm peak after milling process which related to decreasing of cristallinity. Efavirenz assay and solubility test were conducted using High Performance Liquid Chromatography (HPLC) method with acetonitrile:aquabidest (80:20) as mobile phases. The solubility was significantly increased ($p<0.05$) after milling processes, which the unprocessed efavirenz was 27.12±2.05, while the milled efavirenz for 30, 60 and 180 minutes were 75.53±1.59, 82.34±1.23 and 104.75±0.96 µg/mL, respectively. It can be concluded that the solubility of efavirenz improved after milling process.

Keywords: Efavirenz, Nanomilling, solubility, cristallinity

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