



Dr. Alawi Sulaiman

Position

- Lecturer Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA
- Coordinator Faculty Research Unit, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA
- Leader- Biogas Group - Biofuel Research Team (BRT)-ABRII, Karaj, Iran.**
- Associate Researcher of Environmental Biotechnology Research Group, Faculty of Biotechnology and Biomolecular Sciences Universiti Putra Malaysia



Address

Faculty of Plantation and Agrotechnology
Universiti Teknologi MARA
40450 Shah Alam
Selangor MALAYSIA
Phone: +603 5543 5547
Fax: +603 5543 5563
Email: asuitm@yahoo.com

Date of Birth

15.02.1972 in Malaysia

Academic Career

2010-present: Lecturer, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA, Malaysia.

2002-2009: Lecturer, Faculty of Chemical Engineering, Universiti Teknologi MARA, Malaysia.

2006-present: Researcher, Environmental Biotechnology Research Group, Faculty of Biotechnology and Biomolecular Sciences, Universiti Putra Malaysia.

2006-2009: PhD Postgraduate (Bioprocess Engineering) Universiti Putra Malaysia

2001-2002: Master Postgraduate (Environmental Sci/Eng), Universiti Putra Malaysia

1992-1995: Undergraduate (Bachelor of Chemical Engineering), RMIT University, Australia.



Research Area

- Biogas science and engineering
- Biofertilizer science and engineering
- Wastewater treatment technology
- Immobilized technology

Language

Malaya and English

Honors and Awards

- PECIPTA 2009, Malaysia. International Exposition of Research and Invention of Institutions of Higher Learning 2009. Silver Medal: A Novel High Rate In-Vessel Composter for Oil Palm Biomass, Organic and Municipal Wastes. Azhari Samsu Baharuddin, Alawi Hj. Sulaiman, Lim Siong Hock, Mohd Najib Ahmad, Chairil Anuar Dzulkornain and Zubair Shafie.
- Pameran Reka Cipta Penyelidikan dan Inovasi UPM 2009, Malaysia. Gold Medal: PCR Based DGGE and FISH Analysis of Methanogens in an Anaerobic Closed Digester Tank for Treating Palm Oil Mill Effluent. Mohd Ali Hassan, Meisam Tabatabaei, Mohd Rafein Zakaria, Raha Abdul Rahim, Andre-Denis G. Wright, Yoshihito Shiraj, Norhani Abdullah, Kenji Sakai, Shinya Ikeno, Masatsugu Mori, Nakamura Kazunori, Alawi Sulaiman.
- Pameran Reka Cipta Penyelidikan dan Inovasi UPM 2009, Malaysia. Gold Medal: A Novel High Rate In-Vessel Composter for Oil Palm Biomass, Organic and Municipal Wastes. Azhari Samsu Baharuddin, Alawi Hj. Sulaiman, Lim Siong Hock, Mohd Najib Ahmad, Chairil Anuar Dzulkornain and Zubair Shafie.
- Pameran Reka Cipta Penyelidikan dan Inovasi UPM 2009, Malaysia. Gold Medal: Appropriate Technology for Accelerated Composting of Oil Palm Biomass. Yoshito Shirai, Umi Kalsom Md. Shah, Azhari Samsu Baharuddin, Alawi Hj. Sulaiman, Lim Siong Hock, Mohd Najib Ahmad and Chairil Anuar Dzulkornain
- Anugerah Inovasi Tahunan Bank Islam-UiTM Kategori Pensyarah 2007 Sempena Inventions, Innovation and Designs (IID) 2007. Alawi Sulaiman.
- Inventions, Innovation and Designs (IID) 2007, UiTM Malaysia. Gold Medal: Production of mud as bleaching agent using chemical method for recycling of spent lubricating oil. Noor Harliza Abd Razak, Ku Halim Ku Hamid, Alawi Sulaiman.
- Ideen-Erfindungen-Neuheiten-Nurenberg 2006, (International Trade Fair IENA) Germany. Gold Medal: Lubricating oil from blending of treated spent lubricating oil and palm oil fraction. Alawi Sulaiman, Ku Halim Ku Hamid, Noor Harliza Abd Razak, Rusmi Alias.
- Malaysia Technology Expo 2006, Malaysia. Bronze Medal: Lubricating oil from blending of treated spent lubricating oil and palm oil fraction. Alawi Sulaiman, Ku Halim Ku Hamid, Noor Harliza Abd Razak, Rusmi Alias

Grants and Funding

(Chair)

- Performance characteristics study of encapsulation techniques on supporting materials bioconversion of tapioca into glucose, Source of finance Ministry of Higher Education Malaysia Fundamental Research Grant Scheme, Duration: 24 months (27/12/2010-



26/12/2012 In-progress).

- A feasibility study of lubricating oil production from blending of spent lubricating oil and palm oil fractions, Source of Finance Ministry of Education, Duration: 12 Months-Completed.

(Collaborator)

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Patents

- Mohd Ali Hassan, Azhari Samsu Baharuddin, Alawi Sulaiman, Khairul Anuar, Zubair Shafie, Hamidi Abdul Hamid, Mohd Fuad Saron and Shahrudin Omar. A Novel High Rate In-vessel Composter. Patent Pending: PCT/MY2009/000081.
- Mohd Ali Hassan, Azhari Samsu Baharuddin, Alawi Sulaiman, Mohd Zulkhairi Mohd Yusoff, Ezyana Kaml Bahrin . A method for treating oil palm biomass. Patent Pending (Malaysia) PI 2011000731.

Publications

Book Chapter

Meisam Tabatabaei, Alawi Sulaiman, Ali Mohammad Nikbakht, Norjan Yousef, and Ghasem Najafpour. 2011. Influential Parameters on Biomethane Generation in Anaerobic Wastewater Treatment Plants. In *Alternative Fuel*, Book edited by Maximino Manzanera, ISBN 978-953-307-347-7 (INTECH, Croatia).

Full papers in peer reviewed journals

- Meisam Tabatabaei, Mohd Rafein Zakaria, Raha Abdul Rahim, Andre-Denis G. Wright, Yoshihito Shirai, Norhani Abdullah, Kenji Sakai, Shinyo Ikeno, Masatsugu Mori, Nakamura Kazunori, Alawi Sulaiman, Mohd Ali Hassan. 2009. PCR-based DGGE and FISH analysis of methanogens in an anaerobic digester tank for treating palm oil mill effluent. *Electronic Journal of Biotechnology*, 12(3): 1-12.
- Meisam Tabatabaei, Raha Abdul Rahim, Norhani Abdullah,, Andre-Denis G. Wright, Yoshihito Shirai, Kenji Sakai, Alawi Sulaiman, Mohd Ali Hassan. 2010. Review: Importance of the methanogenic archea populations in anaerobic wastewater treatments. *Process Biochemistry* 45 (2010) 1214-1225.
- Zainuri Busu, Alawi Sulaiman, Mohd Ali Hassan, Yoshihito Shirai, Suraini Abd-Aziz, Shahrakbah Yacob, Minato Wakisaka. 2010. Improved anaerobic treatment of palm oil mill effluent in a semi-commercial closed digester tank with sludge recycling and appropriate feeding strategy. *Pertanika Journal of Agricultural Science*, 33(1) 27-37.
- Alawi Sulaiman, Meisam Tabatabaei, Mohd Zulkhairi Mohd Yusof, Mohd Faizal Ibrahim, Mohd Ali Hassan, Yoshihito Shirai. 2010. Accelerated start-up of a semi-commercial digester tank treating palm oil mill effluent with sludge seeding for methane production. *World Applied Sciences Journal* 8 (2): 247-258.
- Alawi Sulaiman, Meisam Tabatabaei, Mohd Ali Hassan, Yoshihito Shirai. 2009. The Effect of Higher Sludge Recycling Rate on Anaerobic Treatment of Palm Oil Mill Effluent in a Semi-Commercial Closed Digester for Renewable Energy. *American Journal of Biochemistry and Biotechnology*, 5(1): 1-6.



- Alawi Sulaiman, Mohd Ali Hassan, Yoshihito Shirai, Suraini Abd-Aziz, Meisam Tabatabaei, Zainuri Busu and Shahrakbah Yacob. 2009. The Effect of Mixing on Methane Production in a Semi-commercial Closed Digester Tank Treating Palm Oil Mill Effluent. *Australian Journal of Basic and Applied Sciences*, 3(3): 1577-1583.
- Alawi Sulaiman, Mohd Rafein Zakaria, Ali Hassan, Yoshihito Shirai, and Zainuri Busu. 2009. Co-digestion of palm oil mill effluent and refined glycerin wash water for chemical oxygen demand removal and methane production. *American Journal of Environmental Sciences*, 5 (5): 639-646.
- Mohd Ali Hassan, Alawi Sulaiman, Yoshihito Shirai and Suraini Abd-Aziz. 2009. Methane Capture and Clean Development Mechanism Project for the Sustainability of Palm Oil Industry in Malaysia. *Journal of Applied Science Research*. 5(10): 1568-1581.

International Conference Proceedings and Oral Presentations:

- Mohd Ali Hassan, Mohd Yusri Yusof, Azura Mohd Don, Alawi Sulaiman, Azlina Mat Salim. Biomass utilization in Malaysia. The Training Program for the East Asia Biomass Town Concept 28 February – 4 March, 2011, Tokyo, Japan
- Alawi Sulaiman. Methane fermentation of palm oil mill effluent and energy recovery. International Symposium on Biomass Refinery in Palm Oil Industry 2011. 08 February, 2011. International Hall, Kyushu University (Hakozaki Campus).
- Alawi Sulaiman. Biogas production from waste; state of art and new trends ; Palm Oil Mill Effluent Treatment for Renewable Energy Capture Project through Clean Development Mechanism. International Workshop on Advanced Technologies for Biofuels Production from Wastes. 4-9 February 2011. Agricultural Biotechnology Research Institute of Iran
- Alawi Sulaiman. Biogas production from waste; bioreactor design, state of art and new trends. International Workshop on Advanced Technologies for Biofuels Production from Wastes. 4-9 February 2011. Agricultural Biotechnology Research Institute of Iran.
- Alawi Sulaiman, Ali M. Nikbakht, Mahdi Khatamifar, Meisam Tabatabaei and Mohd Ali Hassan. Modeling anaerobic process for wastewater treatment: new trends and methodologies. 28-30 December 2010, Hong Kong.
- Meisam Tabatabaei, Mohammad Barkhi, Alawi Sulaiman, Sara Pourmand, Mohd Ali Hassan. An overview on the effects of Nano-Catalysts on the combustion performance of Biodiesel. (Third International Symposium on Energy From Biomass and Waste. November 8 - 11 , 2010, Venice, Italy).
- M. Barkhi, A. Sulaiman, K. Khoshnevisan, D. Zare, M. Tabatabaei. Proceedings of the International Congress on Nanoscience and Nanotechnology, 9-11 November 2010, Shiraz, Iran.
- Alawi Sulaiman, Mohd Ali Hassan, Yoshihito Shirai, Zainuri Busu and Shahrakbah Yacob. Biomethane production from palm oil mill effluent (POME) in a semi-commercial closed anaerobic digester. Presented in International Networking of Young Scientist (INYS) on Renewable Energy. Organised by British Council Malaysia and Solar Energy Research Institute (SERI) UKM. UKM 12-16 November 2007.
- Alawi Sulaiman, Zainuri Busu, Mohd Ali Hassan, Minato Wakisaka, and Yoshihito Shirai. Clean Development Mechanism Project for Methane Capture from Palm Oil Mill Effluent Treatment in Malaysia. Presented in 5th Asia Biomass Workshop. Organised by Chinese Academy of Sciences (CAS), China, MAFF, METI, and Biomass-Asia Research Consortium, Japan. Baiyun International Convention Center, 1039-1045 Baiyun Avenue, Guangzhou, China.
- Alawi Sulaiman, Zainuri Busu, Shahrakbah Yacob, Mohd Ali Hassan and Yoshihito Shirai.. Biomethane production from palm oil mill effluent (POME) in a semi-commercial closed anaerobic digester. 29 November 2007. JSPS Seminar on Sustainable Palm Biomass Initiatives UPM Malaysia.



- Alawi Sulaiman, Mohd Ali Hassan, Yoshihito Shirai and Abdul Halim Ahmad. Osaka University. Clean Development Mechanism project for methane recovery from palm oil mill effluent in Malaysia. International Symposium on Frontiers of environmental and Industrial Biotechnology, 21-22 January 2009, Osaka Japan.
- Suraini Abd-Aziz, Mohd Ali Hassan, Yoshihito Shirai and Alawi Sulaiman. Energy recovery from palm oil waste in Malaysia. International Conference on Sustainability Science in Asia. 23-24 November 2009. Thailand.
- Meisam Tabatabaei, Mohd Rafein Zakaria, Raha Abdul Rahim, André-Denis G. Wright, Yoshihito Shirai, Norhani Abdullah, Kenji Sakai, Shinya Ikeno, Masatsugu Mori, Nakamura Kazunori, Alawi Sulaiman and Mohd Ali Hassan. PCR-Based DGGE and FISH Analysis of Methanogens in an Anaerobic Bioreactor for Treating Palm Oil Mill Effluent. Annual Conference of the Association for General and Applied Microbiology (VAAM), 2009, Bochum, Germany.
- Meisam Tabatabaei, Mohd Rafein Zakaria, Raha Abdul Rahim, André-Denis G. Wright, Yoshihito Shirai, Norhani Abdullah, Kenji Sakai, Shinya Ikeno, Masatsugu Mori, Nakamura Kazunori, Alawi Sulaiman and Mohd Ali Hassan. Monitoring Methanogenic Archaea in an Anaerobic Bioreactor for Treating Palm Oil Mill Effluent Using PCR-Based DGGE and FISH Analysis. Advances in Wastewater Treatment and Reuse (AWTR), Tehran, Iran.
- Conference of Social Science Research (CSSR) 2007. A feasibility study of lubricating oil production from blending of spent lubricating oil and palm oil fraction. Alawi Sulaiman, Norharliza Abd Razak, Ku Halim Ku Hamid, Rusmi Alias.
- Conference of Applied Sciences 2006. Treatment of used automotive lube oil using volcanic mud: A preliminary study. Norhaliza Abd Razak, Alawi Sulaiman, Ku Halim Ku Hamid.
- Proceedings of the Symposium of Malaysia Chemical Engineers (SoMChE 2006). The effect of organic loading rates on biomethanation of palm oil mill effluent in a 500 m³ closed anaerobic reactor. Zainuri Busu, Alawi Sulaiman, Mohd Ali Hassan, Yoshihito Shirai.
- Proceedings of the Symposium Symposium of Malaysia Chemical Engineers (SoMChE 2006). Recycling spent lubricating oil by solvent extraction. Noor Harliza Abd Razak, Ku Halim Ku Hamid, Alawi Sulaiman.

Workshop organizer

Accomplished Workshop

- **Member- [Workshop on Advanced Molecular Techniques: DGGE and FISH workshop](#) – (August 25-28, 2008). Institute of Bioscience, Universiti Putra Malaysia, Malaysia.**
- **Member- [Workshop on Effective Microorganism](#) – (November 12-13, 2011). Faculty of Plantation and Agrotechnology, Malaysia.**

Graduate Students

MSc.:

1- Nurul Aini Edama (Main Supervisor) (Status: On-going)

Thesis Title: “Development of a novel enzyme encapsulation technique on supporting material for the bioconversion of tapioca into glucose”

2- Siti Noraida Abd. Rahim (Main Supervisor) (Status: On-going)

Thesis Title: “Performance evaluation of multi-enzyme encapsulation technology on



supporting material for bioconversion of tapioca slurry into glucose in rotating disc bioreactor”

[3- Mohd Rafi Masduki \(Main Supervisor\) \(Status: Graduated, 2010\)](#)

Thesis Title: “Development of natural polymer composite from oil palm biomass”

PhD:

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Teaching Experience

Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA, July 2011-Present

Faculty of Chemical Engineering, Universiti Teknologi MARA , May 2002 – July 2011.

International Collaborations:

UNIVERSITI PUTRA MALAYSIA – KYUSHU INSTITUTE OF TECHNOLOGY Research Collaboration

Associate Researcher : (Dr. Alawi Sulaiman affiliated with Environmental Biotechnology Research Group UPM through Prof Dr. Mohd Ali Hassan and KIT through Prof. Dr. Yoshihito Shirai on Oil Palm Biomass Project)

UNIVERSITI PUTRA MALAYSIA – MINISTRT OF HOUSING AND LOCAL GOVERNMENT MALAYSIA – MINISTRY OF AGRICULTURE FORESTRY AND FISHERIES JAPAN - RECYCLE ONE-MAJLIS PERBANDARAN SUBANG JAYA Research Collaboration

Researcher : (Dr. Alawi Sulaiman is a researcher for Developing Biomass Town Project In Malaysia)

Ongoing Projects:

- Performance Characteristics Study of Encapsulation Techniques on Supporting Material in Bioconversion of Tapioca into Glucose (2 Master Students)

The goal of this project is to develop an effective encapsulation technology for multiple enzymes immobilization of supporting materials for converting wastewater into a value-added product.

Member of Editorial Board of Journals

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Professional Committees

- Board of Engineers Malaysia, 1998-Present
- Institute of Engineers Malaysia, 2006-Present

Reviewer for Journals

1. *Bioresource Technology* (**5-Year Impact Factor:** 4.815)
2. *International Research Journal of Agricultural Sciences*
3. *African Journal of Biotechnology*
4. *Journal of Ecology and the Natural environment*
5. *International Research Journal of Biochemistry and Bioinformatics*
6. *International Research Journal of Microbiology*

Memberships:

- *Asian Federation of Biotechnology (AFOB) since 2009*