



Volume 2018 | Article ID 1578720 | <https://doi.org/10.1155/2018/1578720>

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## Utilization of Solid Waste as a Substrate for Production of Oil from Oleaginous Microorganisms

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**Academic Editor:** Difeng Gao

Received	Accepted	Published
28 Dec 2017	05 Apr 2018	16 May 2018

### Abstract

The overwhelming demand of oil and fats to meet the ever increasing needs for biofuel, cosmetics production, and other industrial purposes has enhanced a number of innovations in this industry. One such innovation is the use of microorganisms as alternative sources of oil and fats. Organic solid waste that is causing a big challenge of disposal worldwide is biodegradable and can be utilized as substrate for alternative oil production. The study evaluated the potential of isolated yeast-like colonies to grow and accumulate oil by using organic solid waste as substrate. Of the 25 yeast-like colonies isolated from the soil samples collected from three different suburbs in Kampala district, Uganda, 20 were screened positive for accumulation of lipid but only 2 were oleaginous. The NHC isolate with the best oil accumulation potential of 48.8% was used in the central composite design (CCD) experiments. The CCD experimental results revealed a maximum oil yield of 61.5% from 1.25 g/L cell biomass at 10 g/L of solid waste and temperature of 25°C. The study revealed that organic solid waste could be used as a substrate for microbial oil production.

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