



Integrated treatment technology for textile effluent and its phytotoxic evaluation

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Received 14 March 2014; Accepted 12 November 2014

ABSTRACT

Pilot-scale wastewater treatment systems were investigated for real textile effluent. The parameters of interest in this study were color (Reactive Blue-19 dye), chemical oxygen demand, and growth potential in *Triticum aestivum* (wheat) and *Lolium multiflorum* (ryegrass). The dissolved air flotation and electrochemical treatment were studied independently as well as in combination termed as “integrated” (INTG) treatment system for comparative analysis. The overall results showed that the best treatment performance was achieved through INTG treatment as reduction of 63% in COD and 72% in color was achieved without addition of any other chemical at the current density of 1 mA/cm² in 1 h of residence time using aluminum electrodes. The INTG-treated effluent was tested for growth potential studies and the results showed that root/shoot lengths were 20/26% and 34/35% more for wheat and ryegrass, respectively, as compared to the untreated wastewater. This pilot-scale study provides evidence that INTG treatment system is a sustainable technology and the treated effluent can be reused for irrigation purposes.

Keywords: Growth potential; Integrated treatment system; Reactive Blue dye (RB-19); Wastewater treatment

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