Analytical Study of Endocrine-Disrupting Chemicals in Leachate Treatment Process of Municipal Solid Waste (MSW) Landfill Sites

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Influent and processed water were sampled at different points in the leachate treatment facilities of five municipal solid waste (MSW) landfill sites. Then, the concentrations of endocrine-disrupting chemicals (EDCs), namely, alkylphenols (APs), bisphenol A (BPA), phthalic acid esters (PAEs) and organotin compounds (OTs), in the treated leachate samples were determined and the behavior of the EDCs in the treatment processes was discussed. The concentrations of APs were as low as those in surface waters, and no OTs were detected (detection limit: 0.01 μg/L). Meanwhile, diethylhexyl phthalate (DEHP), which was the most abundant of the four substances measured as PAEs, and BPA were found in all of the influent samples. BPA was considerably degraded by aeration, except when the water temperature was low and the total organic carbon (TOC) was high. By contrast, aeration, biological treatment, and coagulation/sedimentation removed only a small amount of DEHP.