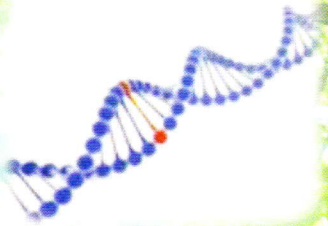
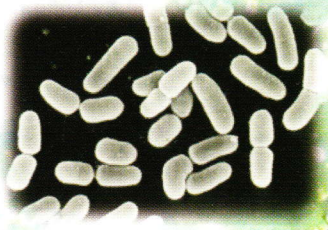
The 13 th Young Scientist Seminar

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

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

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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 Bounphanmys
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.

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

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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 (CH_4) 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.