Opportunities to exploit stored energy in wastewater

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Short Biography

Osama Eljamal is an Associate Professor of Environmental Engineering in the Interdisciplinary Graduate School of Engineering Sciences (IGSES) at Kyushu University, Japan. He obtained his undergraduate degree in civil engineering from IUG, Palestine in 1997. He also received his Master and Ph.D. degrees in Environmental Engineering from the Graduate School of Engineering at Kyushu University in 2006 and 2009, respectively. He joined the department of earth resources engineering at Kyushu University as a JSPS postdoctoral fellow from April 2009 to October 2010. After that, he was appointed to the Graduate School of Bioresource and Bioenvironmental at Kyushu University in 2010 as an Assistant Professor. Afterward, he was promoted to Associate Professor in the Interdisciplinary Graduate School of Engineering Sciences (IGSES) at Kyushu University in 2014. He joined the Department of Chemical Engineering at University of Waterloo, Canada as a visiting Professor several times between June 2011 to September 2018. He also joined the Department of Engineering Science at University of Oxford, United Kingdom as a visiting Professor from January 2019 to October 2019.

Professor Osama research interests are covering environmental remediation, water purification, wastewater treatment, bioenergy production and environmental molding. Currently, he is focusing on using the advantages and benefits of nanotechnology to protect and clean the environment, especially for water treatment, renewable energy and resources recovery from waste. His research output includes over 160 peer-reviewed research publications. He has served as a supervisor for over 30 Ph.D. graduate students. He has also served as session chair, conference organizer, and a member of the research and education program committee for many scientific conferences and international research and education programs. Currently, he is the head of Water and Environmental Engineering Laboratory as well as the chairman of the annual International Exchange and Innovation Conference on Engineering & Sciences (IEICES). Also, he serves as a board member of the International Advisory Group for Kyushu University president.

Opportunities to exploit stored energy in wastewater

Abstract

The urban areas generate a huge amount of wastewater must be treated carefully before discharge into the surrounding environment. The main purpose of conventional Wastewater Treatment Plants (WWTPs) is the removal of pollutants from wastewater which needs high amounts of energy taken from the public energy distribution grids. On the other hand, the wastewater contains a significant amount of organic matter that can be considered as a potential source for renewable energy. Various technologies to recover energy throughout WWTPs are being under consideration by several researchers worldwide. Figure 1 shows the available methods can be used to recover energy from wastewater.

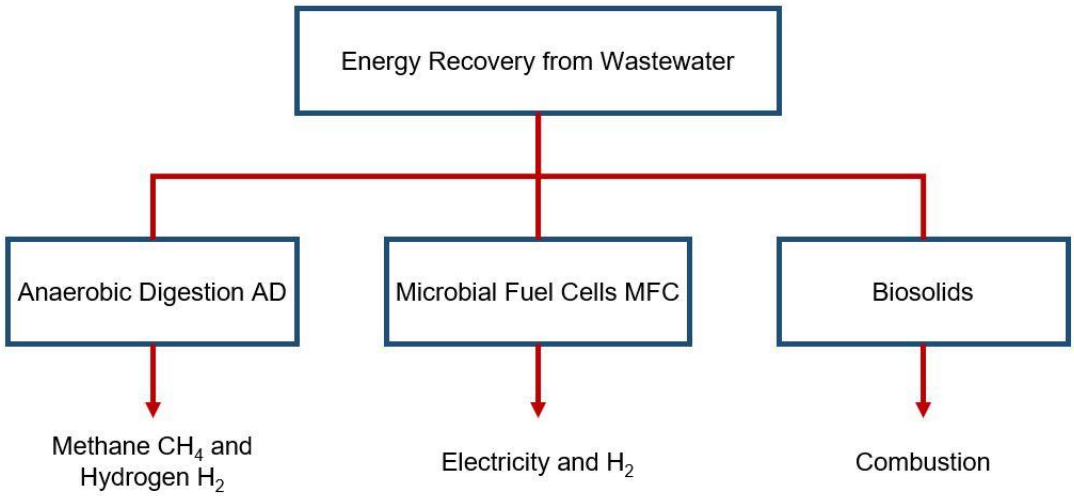

Fig.1. available methods can be used to recover energy from wastewater

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