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Fourier Transform Infrared (FTIR) Spectroscopy and High-Performance Liquid Chromatography Analysis of *Brassica juncea* (Mustard) and Silk dyeing effluent's impact on the spectral studies

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ABSTRACT

The exclusive, low-cost nominal technology for the meagre entrepreneurs of Silk dyeing effluent has been planned and executed. Environmental pollutants exit like Silk dyeing effluent are destructive and needs a high-cost Common Effluent Treatment Plant (CETP) to achieve Zero effluent discharge limits which are not reasonably priced for a low venture capitalist. The Green leafy vegetable *Brassica juncea* sowed seeds were treated in pot study with fresh water, raw Silk dyeing effluent and Biotreated effluent (with *Pseudomonas fluorescens* and *Azospirillum sp.* biofertilizers separately). After 45th days the GLV's extracts *Brassica juncea* were grown in fresh water (BJN), in crude effluent (BJE) and in biotreated effluent (BJT) were subjected to UV, FTIR and HPLC analysis. Thus, from the functional group studies by FT-IR, the alcohol, alkane, alkyl halide and amine groups were found in GLV irrespective of the treatments, even in crude effluent, the plants managed to synthesize these organic compounds. The isocyanide group was found only in *B. juncea*, grown in fresh water, which was unable to synthesize isocyanide group in plants grown in crude effluent and biotreated effluent. While the biotreated *B. juncea* methanolic extracts had shown two peaks of similar to the freshwater *B. juncea* methanolic extracts whereas the crude effluent had its effect in HPLC Analysis. So it clearly indicates that the effluent's effects have been encountered by the *Pseudomonas fluorescens*.



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INTRODUCTION

Effluent discharged into the environment may have a severe negative impact on the quality and the life forms of the receiving water body when discharged untreated or partially treated. (Okoh, 2007). The textile business interprets on behalf of two-thirds of the total dyestuff market. More than 10,000 diversified textile colorings with a probable annual making of 7×10^5 metric tons are commercially reachable worldwide (Aksu, 2005).

Wastewater outlets in printing and dyeing units are frequently rich in color, containing residues of dyes and chemicals and needs proper treatment