



Bio-organics isolated from urban bio-refuse for the photodegradation of azo-dyes in aqueous solutions

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ABSTRACT

A bio-organic substances (BOS) was isolated from urban bio-refuse undergoing aerobic biodegradation. The isolated BOS was characterized for chemical composition and performance as sensitizers for the photodegradation of azo-dyes in solution. Three commercial sulphonated azo-dyes, i.e., ethylorange (EO), Orange I (OI) and Orange II (OII), were selected as probe molecules. For these molecules high abatement rates (60–100%) were obtained within few hours of irradiation in the presence of BOS, whereas almost no abatement was observed in the absence of BOS. A delay in the color bleaching was observed, in comparison to the dyes degradation; coloured intermediates were identified. Acute toxicity tests showed a low toxicity for the samples at the end of the degradation process.

Keywords: Urban refuse; Azo-dye baths; Industrial effluents; Photodegradation; Bio-surfactants
Refuse bio-photosensitizers

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