Examining the biodegradation of endocrine disrupting bisphenol A and nonylphenol in WWTPs - DTU Orbit (28/12/2018)

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The aim of this work was to examine biodegradation of the endocrine disrupting chemicals bisphenol A (BPA) and nonylphenol (NP) in activated sludge. Experiments were performed in a pilot wastewater treatment plant (WWTP) in Copenhagen, Denmark. During standard operation the BPA concentration was halved whereas the NP concentration was unchanged. Step-addition experiments showed that biomass adaptation to increased BPA and NP concentrations took 10 to more than 40 days depending on temperature, hydraulic retention time, and pre-exposure of the biomass. Mass-balance experiments showed that above 99% of the dosed BPA and 90% of the dosed NP is removed by biodegradation at steady-state. Batch experiments showed that BPA biodegradation occur solely under aerobic conditions. The work is believed to add vital knowledge to our understanding of parameters and processes governing biodegradation of EDCs in WWTPs.

General information
State: Published
Organisations: Urban Water Engineering, Department of Environmental Engineering
Contributors: Press-Kristensen, K., Lindblom, E. U., Schmidt, J. E., Henze, M.
Pages: 1253-1256
Publication date: 2008
Peer-reviewed: Yes

Publication information
Journal: Water Science and Technology
Volume: 57
Issue number: 8
ISSN (Print): 0273-1223
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 1.34 SJR 0.429 SNIP 0.574
Web of Science (2017): Impact factor 1.247
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.3 SJR 0.404 SNIP 0.637
Web of Science (2016): Impact factor 1.197
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 1.19 SJR 0.464 SNIP 0.594
Web of Science (2015): Impact factor 1.064
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.14 SJR 0.585 SNIP 0.683
Web of Science (2014): Impact factor 1.106
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 1.3 SJR 0.571 SNIP 0.701
Web of Science (2013): Impact factor 1.212
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 1.13 SJR 0.597 SNIP 0.659
Web of Science (2012): Impact factor 1.102
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 1.25 SJR 0.594 SNIP 0.631
Web of Science (2011): Impact factor 1.122