

Biodiesel Production and Heavy Metal Removal by *Aspergillus fumigatus* sp.

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Abstract : Some of filamentous fungi can be used for biodiesel production as they are able to accumulate high amounts of intracellular lipids when grown at stress conditions. *Aspergillus fumigatus* sp. was isolated from Nile delta soil in Egypt. The fungus was primarily screened for its capacity to accumulate lipids using Nile red staining assay. The fungus could accumulate more than 20% of its biomass as lipids when grown at optimized minimal medium. After lipid extraction, we could use fungal cell debris to remove some heavy metals from contaminated waste water. The fungal cell debris could remove Cd, Cr, and Zn with absorption efficiency of 73%, 83.43%, and 69.39% respectively. In conclusion, the *Aspergillus fumigatus* isolate may be considered as a promising biodiesel producer, and its biomass waste can be further used for bioremediation of wastewater contaminated with heavy metals.

Keywords : biodiesel, bioremediation, fungi, heavy metals, lipids, oleaginous

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