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Soil Research

Supplementary Material

Impact of litter quality on the stability and storage of soil carbon in flooded wetlands

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Table S1 Physical and chemical characteristics of the soils before preincubation (1) and after preincubation (2)

SM: soil moisture; BD: bulk density; SOC: soil organic carbon; TN: total nitrogen; TP: total phosphorus. Values are the means \pm SE (n=3).

Different lowercase letters on the same line indicate significant differences at $p < 0.05$. Those with significant differences are marked in different

lower case letters, those without differences are not marked.

	SM	pH	BD (g cm ⁻³)	SOC (g kg ⁻¹)	Clay (%)	Silt (%)	Sand (%)	TN (g kg ⁻¹)	TP (g kg ⁻¹)
1	0.24 \pm 0.01b	5.43 \pm 0.02b	1.43 \pm 0.03a	8.04 \pm 0.66a	26.47 \pm 0.33	50.47 \pm 1.76a	23.07 \pm 1.45b	1.63 \pm 0.12a	0.35 \pm 0.01
2	0.43 \pm 0.01a	6.34 \pm 0.05a	1.08 \pm 0.02b	6.83 \pm 0.12b	26.20 \pm 0.24	43.20 \pm 1.25b	30.60 \pm 1.71a	0.94 \pm 0.46b	0.37 \pm 0.05

Table S2. Pearson correlation among the parameters of CC treatments

AFDM: ash free dry mass; SOC: soil organic carbon; POXC: permanganate oxidizable carbon; DOC: dissolved organic carbon; MBC: soil microbial biomass carbon; WB-F1: **highly** labile carbon fraction; WB-F2: labile carbon fraction; WB-F3: less labile carbon fraction; WB-F4: recalcitrant carbon fraction; LCP: labile carbon pool content; NLCP; non-labile carbon pool. “***” Correlation is significant at the 0.01 level. “*” Correlation is significant at the 0.05 level

	mass loss	litter AFDM	SOC	POXC	DOC	MBC	WB-F1	WB-F2	WB-F3	WB-F4	LCP
mass loss											
litter AFDM	-0.869**										
SOC	-0.474*	0.401*									
POXC	0.477*	-0.489**	-0.169								
DOC	0.216	-0.134	-0.451*	0.109							
MBC	0.880**	-0.904**	-0.301	0.494**	0.094						
WB-F1	-0.417*	0.175	0.490**	0.125	-0.398*	-0.217					
WB-F2	-0.109	-0.044	0.703**	0.059	-0.061	0.109	-0.064				
WB-F3	-0.548**	0.503**	0.858**	-0.457*	-0.523**	-0.532**	0.357	0.409*			
WB-F4	-0.275	0.069	0.759**	-0.017	-0.083	-0.038	0.089	0.767**	0.494**		
LCP	-0.318	0.103	0.863**	0.137	-0.346	-0.090	0.719**	0.648**	0.557**	0.602**	
NLCP	-0.511**	0.391*	0.940**	-0.336	-0.412*	-0.399*	0.295	0.619**	0.930**	0.780**	0.657**

Table S3. Pearson correlation among the parameters of TL treatments

AFDM: ash free dry mass; SOC: soil organic carbon; POXC: permanganate oxidizable carbon; DOC: dissolved organic carbon; MBC: soil microbial biomass carbon; WB-F1: highly labile carbon fraction; WB-F2: labile carbon fraction; WB-F3: less labile carbon fraction; WB-F4: recalcitrant carbon fraction; LCP: labile carbon pool content; NLCP; non-labile carbon pool. “***” Correlation is significant at the 0.01 level. “**” Correlation is significant at the 0.05 level

	mass loss	litter AFDM	SOC	POXC	DOC	MBC	WB-F1	WB-F2	WB-F3	WB-F4	LCP
mass loss											
litter AFDM	-0.713**										
SOC	0.446*	-0.442*									
POXC	-0.469*	0.461*	0.061								
DOC	0.171	0.183	0.069	0.245							
MBC	0.663**	-0.404*	0.327	-0.112	0.416*						
WB-F1	-0.804**	0.630**	-0.031	0.460*	-0.004	-0.412*					
WB-F2	-0.678**	0.462*	0.348	0.311	-0.252	-0.346	0.490**				
WB-F3	-0.325	0.361	0.795**	0.273	0.101	0.096	0.419*	0.618**			
WB-F4	0.858**	-0.794**	0.098	-0.417*	0.034	0.447*	-0.849**	-0.648**	-0.497**		
LCP	-0.867**	0.652**	0.112	0.466*	-0.101	-0.444*	0.941**	0.757**	0.555**	-0.889**	
NLCP	0.574**	-0.473*	0.864**	-0.168	0.132	0.554**	-0.474*	-0.075	0.446*	0.555**	-0.385*

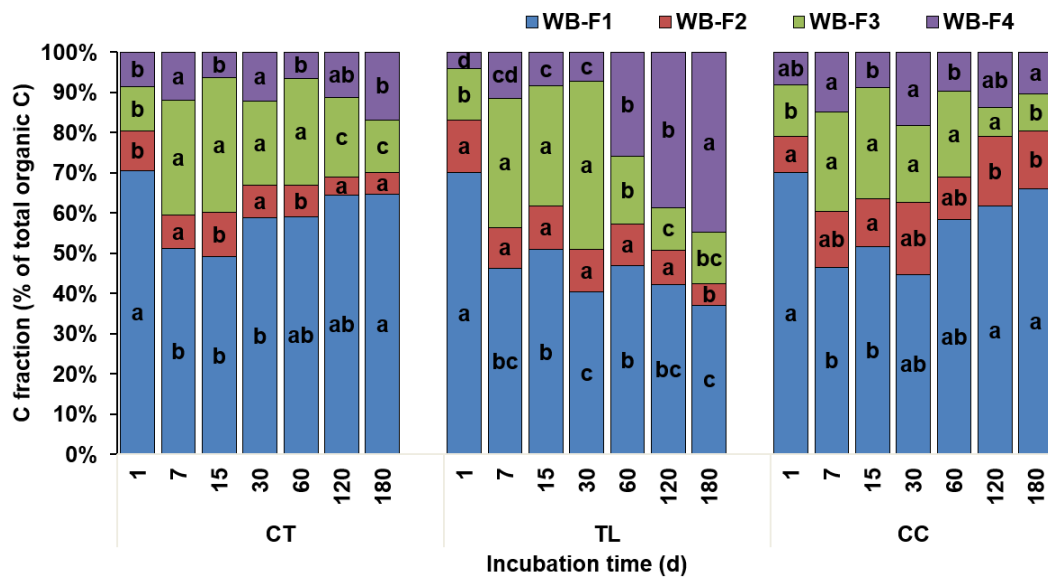


Fig. S1. Distribution of soil organic C fractions of different lability (as % of total organic C) in uncultivated soils and soils under the three microcosms (CC, TL and CT). WB-F1: highly labile carbon fraction; WB-F2: labile carbon fraction; WB-F3: less labile carbon fraction; WB-F4: recalcitrant carbon fraction. Bars followed by the same letter for a given fraction are not significantly different ($p < 0.05$).