



## Ability of filamentous fungi to degrade four emergent water priority pollutants

R. Bouchiat<sup>a</sup>, E. Veignie<sup>a</sup>, D. Grizard<sup>b</sup>, C. Soebert<sup>b</sup>, M. Vigier<sup>b</sup>, C. Rafin<sup>a,\*</sup>

<sup>a</sup>Université du Littoral Côte d'Opale (ULCO), Unité de Chimie Environnementale et Interactions sur le Vivant (UCEIV), Dunkerque 59140, France, Tel. +33 03 28 65 82 78; email: [rafin@univ-littoral.fr](mailto:rafin@univ-littoral.fr) (C. Rafin)

<sup>b</sup>BIOVITIS, Saint Etienne de Chomeil 15400, France

Received 14 October 2014; Accepted 22 January 2015

---

### ABSTRACT

This study was conducted to investigate biodegradation of four emergent water priority pollutants, di(2-ethylhexyl)phthalate (DEHP), fluoranthene, aminomethylphosphonic acid (AMPA), and estrone (EST), by filamentous fungi (*Fusarium oxysporum*, *Geotrichum galactomyces*, *Trichoderma harzianum*, and *Fusarium solani*). These pollutants are commonly found at high occurrence in French wastewater treatment plants. In acute toxicity tests, a weak sensitivity of fungal growth to the pollutants was observed with *F. oxysporum* showing the greatest growth inhibition (19.3%) in the presence of DEHP after four days of incubation. In addition, degradation experiments were conducted in mineral medium for each pollutant incubated with each filamentous fungus for 10 d. With the exception of EST, which was not degraded by any fungal isolate tested, the fungi degraded these emergent water priority pollutants, with *F. solani* and *T. harzianum* degrading 100% of DEHP and 69% of AMPA, respectively.

*Keywords:* Biodegradation; Emergent pollutant; Filamentous fungi; Wastewater treatment

---

\*Corresponding author.