

Phytoremediation of domestic sewage waste water of Gudiyattam town by using Microalgae *Chlorella vulgaris*

Dhivya G, Kaveriammal S*, Trisulam R and Sandhiya T

Department of Plant Biology and Plant Biotechnology, Government Thirmagal Mills College, Gudiyatham, Vellore District, India.

Corresponding author email: lavender5@rediffmail.com , job.gopinath@gmail.com

From National Conference on Natural Products as therapeutics, Medical Microbiology, Nanobiology and System biology: Current Scenario & Emerging Trends, 'NATCON-2014'.

Post Graduate & Research Departments of Biochemistry, Microbiology, Biotechnology and Bioinformatics, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India.

18-19 September 2014.

American J of Bio-pharm Biochem and Life Sci 2014 September, Vol. 4 (Suppl 1): P 46

ABSTRACT

The accumulation of wastes of domestic and industrial processes in the nearby water bodies results in water pollution. The wastewater discharged into the water bodies are hazardous to environment and cause various health problems in human beings. Eutrophication is one such major environmental problem caused due to the discharge of nutrient rich wastewater into the nearby water bodies. Excessive pollutants including nutrients affect aquatic lives and environment in various ways. There are certain plants capable of removing pollutants from water. Phytoremediation is an alternate way to reduce nutrients from contaminated medium. Microalgae can be used for phytoremediation to reduce the nutrient content in the wastewater due to the algae's ability to assimilate nutrients into the cells. The microalga *Chlorella vulgaris* can utilize the nitrogen and phosphorus in wastewater for its growth. Hence in the present study, microalga *Chlorella vulgaris* was used to determine the removal efficiencies of pollutants, such as chemical oxygen demand (COD), total nitrogen (TN) and total phosphorus (TP). The *Chlorella vulgaris* was cultured in the shake flasks that contained wastewater in the presence of artificial light in the laboratory. It removes the maximum percentage of TN and TP were within 82.1% and 90.9%, respectively. The *Chlorella vulgaris* which could not only bioremediate the wastewater, but also produce plenty of the microalga biomass that could be used for the exploitation of fertilizers, feed additives and biofuels. The optimum detention period for the maximum phytoremediation is found to varied within 10 and 14 days. Based on the laboratory scale study under controlled environment, it can be concluded that *Chlorella vulgaris* has the potential to reduce nutrient content of wastewater.