**Treatability of cyanotoxins (microcystins and cylindrospermopsin) using UV and UV/H2O2 processes**

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Conventional water treatment processes may not effectively remove cyanotoxins especially during harmful cyanobacterial algal bloom events. Two incidents in Ohio, United States, in Carroll Township (2013) and city of Toledo (2014), reported a breakthrough of > 1 µg L-1 of microcystin (MC) cyanobacterial toxin which is above the WHO provisional guideline in drinking water. Thousands of residents in the city of Toledo and its surrounding areas were unable to drink their tap water. This presentation will therefore focus on the emerging problem of cyanotoxins and recent results on the treatability of common cyanotoxins, cyclic hepatotoxic peptides MCs and the alkaloid cylindrospermopsin (CYN), by UV and UV/H2O2 advanced oxidation process. The second-order reaction rate constants for the four MCs were in the order of 1010 M-1 s-1 and 109 M-1 s-1 for CYN with hydroxyl radical, indicating potential applicability of UV/H2O2 in removing cyanotoxins. Various byproducts generated by isomerization, hydroxylation, hydroxyl addition and/or the oxidative cleavage of MC double bonds were detected. Hydroxymethyl uracil and tricyclic guanidine groups were initial sites of attack. Fragmentation of the uracil moiety and opening of the alkaloid ring were also observed in the degradation pathway. This study demonstrates effective degradation and successful structural transformation of cyanotoxins.