World Bioenergy Congress and Expo

June 13-14, 2016 Rome, Italy

Food waste co-digestion with sewage sludge - Realising its potential in Malaysia

Kumaran Palanisamy, Hephzibah David and Premla Devi Chander Universiti Tenaga Nasional, Malaysia

alaysia has been experiencing rapid growth in population, industrialization and urbanization. Currently, the population Lis about 30.1 million and more than 70% of this was reported to be living in the urban areas. This rapid development has resulted in generation of greater amount of wastes. With the current population growth, it is approximated that the load of municipal solid waste (MSW) generated by the year 2020 will be 49,000 tons/day or more than 12 million tons/year whereby almost 29.0% are food and organic wastes. More than 90.0% of the solid wastes are disposed at landfills, which most of them are saturated and overloaded, but, due to the scarcity of land and public complaints, making building of new landfill almost impossible, hence the disposal of MSW is a big problem and is one of the major environmental issues faced by country. Meanwhile, in the sewerage industry, sludge that is high in embedded energy is generated and it can be used to produce methane through anaerobic digestion especially in the modern mechanized sewage treatment plant (STP). However, the secondary thickened sludge (STS) is a poor substrate for anaerobic digestion. Hence, co-digestion is an environment and ecological friendly way to dispose the food wastes and to overcome low biodegradability of STS. Besides that, it can be used to produce renewable energy which could reduce the dependency of fossil fuel for power generation in the country. Moreover, it also can deliver beneficial synergies for the sewage industry and the MSW industry. This work elucidates the preliminary investigation of the potentials of co-digestion of STS and food waste and its effect on biodegradability and methane yield, which proposes a sustainable management of solid waste generated in urban areas while harnessing the resources to generate green electricity.

Biography

Kumaran Palanisamy, a graduate mechanical engineer from Purdue University is a Senior Lecturer at Universiti Tenaga Nasional (UNITEN). He pursued his PhD studies at UNITEN, aimed at developing biodiesel fuel derived from waste cooking oil for power generation gas turbine application. He has 10 years working experience in electric power generation in a multinational electricity utility corporation in Malaysia, Tenaga Nasional Berhad. Recently, he has been appointed as Principle Researcher at Center for Renewable Energy at UNITEN and actively pursuing research on harnessing biogas energy potential from waste in particular, sewage and palm oil mill sludge.

Kumaran@uniten.edu.my

Notes: