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## DYNAMICS OF A RHIZODEGRADATION PILOT UNIT TREATING GROUNDWATER CONTAMINATED WITH BISPHENOL-A

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### Abstract

Bisphenol-A (BPA; 2,2-bis(4-hydroxyphenyl)propane) is a monomer used primarily in the production of polycarbonate and epoxy resins that has been reported to have estrogenic activity. The biodegradability of BPA has been previously investigated in several studies designed to simulate surface waters and biological wastewater treatment systems. However, there is little information available about the phytoremediation of groundwater contaminated with BPA. Halophytic species are of special interest for phytoremediation research since these plants are naturally better adapted to cope with environmental stress. Therefore, in the present paper BPA degradation dynamics have been investigated experimentally and through modeling of a rhizodegradation pilot, emulating a shallow aquifer, treating BPA contaminated groundwater by the halophyte *Juncus acutus*. The mathematical model considers rhizodegradation as the main BPA phytodegradation mechanism but takes also into account BPA removal through plant up-take and hydrolysis. The model calibration has been performed with raw data from two experimental runs of the pilot unit and the simulations match the experimental data for both runs sufficiently well.

*Key words:* bisphenol-A, *Juncus acutus*, mathematical modeling, phytoremediation, rhizodegradation

*Received:* March, 2014; *Revised final:* August, 2014; *Accepted:* September, 2014

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