



Can Microalgae Power Us Up? Unleashing its Potential

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ABSTRACT: Biofuels derived from microalgal biomass have been studied and being developed around the world as an alternative energy source. Studies show that utilization of algal biomass exhibit a negative energy balance on its life cycle chain. This is attributed to the drying process which accounts to 20-30% of the overall production cost and energy consumption. Microalgae usually contain water that occupies 90% of its total volume. Total removal of its water content is necessary to ensure maximum oil yield. Current studies at DLSU focus on analyzing molecular structure and dynamics of microalgae to facilitate water extraction. Results would direct to unleashing its full potential as a biofuel feedstock.

About the Fellow:



Dr. Alvin Culaba is an academician of the Philippine National Academy of Science & Technology. He is a nationally and internationally renowned expert in energy with specialization on renewable and alternative energy. He is a University Fellow and Full Professor 10 of the Mechanical Engineering Department, De La Salle University. He holds a Ph.D. in Mechanical & Environmental Systems Engineering from the University of Portsmouth, England, United Kingdom. He served as Chair of the Mechanical Engineering Department, as Director of Engineering Research and Graduate Studies, as Executive Director of DLSU Industry-Academe Linkage Centre, as Director and co-founder of the Centre for Engineering and Sustainable Development Research and as Executive Vice President for External Relations and Internationalization of De La Salle University. He was listed in Who's Who in Philippine Engineering (published in The Philippine Science Compendium), conferred the 2012 Lifetime Achievement Award by the National Research Council of the Philippines, the 2008 Dioscoro L. Umali Medal National S&T Award, the 2008 Outstanding Science Administrator Award, the Outstanding Scientific Paper Awards in 2008, 2006, 2004 by NAST, the Outstanding Research Program Award in 2008 by CHED, among other awards. He has over 100 published scientific articles in ISI- and Scopus-indexed journals in the area of life cycle assessment, alternative and renewable energy, energy and environmental systems modelling and design. He served as Section Editor of the World Science Journal; Editorial Board Member of Philippine Science Letters; Adviser/Editor-Member of the Journal of Sustainable Energy & Environment and Reviewer in Science Direct International Journals. He was a Scholar Scientist at the Institute for Energy Systems, Economics, and Sustainability, Florida State University; a DOST-World Bank Fellow at the Science and Technology Policy Unit, University of Sussex, England, United Kingdom; a Visiting Fellow at Belfer Center for International Science and Technology, Kennedy School of Government, Harvard University; a UNESCO Fellow at the International Centre for Theoretical Physics, Trieste, Italy and a British Council Fellow at the Department of Mechanical and Design Engineering, University of Portsmouth, England, United Kingdom. He was an exchange scientist/visiting professor at Tokyo Institute of Technology, Tsing Hua National University, Chung-Ju National University and Universiti Malaya. In the Philippine government, he is the focal person on Energy at the National Academy of Science and Technology (NAST), as the Expert Panel Member for Energy & Environment, Congressional Commission on Science & Technology and Engineering (COMSTE), as Former Energy Adviser to the Secretary of Philippine Department of Energy. He was a presidential appointee-member, Presidential Coordinating Council for Research and



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