Influence of algal organic matter on the attenuation of selected trace organic contaminants and dissolved organic matter in managed aquifer recharge: column studies

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Table S1. Characteristics of Tancheon water amended with algal organic matter (AOM) (n= 6 - 9)

	pH	Electrical conductivity, μS/cm)	Dissolved organic carbon, mg/L)	UV absorbance at 254nm, cm^{-1}	Specific UV absorbance, L/mg-m
Tancheon	7.7 ± 0.1	540 ± 30	3.7 ± 0.6	0.07 ± 0.01	1.98 ± 0.10
Tancheon + AOM	8.7 ± 0.1	624 ± 3	7.4 ± 0.4	0.10 ± 0.01	1.67 ± 0.27
Tancheon + AOM+O_3	8.6 ± 0.3	622 ± 30	7.6 ± 0.1	0.08 ± 0.01	1.33 ± 0.21

Table S2. Dissolved organic carbon (DOC), UV absorbance at 254nm (UV_{254}), specific UV absorbance (SUVA) of extracellular organic matter (EOM) and intracellular organic matter (IOM) of *Microcystis aeruginosa* (n= 2)

	DOC, mg/L	UV_{254}, cm^{-1}	SUVA, L/mg-m
IOM	2.4	0.01	0.42
EOM	1.7	0.01	0.59

Table. S3. Fractionations of extracellular organic matter (EOM) and intracellular organic matter (IOM), Tancheon water, and Tancheon water amended with algal organic matter (AOM) determined by LC-OCD (n= 2)

	Biopolymers, ug/L	Humic substances, ug/L	Building blocks, ug/L	Low molecular weight (LMW) neutrals, ug/L	LMW acids, ug/L
IOM	148 (8.2%)	100 (5.5%)	142 (7.8%)	1265 (69.9%)	156 (8.6%)
EOM	358 (31.5%)	223 (19.6%)	103 (9.1%)	439 (38.6%)	14 (1.2%)
Tancheon	296 (7.1%)	1418 (34.1%)	939 (22.6%)	1326 (31.9%)	184 (4.4%)
Tancheon +AOM	802 (11.3%)	1741 (24.5%)	1184 (16.7%)	3030 (42.6%)	354 (5.0%)

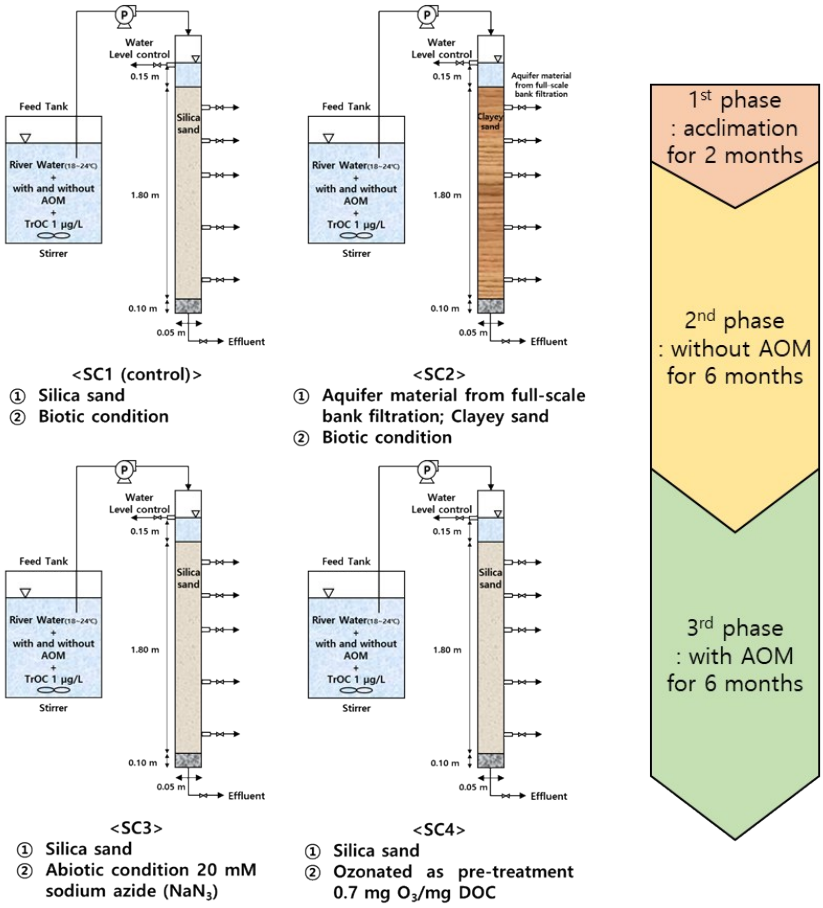


Fig. S1. Schematic diagram of the experimental set up and operated conditions

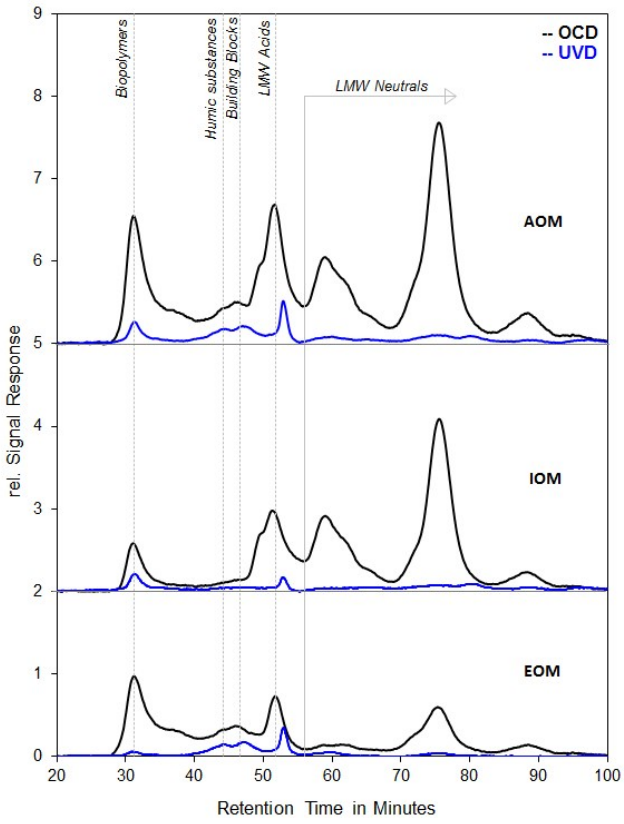


Fig. S2. LC-OCD chromatograms of algal organic matter (AOM), extracellular organic matter (EOM) and intracellular organic matter (IOM)

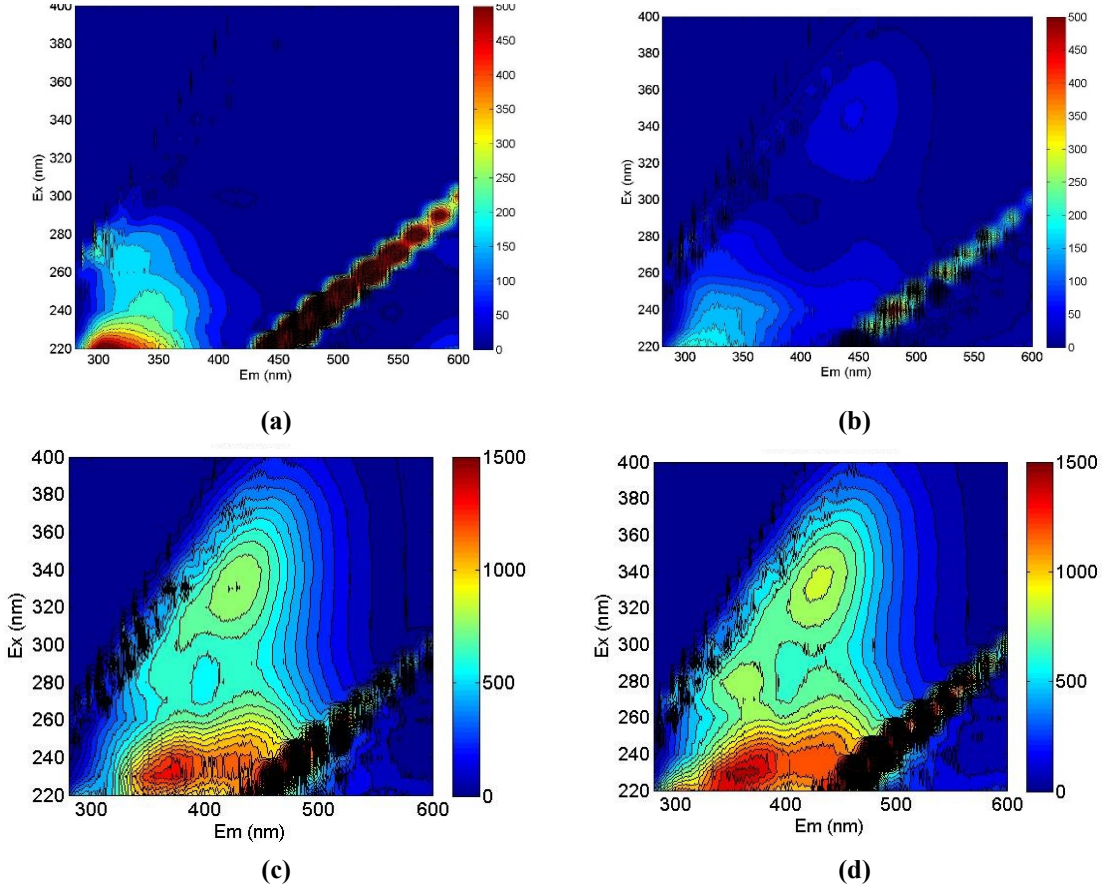


Fig. S3. Fluorescence excitation-emission matrix spectra of intracellular organic matter (IOM) (a), extracellular organic matter (EOM) (b), Tancheon water (c), and Tancheon water amended with algal organic matter (AOM) (d)

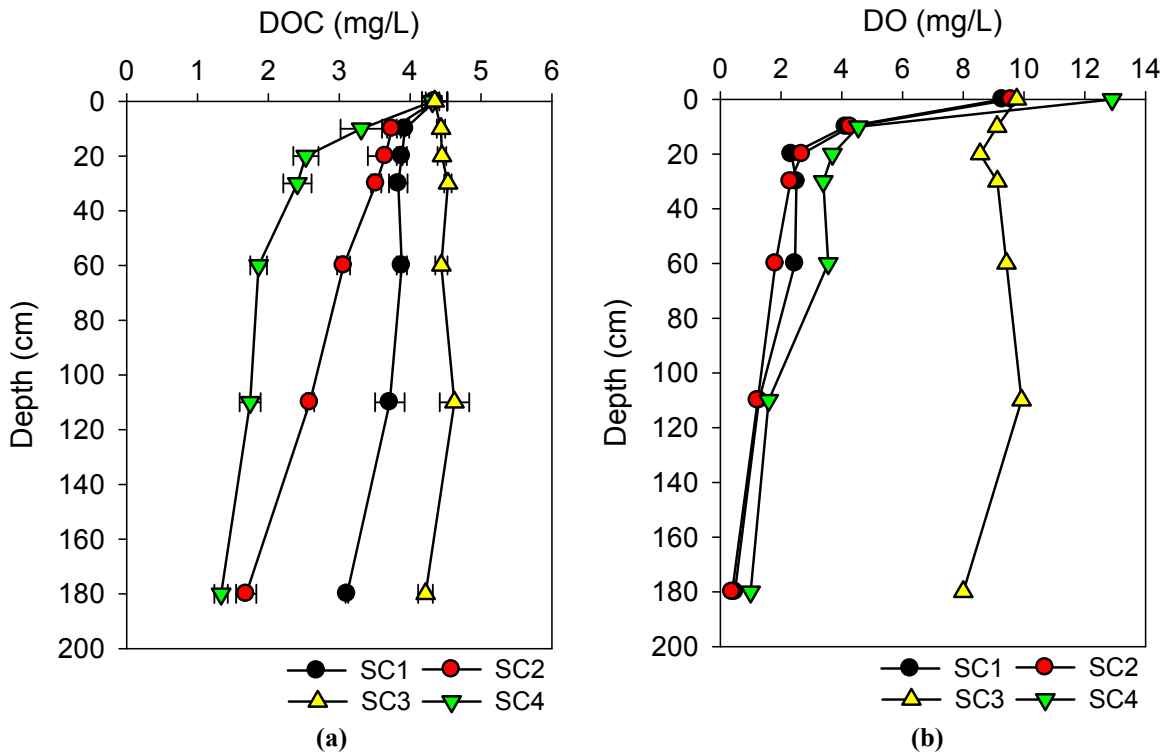


Fig. S4. Dissolved organic carbon (DOC) (a) (n=3) and dissolved oxygen (DO) (b) (n=1) profiles of SC1, SC2, SC3 and SC4

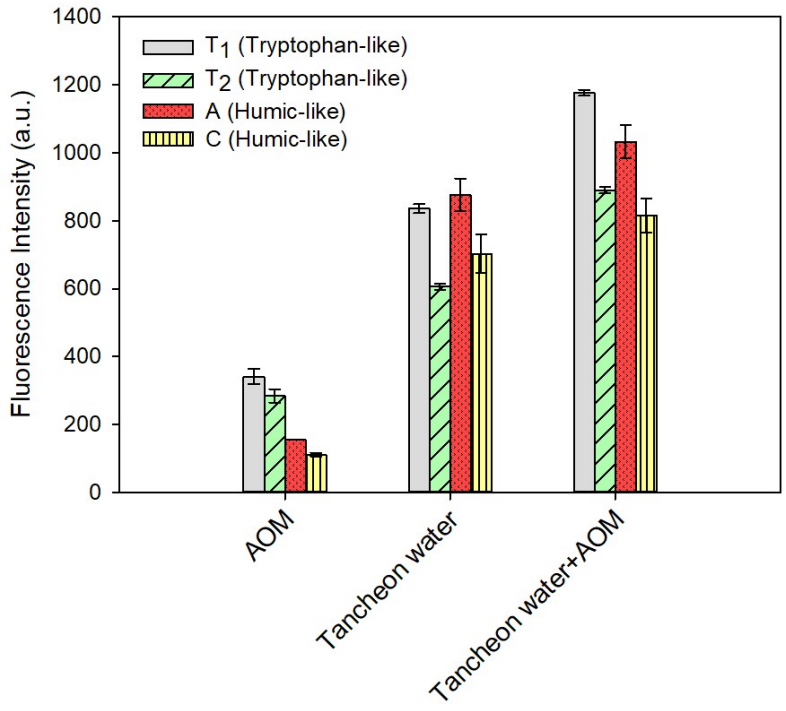


Fig. S5. Fluorescence intensity of algal organic matter (AOM), Tancheon water, and Tancheon water amended with AOM (n=3)

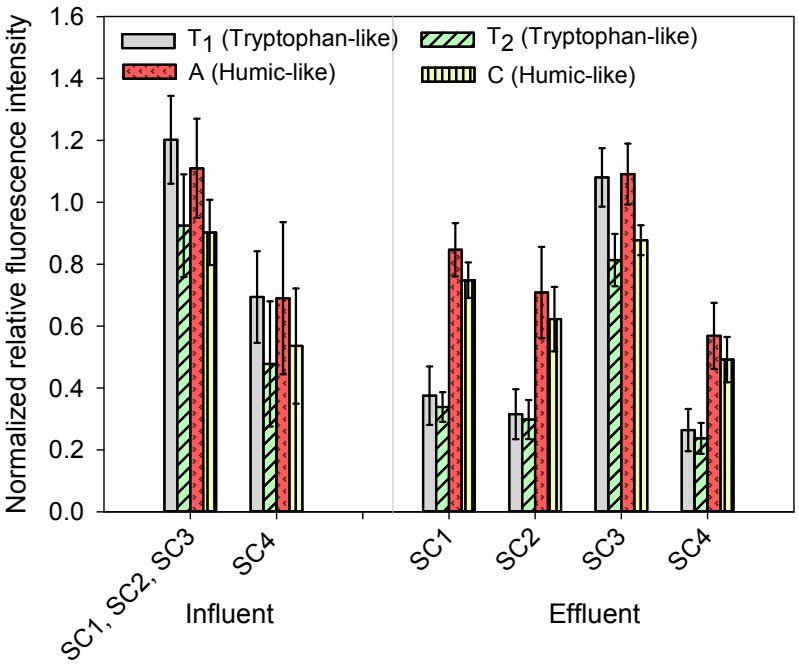


Fig. S6. Normalized relative fluorescence intensity of T1, T2, A, and C of SC1, SC2, SC3 and SC4 (n=3)

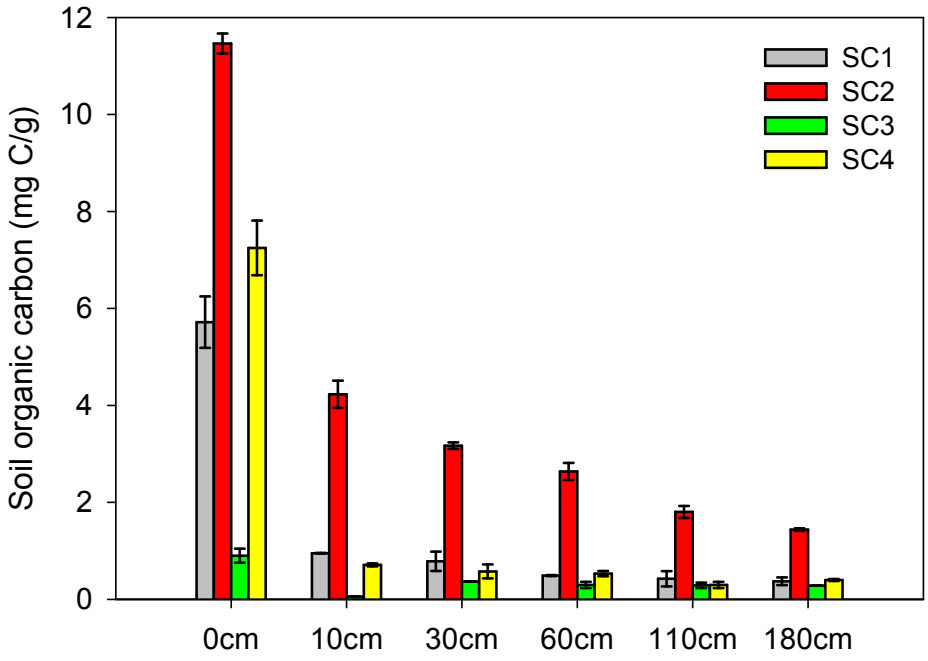
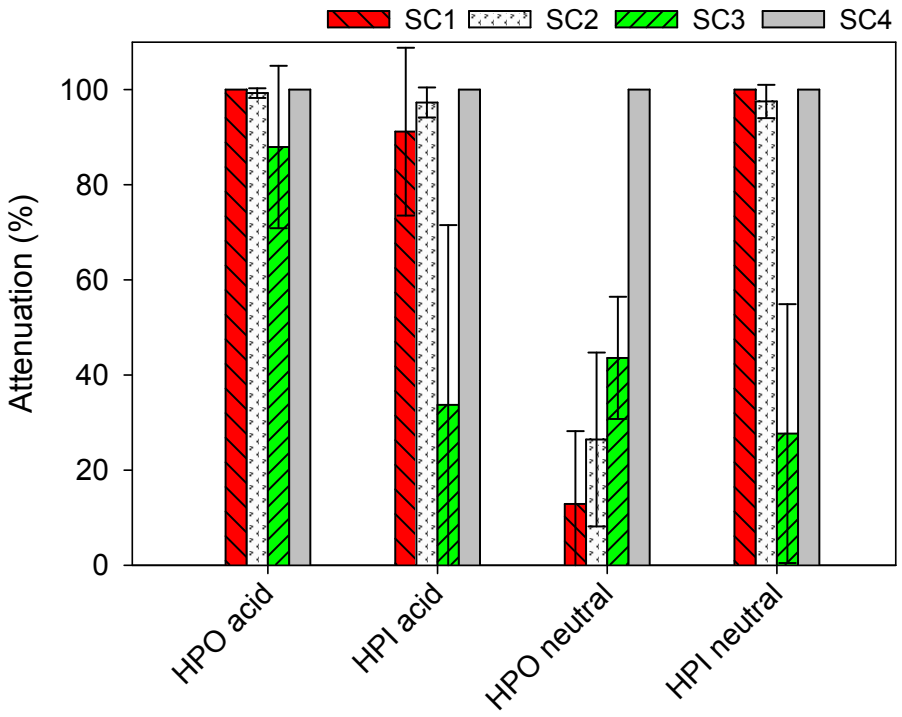
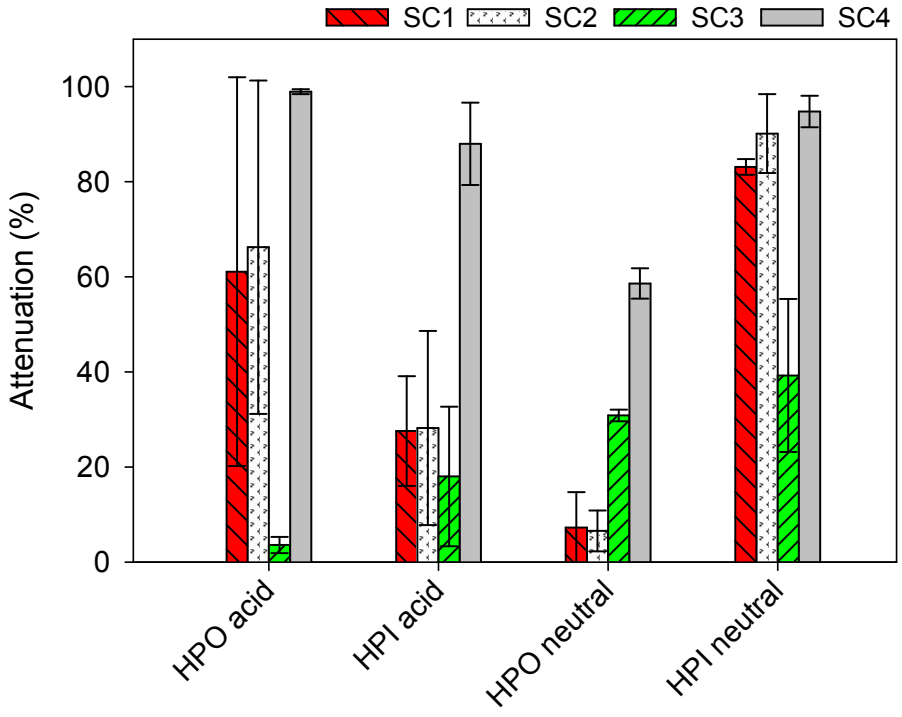


Fig. S7. Soil organic matter profile of SC1, SC2, SC3, and SC4 (n=2)



(a)



(b)

Fig. S8. Attenuation rates for selected trace organic contaminants with respect to hydrophobicity and charge characteristics and the presence of algal organic matter (AOM) for SC1, SC2, SC3 and SC4 (w/o AOM (a) and w/ AOM (b)) (n=2)