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# ESTIMATION OF ENZYME ACTIVITIES FOR THE DETOXIFICATION OF MALACHITE GREEN BY *Chlorella pyrenoidosa*

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## ABSTRACT

The textile industries pose a serious threat i human and aquatic lives by the usage of azodyes as they offer an extensive range of colours, better colour fastness and four times the intensity of the azo free dyes. This challenge can be solved by decolorizing the dye by employing *Chlorella pyrenoidosa*. Apart from decolorisation, textile industries discharge the azo dyes directly in water which tends to cause environmental issue. The enzymes such as azoreductases, ascorbic acid peroxidase (APX) and superoxide dismutase (SOD) when released by *Chlorella pyrenoidosa* reacting with dye reduce the concentration of azodyes into simpler compounds. The enzyme activities were performed with the algal slurry after large scale expansion of the *Chlorella pyrenoidosa*. The enzyme extract was prepared and the activities were recorded. In the APX, SOD activities, the *Chlorella pyrenoidosa* was able to release the enzymes but as the dye concentration was higher, the enzyme activity was lower. In the azoreductase activity, increase in the concentration of the dye increased the enzyme activity. At 50 ppm, the enzyme activity was found as 1.616 millimolarunits/ ml enzyme. Efficiency of enzyme producing capacity for the reduction of azodyes toxicity was evaluated by release of azoreductases by *Chlorella pyrenoidosa*.

**KEYWORDS**: *Chlorella pyrenoidosa,* Azo dyes, Azoreductases, Ascorbic Acid Peroxidase, Superoxide Dismutase