

Comparison of inoculums in the removal of 2-butoxyethanol from air emissions by biotrickling filter: Performance and microbial monitoring

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2-butoxyethanol is one of the most used glycol ether in industrial activities and the treatment of air 2-butoxyethanol-emissions become necessary. Biotechnologies are potential treatment technologies due to their low operational costs. The use of two inoculums in the treatment of 2-butoxyethanol by biotrickling filters (BTFs) packed with polyurethane-foam was studied. A pure culture of *Pseudomonas putida*, previously adapted to 2-butoxyethanol, was used as inocula in a BTF operated in the University of Stuttgart. Fresh activated sludge from a municipal waste water treatment plant was used as inocula in a BTF operated in the University of Valencia. An empty bed residence time of 12.5 s and inlet concentrations of 400 and 800 mg/Nm³ were applied. After 40 days of operation at 400 mg/Nm³, the BTF inoculated with *Pseudomonas putida* reached removal efficiencies (REs) ~80%, whereas the BTF inoculated with activated sludge presented REs~60%. At 800 mg/Nm³, the BTF inoculated with *Pseudomonas putida* reached REs~60%. Microbial community was monitored in both BTFs by using denaturing gradient gel electrophoresis analysis (DGGE) with subsequent 16S sequencing and plating methods using 2-butoxyethanol as sole carbon source.

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