Saturday, June 15th Session 1A (15-1A)
Oral introduction: 13:20-14:30, Poster viewing: 14:30-15:30 Chair: FUKUSHI Kensuke
15-1A-13

Feasibility of simple bioassay to detect the formation of toxic biodegradation products during activated sludge process

Makoto SEKINE*, Masahiro TOKUMURA, Shigeki MASUNAGA****

**Graduate School of Environment and Information Science Yokohama National University 79- 7Tokiwadai, Hodogaya-ku, Yokohama 240-8501 Japan*

***Faculty of Environment and Information Science Yokohama National University 79-7Tokiwadai, Hodogaya-ku, Yokohama 240-8501 Japan*

We tested the feasibility of simple bioassay to detect the production of toxic biodegradation intermediates during activated sludge process In this study, supernatants of the mixed liquor during the treatment process were directly applied to *V. fischeri* bioassay which is based on inhibition of luminescence by toxicity. This method enables us to detect the occurrence of toxic intermediates without their isolation or identification. Some pharmaceuticals such as Naproxen (NPX), Dicrofenac (DCF) and Ibuprofen (IBP) were tested by this method. In the NPX and DCF experiments, the extent of luminescence inhibition decreased with the decrease of the parent compounds. In the case of IBP, however, the decrease of luminescence inhibition was not in accordance with the decreases of IBP and increased later during the treatment. High pressure liquid chromatogram analysis of these supernatants showed that some unknown peaks appeared during the treatment. This implied that some toxic IBP degradation products were formed during the IBP biodegradation. Consequently, *V. fischeri* assay could be a useful screening tool to evaluate the possibility of toxic biodegradation intermediates formation during activated sludge process.