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Effect of the levels of food processing wastes on the lipid production of oleaginous yeast for biodiesel production

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Wastewaters from food processing industry in general have high organic contents, reflected by a high concentration of COD (Chemical oxygen demand), carbohydrates and proteins. Food processing wastes provide a readily available medium for the production of microbial biomass at very low cost and could serve as promising alternatives for biofuel production. Use of food processing wastes for microbial lipid production by oleaginous yeast *Cryptococcus sp*. was studied with the purpose of recycling of organic matter of food processing wastes for the biomass, microbial lipids and biodiesel production. The optimum conditions including carbon concentrations, nitrogen concentrations and C/N rations for batch culturing of the oleaginous *Cryptococcus sp*. were achieved. For microbial lipids production, batch culture of *Cryptococcus sp*. in the food processing wastewater medium supplemented with 2-10% molasses as the sole carbon source was studied. The results found that increasing the concentration of molasses inhibited the growth of yeast and dried cell biomass was in the range of 0.9 ± 0.1 - 4.1 ± 0.2 g / L. Batch culturing of *Cryptococcus sp*. in the waste water medium containing 2-10% molasses as the carbon source and soybean residue as the nitrogen source found higher levels of biomass (8.0 ± 0.1 g / L and 7.0 ± 0.3 g / L) were obtained from the medium supplemented with 4% and 6% molasses and soybean residue.

Biography

Yi-Huang Chang has completed his PhD from University of Wisconsin-Madison, USA. He now serves as an Associate Professor at the Department of Food Science in Yuanpei University of Medical Technology, Taiwan. His research interests lie in the domain of food engineering and processing technology, and he has published many biofuels-related papers in reputed journals.

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