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Evaluation of lipid productivity by *Rhodosporidium toruloides* under non-sterile condition from a mixture of distillery and domestic wastewaters

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The recovery of resource or energy from wastes has attracted an increasing attention for an environmentally sustainable development. Wastewater generated from food industries is more difficult to treat than the municipal one due to the high organic loads. Studies have been conducted to explore the possibility to develop a process that could produce biodiesel from wastewater while simultaneously removing part of organic matters and nutrients using oleaginous microorganisms. The lipid productivity of yeast was studied using a mixture of domestic and distillery wastewaters (1:1, v/v). The enhancement of initial cell density of oleaginous yeast could make the process more applicable to real distillery wastewater under the non-sterile condition with significant lipid production and organics removal. The fatty acid methyl esters (FAMEs) produced were mainly methyl oleate (over 40%), methyl linoleate (15-20%), methyl palmitate (7-9%), methyl palmitoleate (2-7%), and methyl stearate (2-4%), which is similar to the biodiesel produced from rapeseed.

Biography

Hojae Shim is currently working as an Associate Professor in Department of Civil Engineering at University of Macau, China. He completed his PhD in Environmental Science Engineering, Ohio State University, USA. His research interests includes environmental biotechnology, biological wastewater treatment and effluent reuse, biogas/biodiesel production from waste/wastewater, bioremediation of contaminated environments, bio-filtration and biodegradation/biotransformation.

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