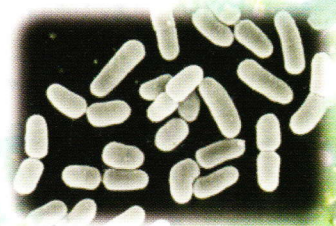
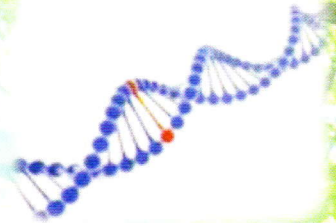


The 13th Young Scientist Seminar

Establishment of International Network for Tropical Bioresources and Their Utilization



NOVEMBER 18th-19th, 2017
SEMINAR PARK, YAMAGUCHI, JAPAN



Invitation

On behalf of the Organizing Committee, we are pleased to invite you to the 13th Young Scientist Seminar (YSS) in Yamaguchi, Japan. This seminar will be held on 18th – 19th Nov 2017. The YSS aims to establish the international network among young researchers including students, to broaden their knowledge about recent development in scientific field around the world.

Venue

The 13th YSS will be held at the Yamaguchi-ken Seminar Park, Yamaguchi, Japan. This is a prefectural facility to provide a wonderful environment to meet with young scientists studying in a similar field in a relaxing atmosphere.

Yamaguchi prefecture is located in the westernmost tip of Honshu island, the 2nd most populous island in the world. Because of its geographical location and ocean current, it has long had cultural exchanges with the Korean Peninsula.

Yamaguchi city is situated in the center of the prefecture. It has been long called “Kyoto of the West” due to its cultural similarities with Kyoto, the capital of Japan in the 14th century.

The temperature in November ranges from 5°C in the morning to 17°C in the afternoon.

Organization Committee

<i>Chairperson</i>	Kentaro Nakamura
<i>Master of ceremony</i>	Seiya Fukunari Nguyen Minh Thuy
<i>Financial manager</i>	Aya Nishioka
<i>Transportation</i>	Toshiyuki Tanaka
<i>Audio visual and Placement</i>	Megumi Ichiki
<i>Abstract and registration</i>	Kotaro Inukai
<i>Accounting Clerk</i>	Ryota Takahashi
<i>Public Relations</i>	Kenzo Yonemitsu

Sessions

The scientific program is composed of plenary, parallel and discussion session.

Scope

The scientific scope of the seminar follows most of the well received features of the previous events not only in the area of utilization of tropical bioresources but also in the biological field.

Advisory

General Co

Prof. Dr.
Dr. Nap
Prof. D

Coordinato

Prof. Dr.
Assoc.
Assoc.
Assoc.
Dr. Ant
Prof. D
Prof. D

Committee

Prof. D
Assoc.
Prof. D
Prof. D
Assoc.
Prof. D
Prof. D
Assist.
Prof. D
Assist.
Assoc.
Assist.
Assist.
Ms. N

Language

The offic
available.

Seminar

Establish
utilization

Social P

An icebre

Insuran

All deleg
duration

Advisory Committee

General Coordinators

Prof. Dr. Kazunobu Matsushita
Dr. Napavarn Noparatnaraporn
Prof. Dr. Vo-Tong Xuan

Coordinators

Prof. Dr. Mamoru Yamada
Assoc. Prof. Dr. Gunjana Teeragool
Assoc. Prof. Dr. Ngo Thi Phuong Dung
Assoc. Prof. Dr. Somchanh Bounphanmays
Dr. Anton Muhibuddin
Prof. Dr. Ing. Peter Gotz
Prof. Dr. Constantinous Theodoropoulos

Committee members

Prof. Dr. Shinichi Ito
Assoc. Prof. Dr. Toshiharu Yakushi
Prof. Dr. Ken Maeda
Prof. Dr. Kenji Matsui
Assoc. Prof. Dr. Hisashi Hoshida
Prof. Dr. Osami Misumi
Prof. Dr. Rinji Akada
Assist. Prof. Dr. Tomoyuki Kosaka
Prof. Dr. Tsuyoshi Imai
Assist. Prof. Dr. Naoya Kataoka
Assoc. Prof. Hiroshi Shimoda
Assist. Prof. Yuki Hara
Assist. Prof. Takao Koeduka
Ms. Naoko Miyaji

Language of the Seminar

The official language of the Seminar is English and no translation facilities are available.

Seminar Theme

Establishment of international research network for tropical bioresources and their utilization

Social Program

An icebreaker party will be taken place in the evening of the 18th Nov 2017

Insurance

All delegates are advised to take out their own health and life insurance for the duration of the Seminar.

Physiological function of YfjG in <i>Escherichia coli</i> respiratory chain	43
<u>Hajime Kishimoto, Takahiro Kariya, Naoko Fujimoto, Tomoyuki Kosaka, Mamoru Yamada</u>	
Improvement of butanol fermentation process using gas stripping system	44
<u>Thanawat Thanapornisn, Patthranit Sanchanda, Lakkana Laopaiboon, Pattana Laopaiboon</u>	
Novel finding on substrate specificity and reaction mechanism of PQQ-dependent glycerol dehydrogenase in <i>Gluconobacter frateurii</i>	45
<u>Yuka Terada, Seishiro Ozaki, Naoya Kataoka, Yoshihiko Akakabe, Osao Adachi, Toshiharu Yakushi, Kazunobu Matsushita</u>	
Indole-3-acetic acid production and biosynthetic pathway in the yeast <i>Rhodotorula paludigena</i>	46
<u>Pumin Nutaratat, Nantana Srisuk, Panarat Arunrattiyakorn, Savitree Limtong</u>	
Research on the design condition of the gas dissolving device for utilizes carbon dioxide as carbon source	47
<u>Yuki Torigoe, Tsuyoshi Imai</u>	
Bio-hydrogen Production from Cellulosic Biomass by Extremely Salt Tolerant Bacteria	48
<u>Dyah Asri Handayani Taroepratjeka, Tsuyoshi Imai</u>	
Improvement of L-alanine productivity in high- temperature fermentation using thermotolerant <i>Zymomonas mobilis</i>	49
<u>Tomoki Yoshikawa, Tomoko Kiseki, Masayuki Murata, Tomoyuki Kosaka, Mamoru Yamada</u>	
Metagenomic and development of the gut microbiota in rural infants in Bulukumba, Indonesia	50
<u>Mudyawati Kamaruddin, Minarti, Nurhidayat Triananinsi, Sumarni, Nurqalbi, Nasrum Massi</u>	
Gene synthesis of wild-type red fluorescent proteins applicable to cellular imaging	51
<u>Hiroto Suzuki, Hisashi Hoshida, Rinji Akada</u>	
<u>Group 5</u>	
Elimination of Pathogenic Microorganisms in Shrimp Farming Wastewater by Ozone for Water Reuse Application	52
<u>Piya Khuadkaew, Nugul Intrasungkha, Sompong O-Thong</u>	
Analysis of <i>AIG1-4</i> function under low pH environment in <i>Arabidopsis thaliana</i>	53
<u>Ryota Matsui, Haruka Kuba, Taisyu Akiyama, Tomoyuki Kosaka, Mamoru Yamada</u>	
ACEROLA VINEGAR PRODUCTION USING THERMOTOLERANT <i>Acetobacter senegalensis</i> A28	54
<u>Huynh Xuan Phong, Trinh Nguyet Tran, Nguyen Ngoc Thanh, Bui Hoang Dang Long, Ngo Thi Phuong Dung</u>	

Bio-hydrogen Production from Cellulosic Biomass by Extremely Salt Tolerant Bacteria

Dyah Asri Handayani Taroepratjeka^{1,2} and Tsuyoshi Imai¹

¹Graduate School of Sciences and Technology for Innovation, Yamaguchi Univ., Yamaguchi 755-8611, Japan

²Department of Environmental Engineering, Institut Teknologi Nasional (Itenas) Bandung, Jawa Barat 40124, Indonesia

Fossil fuel energy crisis has led a significant interest for clean alternative energy sources. Energy production from biomass especially has gained a renewed interest because it's readily available and allow a cost-effective use. Previous studies have shown that bio-hydrogen production from cellulosic biomass was possible with the application of anaerobic bacteria. But the process requires pretreatment with alkaline (NaOH) and heat, and also enzyme hydrolysis before the anaerobic bacteria can digest the cellulosic biomass. The high concentration of NaOH after the pretreatment process makes it difficult for most of bacteria to live. However, extremely salt tolerant bacteria (*halophile*) can survive in high salinity condition, whereas this condition increase osmotic pressure and provide inhibition to most other bacteria's activity.

The hypothesis is that the extremely salt tolerant hydrogen producing bacteria can be tolerant to high concentration of sodium ion. Extremely salt tolerant bacteria have adapted their cytoplasm osmotically with their high salt concentration medium. The bacteria in this study have been cultivated from soil samples of salt damaged soil in Khon Kaen, Thailand, and commercial salt pan field near Bangkok, Thailand and kept at anaerobic saturated sodium condition (26%) and incubation temperature of 37°C in 500 mL cultivation serum bottles. These extremely salt tolerant bacteria are capable to produce hydrogen under saturated salt (NaCl) condition without methane (CH₄) by-products.

To examine this hypothesis, first, we will conduct an experiment to investigate what kind(s) of the environmental factor that makes the extremely salt tolerant bacteria's high activity in high salinity condition, especially, whether it's mostly the sodium ions, chloride ions, or interaction of both. This step is necessary to customize the following pretreatment processes. The experiment will be done in 75 ml serum bottles in duplicates, and will be kept in shaking water bath to ensure optimum conditions. We will also acclimatize the bacteria from pure D-glucose carbon source during the cultivation to other different carbon sources which are most likely will be produced from cellulosic biomass hydrolysis, such as xylose and arabinose. After that, hydrogen production process from cellulose will be developed. For this experiment, we will use wooden disposable chopstick waste from Faculty of Engineering's Cafeteria in Yamaguchi University as the cellulosic biomass source. Finally, we will screen and characterize the microbial community by using 16-rRNA-based molecular techniques, including Polymerase Chain Reaction with based Denaturing Gradient Gel Electrophoresis (PCR-DGGE) and sequencing.