
Supplementary materials

The response of dissolved organic matter in different sedimentary regimes to nitrogen–phosphorus imbalanced input: insights from microcosm experiments

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Table S1 The Ex and Em maxima and characteristics of DOM components identified through PARAFAC modeling.

DOM	Components	Ex/Em (nm)	Description
MS	C1	250,280/300	It is a typical aromatic tryptophan-like protein fraction, which originates from terrestrial vegetation, aquatic plants and microbial growth and metabolism, human sewage is also an important source of this fraction (Chen et al., 2022; Ghidotti et al., 2017).
	C2	250/256(392)	Tyrosine-like, which is often produced from endogenous biological activities and human activities, and is susceptible to degradation by microorganisms(Long et al., 2025).
	C3	265,300/ (392)452	Terrestrially derived humic-like materials components of lignin and tannin, having a high proportion of aromatic carbon (He et al., 2024; Liu et al., 2023; Shi et al., 2024).
	C4	315/480	Terrestrially derived fulvic acid materials (e.g., soils and plant litters)(Li et al., 2022; Liu et al., 2023).
SS	A	250/256	Tyrosine-like, which is often produced from endogenous biological activities and human activities, and is susceptible to degradation by microorganisms(Long et al., 2025).
	B	250,285/420	Humic-like that is largely exclusive to lignin and other terrestrial derived precursor material (Hong et al., 2023; Liu et al., 2024).
	C	320/ (392)472	Terrestrially derived fulvic acid materials (e.g., soils and plant litters)(Li et al., 2022; Liu et al., 2023).

Table S2 The value of E_2/E_3 under exogenous N and P additions treatment

		Pre	C K	5:1	15:1	45:1
M S	Overlyin g water		6.52±0.061 ^a	6.26±0.066 ^b	6.29±0.069 ^b	6.20±0.001 ^b
	Sedim ent	10.1±0.353 ^b	11.8±0.268 ^a	7.69±0.476 ^c	8.52±0.045 ^c	7.68±0.088 ^c
S S	Overlyi ng water		5.16±0.022 ^b	5.10±0.010 ^b	5.33±0.018 ^a	5.41±0.028 ^a
	Sedi ment	18.1±0.282 ^a	15.1±0.269 ^b	9.55±0.0442 ^d	10.9±0.591 ^d	13.6±0.589 ^c

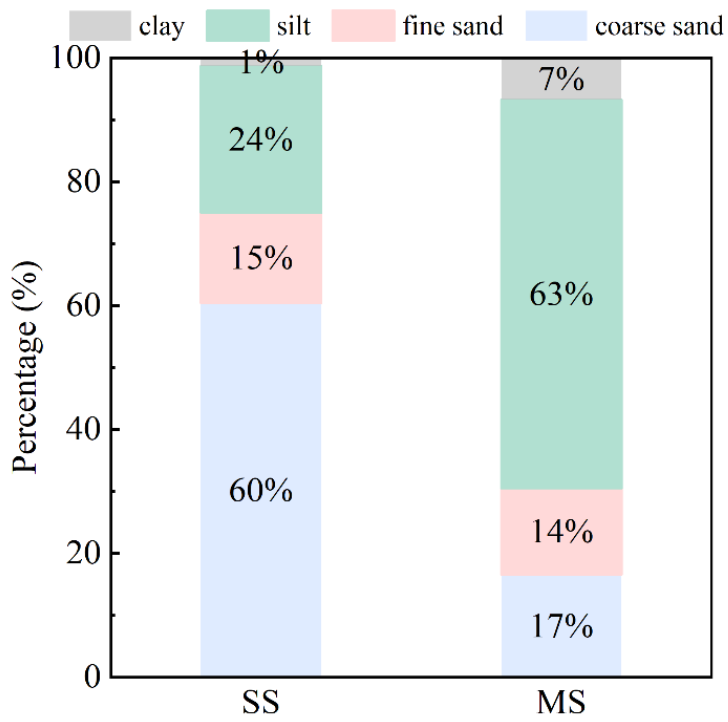


Fig. S1 Sediment particle size composition.

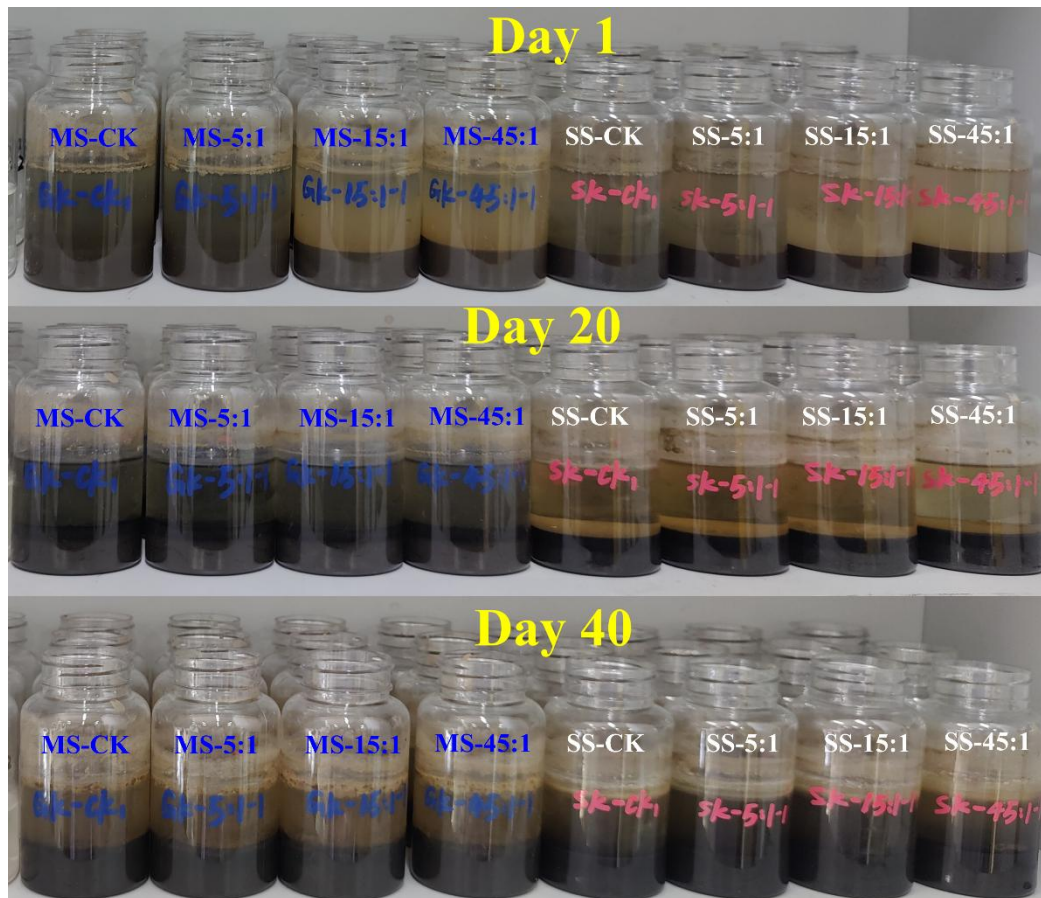


Fig. S2 Photographs on Days 1, 20, and 40 during incubation.

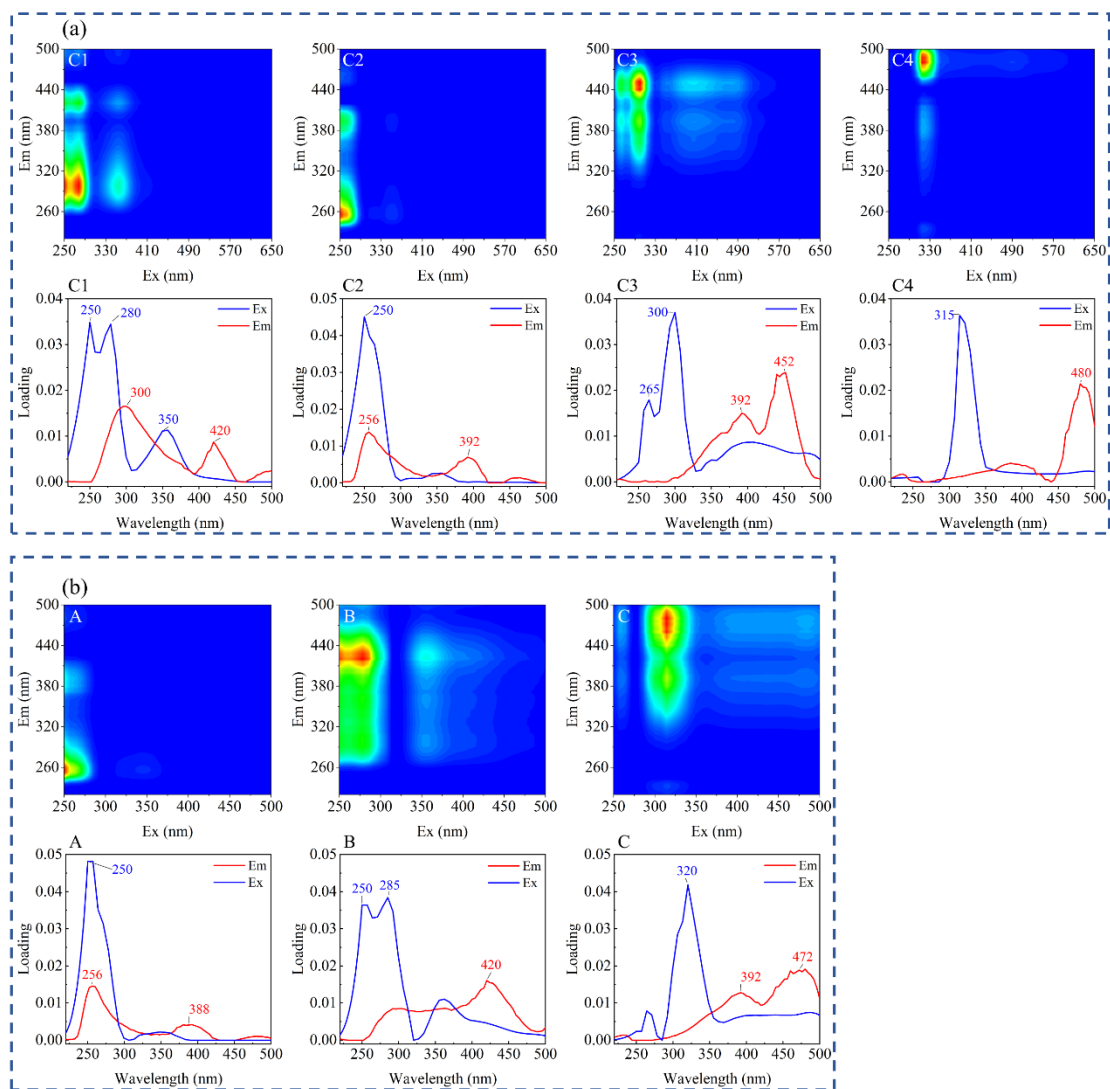


Fig. S3 Excitation and Emission spectra of (a) MS and (b) SS.

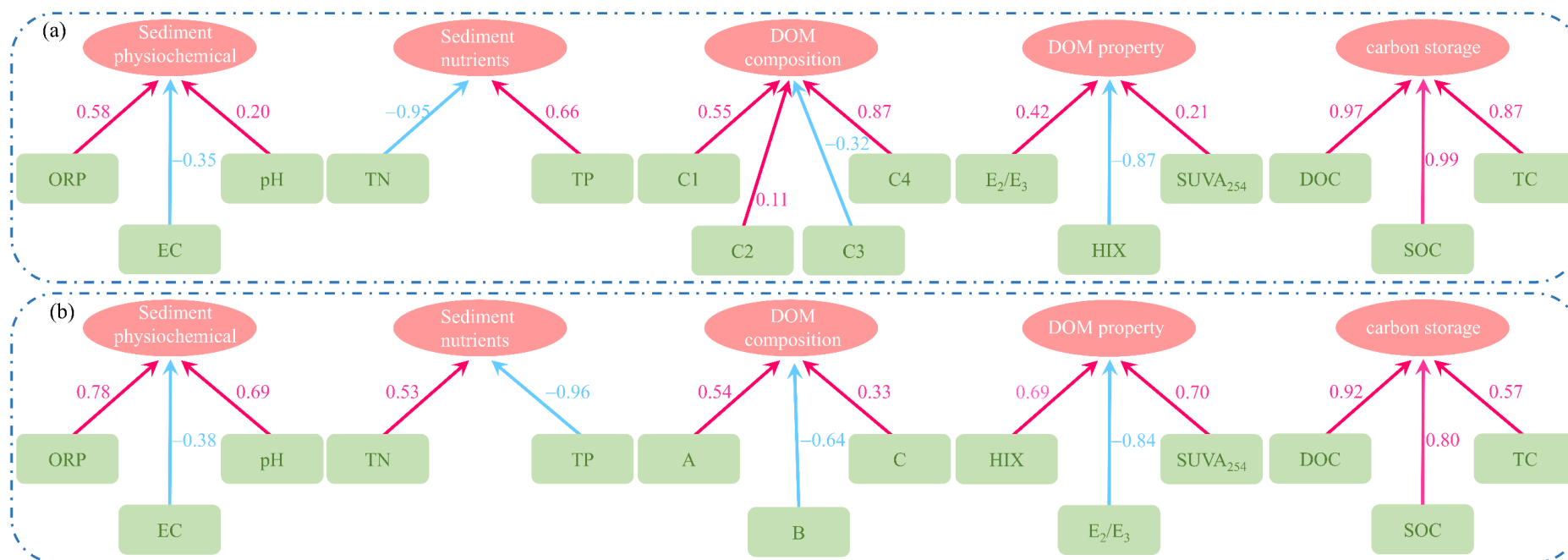


Fig. S4 The relationship between latent variables and their indicators in PLS-SEM model of (a) MS and (b) SS.

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