

METABOLIC ENGINEERING AND MOLECULAR BIOLOGY (MEMOBIO)

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- Dr. Hirofumi Hara, Visiting Professor, University of Tokyo, Japan
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- Dr. Nurul Syahirah Shamsol Anuar, Visiting Researcher, University of Tokyo, Japan

NUMBER OF STUDENTS

- Ph.D : 12 students
- Master: 34 students
- Bachelor: 40 students

RESEARCH KEYWORDS

Biodegradation, Biocoke production, Soil-cooling temperate crops, Gene expression, Lignin bio-depolymerization, Copper biodegradation

OUTLINE OF IKOHZA

Establishment of MEMO-Bio ikohza is particularly well suited for Malaysia with a wealth of Microorganism yet to be characterized and investigated for their capabilities to degrade pollutants or to create new materials or fine chemicals from biomass. From the vast volumes of biomass from the palm oil and other agro-based industries, there is potential for Malaysia to produce the energy source, such as bio ethanol/bio hydrogen products, and chemical conversions creating high value-added chemical product for industrial and medical materials, such as antibiotics, vitamin, hormone and useful compounds from the action of microbes and modified metabolic pathway of microorganism. MJIT is well equipped with high-end analytical equipment for chemical analysis, gene/genomic analysis, and protein/enzyme analysis.

CURRENT RESEARCH

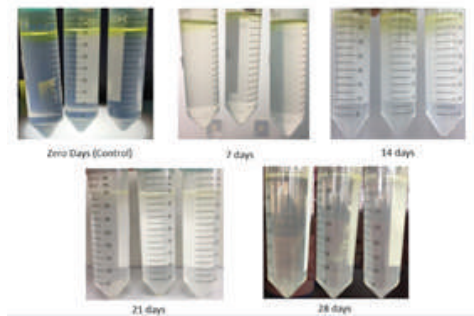
- The Influences of Biomass Components in the Production of Biocoke and Carbonized Biocoke from Oil Palm Empty Fruit Bunch



- Structure and Functional Profiling of Soil Microbial Communities Under Soil Cooling for Temperate Root Crops in the Tropics

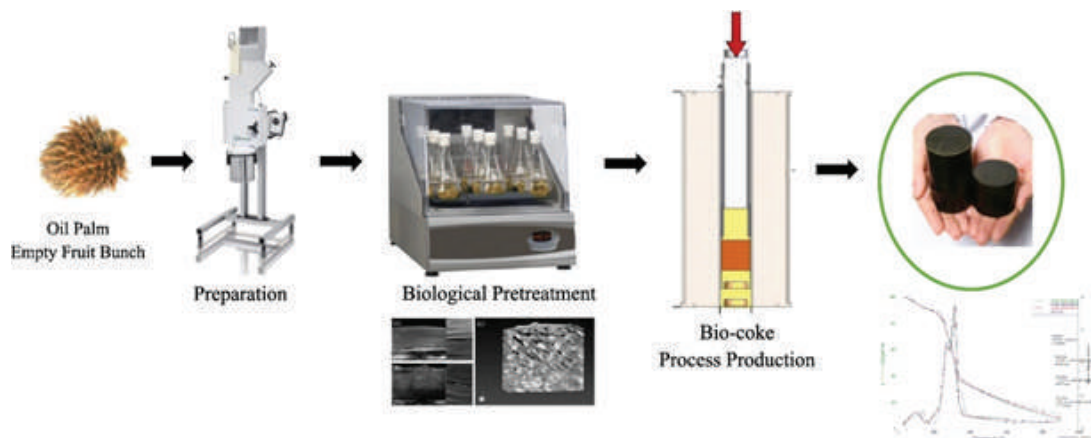


- Evaluation of Cooking Oil Degradation by *Aspergillus fumigatus* from Effective Microorganism Solution



MERIT OF THE TECHNOLOGY

- 1) Biocoke for generation of energy from under-utilized biomass



- 2) Growth of temperate crops in the tropics by introduction of soil-cooling method



POSSIBLE INDUSTRY APPLICATION

- Isolation of microorganisms, extraction of DNAs and performing gene cloning.
- Identification of biofunctional compounds from plants and animals.

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