

**ASSESSMENT OF MICROALGAE TO PRODUCE
BIODIESEL ISOLATED FROM SELECTED FRESH
WATER STREAMS OF ISLAMABAD, PAKISTAN**



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DEDICATION

To Our loving family and friends

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Abstract

The excessive blooming of filamentous green microalgae is an alarming global problem. The recent resurgence of microalgae is due to increased industrialization and usage of excessive fertilizers to maintain Green Belts and farm land areas of Islamabad. Eutrophication is detrimental both ecologically and socioeconomically as it degrades potable water quality, produces a pathogenic environment and entails huge cost and labor for removal. This project aims to test the viability of this huge algal-mass as an alternative fuel source. It is hypothesized that freshwater green microalgae should have high content of triglycerides and should be considered as raw material to be used in by biodiesel industry. The water and filamentous algae were collected from different fresh water streams of Islamabad, Pakistan. Gas Chromatography and Mass Spectrometry data showed high content and variety of Triglyceride and methyl ester (biodiesel) in collected algae. Fourier Transform Infra-Red Spectroscopy showed little chemical variations in all the types of Fatty acid Methyl ester samples. This project suggests a timely removal of microalgae from the fresh water streams of Islamabad to balance its ecosystem and to find an alternative fuel source.

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