**Performance Analysis of *Chlorella Vulgaris* in Bioremediation of Textile Wastewater and Production of Biodiesel**

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**Abstract:**

Textile Industry produces an ample amount of dye-containing wastewater contributing to 17-20% of the wastewater generated on a global scale. Textile wastewater (TWW) contains organic dyes, high concentrations of COD, strong colours, heavy metals, nitrates, phosphates, and sulfates, which degrade the environment in numerous ways. These pollutants are aesthetically unpleasant and cause a decrease in the penetration of light which ultimately decreases the photosynthesis and causes bioaccumulation of toxins. TWW is rich in nutrients including organic carbon, phosphorus, nitrogen, and trace metals. These nutrients can be utilized by microalgae to promote their growth and transform them into bio products including biodiesel using biomass. The integration of microalgal treatment of textile wastewater is a promising approach to achieve low-cost wastewater treatment as well as biodiesel production. This study highlights the merits of Chlorella Vulgaris, a species of microalgae widely used for the bioremediation of TWW in comparison to other *Chlorella* species. C. Vulgaris is selected to cultivate in textile wastewater as it is robust microalgal specie that shows high tolerance to various pollutants and produces a good quantity of biodiesel. This review paper aims at analysing and integrating the effective methods used for the treatment of textile wastewater using *Chlorella Vulgaris*. It also intends to identify the role of *Chlorella Vulgaris*, its performance efficiency during wastewater treatment, and consequent biodiesel production. The commotion of performance efficiency of Chlorella Vulgaris with other microalgal species would provide an insight into the benefits and co-benefits that it offers. The study provides a comprehensive analysis of comparison of Chlorella Vulgaris to the following species: Chlorella Regularis, Chlorella Pyrenoidosa and Chlorella Sorokinana..

**Outline:**

1. Abstract
2. Introduction
3. Characterization of Textile Effluents
4. Microalgal treatment of Textile Waste Water
5. *Chlorella Vulgaris* for Textile Wastewater Treatment
   1. Morphology and Structure of *C. Vulgaris*
   2. Cultivation of *C. Vulgaris* in Textile Wastewater
   3. Suitable working conditions for *C. Vulgaris*
   4. Mechanisms involved in pollutants removal by *C. Vulgaris*
6. Biodiesel Production by *C. Vulgaris*
7. Comparison of *C. Vulgaris* with other *Chlorella sp.* 
   1. Comparison of *Chlorella sp.* for bioremediation of TWW
   2. Comparison of *Chlorella sp.* for biodiesel production
8. Future Perspective and Conclusion
9. References