

Asst. Prof. Chontisa Sukkasem,

Ph.D., Biotechnology (Bioprocess Engineering and Environmental Biotechnology)

Postdoctoral (Bio-Electrochemical Engineering)

Mobile Phone: +66-84-212-1788 Fax: +66-74-693996

E-mail: chontisa.s@gmail.com

Recent Position and Location

- 1) Head of research project, Microbial fuel cell laboratory,
Research Center in Energy and Environment,
Thaksin University, Phatthalung Campus, Phatthalung, 93110. Thailand
- 2) Undergrad Lecturer at Department of Food Science and Technology,
Faculty of Technology and Community Development,
Thaksin University, Phatthalung Campus, Phatthalung, 93110. Thailand
- 3) Postgrad Lecturer at Department of Biotechnology,
Faculty of Science and Technology and Community Development,
Thaksin University, Phatthalung Campus, Phatthalung, 93110. Thailand
- 4) CTO, Inno Green Tech Co.,Ltd. Hatyai, Songkhla. 90110. Thailand

Degree:

- 1) Prince of Songkla University (sandwich program with Oregon State University)
Doctor of Philosophy (PhD), Biotechnology (Bioprocess Engineering and Environmental Biotechnology), 2004 – 2009
Dissertation
Sukkasem, C. 2009. Electricity generation from industrial wastewater using single chamber microbial fuel cell and biocatalyst-immobilized-cathode-upflow microbial fuel cell. PhD. Dissertation, Prince of Songkla University, Hat Yai, Songkhla. Thailand.
- 2) Prince of Songkla University
Master's degree, Food Technology, 1993 – 1997
- 3) Prince of Songkla University
Bachelor's degree, Agro-Industry, 1987 – 1991

Field of interests:

Skills	Microbial Fuel Cell, Biocatalyst, Nitrate, Sulfate-Sulfide, Wastewater Treatment, Environmental Biotechnology, Green Technology, Environmental Bioremediation, Renewable Energy, Green Chemistry, Bioprocess Engineering and Fermentation Technology, Bioelectrochemistry, Biomaterials, Cost Benefit, Food Science and Technology, Food Engineering, Food Quality and Assurance, Food Safety, Food Processing, SME Business Plan
Scientific Memberships	ISMET
Interests	Microbial Fuel Cell, Renewable Energy, Green Technology, Zero Waste, Eco-Friendly, Bioremediation, Bio-Circular-Green Economy

Grants and Awards

Year	Grants and Awards
2020	Innovative wastewater treatment by Bio-Circuit System - clear, odourless, non-toxic water, improve quality Environmental friendly 1,000,000 baht
2020	<u>Prototype of BioCircuit wastewater treatment combined with electrocoagulation technique to treat nitrogen and phosphate for eutrofication crisis reduction</u> 2,000,000 bath
2019	Decolorizing the Palm Oil Milled Effluent by Anaerobic Fungi Consortia as BioCircuit in Microbial Fuel Cell (period 2), Agricultural research development agency (public organization), 1,460,000 baht
2018	Bio-circuit system - high efficiency, low energy consumption for treating waste and odor from rubber process wastewater. Energy Policy and Planning Office, Ministry of Energy, Thailand. 1,987,138 Baht
2017	Treatment of chemical contaminated wastewater from the concentrated latex processing industry by Bio-Circuit system: high efficiency, low energy consumption combined with rubber flocculation. Ministry of Science and Technology. 1,774,000 Baht

Year Grants and Awards

2020	Innovative wastewater treatment by Bio-Circuit System - clear, odourless, non-toxic water, improve quality Environmental friendly 1,000,000 baht
2020	<u>Prototype of BioCircuit wastewater treatment combined with electrocoagulation technique to treat nitrogen and phosphate for eutrofication crisis reduction</u> 2,000,000 bath
2017	Leader of Innovation Fellowship Programme 2018, Newton Fund (Innovation technology Commercialization) from The Royal Academy of Engineering (RAEng), UK
2017	International Invention Award: Silver Prize in 45th International Exhibition of Inventions of Geneva
2017	Thailand Invention Award: Fourth prize from Ministry of Science and Technology
2016	Grant: Decolorizing the Palm Oil Milled Effluent by Anaerobic Fungi Consortia as BioCircuit in Microbial Fuel Cell, Agricultural research development agency (public organization), 349,000 baht
2016	Grant: Enhancing the power generation efficiency of microbial fuel cell by culturing the biocatalyst producer fungi on electrodes, Energy Policy and Planning Office, Ministry of Energy, Thailand 965,140 baht
2016	Grant: Decolorizing the palm oil milled effluent by an integrated BioCircuit microbial fuel cell with specific microbes, The Thailand Research Fund 395,000 Baht
2015	Awards: The best Innovative Research from Thaksin University
2015	Grant: Researcher and research development for industries, The Thailand Research Fund 300,000 Baht
2015	Award: The best Research Role Model from Thaksin University
2014	Grant: The Commercial Cooperation Research and Development between government and Private Sector, Office of the Higher Education Commission 500,000 Baht
2014	Award: The 2nd place of the best Research Lecturer in Agricultural Science from Agricultural Dean Council of Thailand
2013	Award: The 4th place of the best invention from National Research Council of Thailand
2012	Grant: Collaboration Development Awards New Approaches to Emerging Energy Systems from UK-Southeast Asia partner in Science
2012	Grant: Platform Research from Thailand National Science and Technology Development Agency 297,000 Baht
2012	Award: The 3rd place of the best dissertation from National Research Council of Thailand
2011	Scholarship: Post Doctoral (Bioelectrochemical Engineering) from National Metal and Materials Technology Center, Thailand
2011	Grant: Re-entry Project of Institute of Research and Development for Health of Southern, Thailand 500,000 Baht
2011	Award: The 3rd place of the best invention from National Research Council of Thailand
2009	Grant: Urgent Project of National Research Council of Thailand 1,000,000 Baht

Interests: Microbial Fuel Cell, Renewable Energy, Green Technology, Zero Waste, Eco-Friendly, Bioremediation

Patent:

Year/ Article

2017	Chontisa Sukkasem. 2017. Modular floating BioCircuit wastewater treatment system. Thai patent no. 15630, Year 26 Oct 2017.
2016	Chontisa Sukkasem and Sutthida Wijasika. Bioelectrochemical environment engineering for wastewater treatment by float microbial fuel cell. Thai patent Application No. 1601005551, Year 23 Sep, 2016.
2014	Sumittra Charojrochkul · Korakot Sombatmankhong · Chontisa Sukkasem. Biological treatment system converting wastewater to energy independently. Thai patent Application No.1401005928, Year: 09/2014
2014	Chontisa Sukkasem. Microbial Fuel Cell Wastewater Treatment System. Thai Patent No. 9672, Year: 05/2014
2013	Charotrojkul, S., Sukkasem, C. and Sombatmankong, K. 2013. AC impedance cell test for determining the resistance of microbe-immobilized materials in wastewater. National Science and Technology Development Agency. Thai Patent application No. 1301003991. Year: 07/2013
2010	Chontisa Sukkasem .2010. A turbo biotreatment for severe wastewater. National Research Council of Thailand. Thai Patent No. 6911. Year: 09/2010
2009	Sukkasem C .and Boonsawang, P. 2008. A membrane less upflow microbial fuel cell using biocatalyst-immobilized cathode. Prince of Songkhla University. Thai Patent application No. 0901000456. Year: 01/2009

Research Articles

Year/ Article

- 2019 Wattanakitjanukul, N., Sukkasem, C., Chiersilp, B., and Boonsawang P. (2019). "Use of Palm Empty Fruit Bunches for the Production of Ligninolytic Enzymes by *Xylaria* sp. in Solid State Fermentation," Waste and Biomass Valorization, 1-12.
- 2019 Chaijak, P., Sato, C., Paucar, N., Lertworapreecha, M., and Sukkasem, C. (2019). "Preliminary Study of Electricity Generation and Sulfate Removal Performance in a Novel Air-Cathode Microbial Fuel Cell (AC-MFC) Using Laccase-Producing Yeast as a Biocatalyst," Polish Journal of Environmental Studies, 28 (5).
- 2018 Chaijak, P., Lertworapreecha, M., and Sukkasem, C. (2018). "Phenol removal from palm oil mill effluent using *Galactomyces reessii* termite associated yeast," Polish Journal Environmental Studies, 27 (1), 1-6.
- 2018 Chaijak, P., Sukkasem, C., Lertworapreecha, M., Boonsawang, P., and Wijasika, S. (2018) "Enhancing electricity generation using a laccase-based microbial fuel cell with yeast *Galactomyces reessii* on the cathode," Journal of microbiology and biotechnology, 28 (8), 1360-1366.
- 2018 Sukkasem, C. et al. (2018) Enhancing electricity generation using a laccase-based microbial fuel cell with yeast *Galactomyces reessii* on the cathode
Journal of microbiology and biotechnology 28 (8), 1360-1366
- 2017 Chaijak, P., Lertworapreecha, M., Sukkasem, C., (2017) "Extracellular Laccase Production by Co-culture between *Galactomyces reessii* IFO 10823 and Filamentous Fungal Strains Isolated from Fungus Comb Using Natural Inducer," World Academy of Science, Engineering and Technology, International Journal. International Journal of Biotechnology and Bioengineering 11 (3), 228-231.
- 2017 Chaijak, P., Lertworapreecha, M., Sukkasem, C., (2017) Phenol Removal from Palm Oil Mill Effluent Using *Galactomyces reessii* Termite-Associated Yeast, Polish Journal of Environmental Studies
- 2017 Chaijak, P., Lertworapreecha, M., Sukkasem, C., (2017) Screening of laccase producing fungi from mound-building termite in Phatthalung province, Southern of Thailand
Research Journal of Biotechnology, 17(10): 70-72.
- 2015 Sukkasem, C. et al. (2015) An economical upflow bio-filter circuit (UBFC): a biocatalyst microbial fuel cell for sulfate-sulfide rich wastewater treatment
Environmental Science: Water Research & Technology, 1: 161
- 2013 Sukkasem, C. and Leahlah, S. (2013) Development of a UBFC biocatalyst fuel cell to generate power and treat industrial wastewaters.
Bioresource Technology, Vol. 146, pp. 749-753
- 2011 Sukkasem, C. and Leahlah, S. (2011) Upflow bio-filter circuit (UBFC) biocatalyst microbial fuel cell (MFC) configuration and application to biodiesel wastewater treatment.
Bioresource Technology, Vol. 102, pp. 10363-10370
- 2008 Sukkasem, C. et al. (2008) Effect of nitrate on the performance of single chamber air cathode microbial fuel cells.
Water Res. Vol. 42, pp. 4743-4750.

International Conferences/Exhibitions

Year/Title

- 2019 Sukkasem, C. et al. Treating hydrogen sulfide toxic smelly gas from rubber process wastewater by high efficiency, low energy consumption "Turbo Bio-circuit system
Electromicrobiology conference 21-22 March 2019 in Aarhus, Denmark
- 2017 Sukkasem, C. et al. Biocatalyst Microbial Fuel Cell: Turbo Bio-treatment for Industrial wastewater
45th International Exhibition of Inventions of Geneva. Palexpo, Geneva, Switzerland
- 2016 Sukkasem, C. et al. Influence of Anode Configurations on A Single Cell Upflow Biofilter Circuit (Ubfc)-
Biocatalyst Microbial Fuel Cell Performances.
Biotechnology for Waste Conversion 2016, Hong Kong SAR, P.R. China, 5-8 December, 2016
- 2016 Sukkasem, C. et al. The microbial fuel cell prototype for treating toxic sulfide in wastewater from small plant of
rubber latex sheet process STEMa 2016 International conference on science and technology of emerging
materials. July 27-29, 2016 Pattaya, Thailand.
- 2014 Sukkasem, C. et al. Sulfate-Sulfide Rich Wastewater Treatment By Upflow Bio-Filter Circuit (UBFC)
ESBES-IFIBIOP 2014 10th European Symposium on Biochemical Engineering Sciences and 6th International
Forum on Industrial Bioprocesses - Lille - France 7-10 September 2014
- 2014 Sukkasem, C. et al. Enhance the Upflow Bio-Filter Circuit (UBFC): Biocatalyst Microbial Fuel Cell Performance
ESBES-IFIBIOP 2014 10th European Symposium on Biochemical Engineering Sciences and 6th International
Forum on Industrial Bioprocesses - Lille - France 7-10 September 2014
- 2014 Sukkasem, C. et al. Scaling-up Upflow Bio-Filter Circuit (UBFC) for Sulfate-Sulfide Rich treatment from Rubber
Sheet Process Wastewater
International Conference on Rubber (2014 ICR), Thaksin University, August 28-29, 2014
- 2014 Sukkasem, C. et al. Development of electrode to enhance the Upflow Bio-Filter Circuit (UBFC): biocatalyst
microbial fuel cell performance
The 2nd AP-ISMET Meeting: Bioelectrochemical Science and Technologies for Environmental Applications,
National University of Singapore. July 22-23, 2014.
- 2014 Sukkasem, C. et al. Economic Strategy of Sulfate-Sulfide Rich Wastewater Treatment by Upflow Bio-Filter
Circuit (UBFC).
The 2nd AP-ISMET Meeting: Bioelectrochemical Science and Technologies for Environmental Applications,
National University of Singapore. July 22-23, 2014.
- 2013 Sukkasem, C. et al. Application of UBFC-Biocatalyst Fuel Cell to Detox Sulfate-Sulfide Rich Wastewater
International Conference on Alternative Energy in Developing Countries and Emerging Economies (2013
AEDCEE) : 30-31 May 2013 Pullman Bangkok King Power, Bangkok, Thailand
- 2013 Sukkasem, C. et al. Development of UBFC Biocatalyst Fuel Cell to Generate Power and Treat Industrial
wastewaters.
International Conference on Alternative Energy in Developing Countries and Emerging Economies (2013
AEDCEE) 30-31 May 2013 Pullman Bangkok King Power, Bangkok, Thailand

Year/Title

- 2012 Sukkasem, C. et al. Application of upflow bio-filter circuit (ubfc), biocatalyst microbial fuel cell, to industrial wastewater treatment. BIT's 2nd Annual World Congress of Environmental Biotechnology (WCEB-2012). September 24-26, 2012. Taiyuan, China
- 2011 Sukkasem, C. et al. Thai microbial fuel cell application: palm oil mill effluent International conference on alternative energy in developing countries and emerging economies. May 25-26, 2011. J.B.hotel, Hatyai, Songkhla, Thailand.
- 2010 Sukkasem, C. et al. Enhance potential of membrane-less biocathode upflow microbial fuel cell for biodiesel wastewater treatment. In Proceedings of 239th ACS National Meeting and Exposition, March 21-25, 2010. Moscone Center, San Francisco, CA, USA.
- 2009 Sukkasem, C. et al. Sulfate effect on electricity generation in single chamber air cathode microbial fuel cells In Proceedings of The 3rd International Conference on Fermentation Technology for Value Added Agricultural Products and The 2009 Asian Bio-Hydrogen Symposium, August 26-28, 2009. Kosa Hotel, Khon Kaen, Thailand.
- 2009 Sukkasem, C. et al. Influent of sulfate and nitrate on electricity generation in single-chamber microbial fuel cells In Proceedings of The 2nd Microbial Fuel Cell Conference, June 10- 12, 2009. Gwangju, Korea
- 2008 Sukkasem, C. et al. Effect of nitrate on the performance of single chamber air cathode microbial fuel cells In Proceedings of 7th National Environmental Conference, March 12 – 15, 2008. Bangkok, Thailand

Working experiences:

Year	Address/ Institute	Position	Details
2018-present	Inno Green Tech Co., Ltd.	Chief Technology officer (CTO)	1) Advice the BioCircuit technology: Save energy innovative wastewater treatment system
2016-2017	Thaksin University	Deputy Director of Research and Development Institute	2) Set the research organization system to meet the University policy 3) Head of research project, Microbial fuel cell laboratory, Research Center in Energy and Environment 4) Undergrad Lecturer at Department of Food Science and Technology, Faculty of Technology and Community Development. (Sanitation, Biotechnology, Quality control and Assurance, SME and Plant Design subjects) 5) Postgrad Lecturer at Department of Biotechnology, Faculty of Science and Technology and Community Development. (Microbial fuel cell, Kinetics and Bioprocess)
2012-2016	Thaksin University	Head of research projects and lecturer	1) Head of research project, Microbial fuel cell laboratory, Research Center in Energy and Environment 2) Undergrad Lecturer at Department of Food Science and Technology, Faculty of Technology and Community Development. (Sanitation, Biotechnology, Quality control and Assurance, SME and Plant Design subjects) 3) Postgrad Lecturer at Department of Biotechnology, Faculty of Science and Technology and Community Development. (Microbial fuel cell, Kinetics and Bioprocess)
Jul 2011-2012	National Metal and Materials Technology Center, Thailand	Scholarship: Post Doctoral (Bioelectrochemical Engineering)	Scholarship: Post Doctoral (Bioelectrochemical Engineering), Head of research project in Electrochemical Materials for Energy laboratory, National Metal and Materials Technology Center, Thailand
2008-present	Thaksin University	Head of research projects and lecturer	1) Head of research project, Microbial fuel cell laboratory, Research Center in Energy and Environment 2) Undergrad Lecturer at Department of Food Science and Technology, Faculty of Technology and Community Development. (Sanitation, Biotechnology, Quality control and Assurance, SME and Plant Design subjects)

~10 years experiences in exported seafood processing industries in quality assurance department.

~3 years experiences in food business as the owner of ready to eat food delivery to 7-11 company.