Supporting information

Partitioning of CPs, PCDEs, and PCDD/Fs between dissolved and particulate natural organic matter in a contaminated soil

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Two tables; **Table S1:** Concentrations ± standard deviations and relative amounts (%) of CPs, PCDEs, and PCDD/Fs associated to POM, DOM and aqueous phase, **Table S2:** Experimentally determined log K_{OC} for CPs and PCDD/Fs ± standard deviations.

Table S1. Concentrations ± standard deviations and relative amounts (% total pool) of CPs, PCDEs, and PCDD/Fs associated with particulate organic matter (POM), with dissolved organic matter (DOM) and as free analytes in the aqueous phase. For POM and DOM, concentrations are normalized to mass of organic carbon.

	Soil	POM		DOM		Free	
	/g soil	/g OC	%	/g OC	%	/L	%
DCP (µg)	0.5 ± 0.8	3.7 ± 0.8	92.5	2.5 ± 1.2	5.4	0.93 ± 0.28	2.1
TCP (µg)	1.3 ± 1.9	9.7 ± 1.7	88.5	7.1 ± 5.5	5.6	7.0 ± 2.2	5.9
TeCP (µg)	8.8 ± 1.7	150 ± 26	90.8	98 ± 43	5.0	76 ± 33	4.2
PCP (µg)	2.9 ± 0.4	52 ± 3	83.0	44 ± 14	6.2	73 ± 37	10.8
PeCDE (ng)	8.5 ± 2.6	160 ± 35	97.4	47 ± 12	2.6	[a]ND	<0.0003[b]
HxCDE (ng)	110 ± 35	2100 ± 550	97.9	510 ± 160	2.1	[a]ND	<0.0003[b]
HpCDE (ng)	520 ± 200	9400 ± 3300	98.2	1800 ± 800	1.8	[a]ND	<0.0003[b]
OCDE (ng)	810 ± 380	15000 ± 7000	97.7	3800 ± 1400	2.3	[a]ND	<0.0003[b]
NCDE (ng)	160 ± 90	2100 ± 490	98.6	340 ± 180	1.4	[a]ND	<0.0003[b]
TCDF (ng)	[a]ND	[a]ND		7.1 ± 1.6		0.1 ± 0	
PeCDF (ng)	18 ± 5	320 ± 95	99.6	15 ± 2.5	0.4	[a]ND	0.0001
HxCDF (ng)	340 ± 69	6000 ± 1200	97.5	1800 ± 630	2.5	2.9 ± 0.8	0.0038
HpCDF (ng)	1500 ± 510	26000 ± 2900	99.0	2900 ± 790	1.0	4.6 ± 1.6	0.0016
OCDF (ng)	280 ± 73	5000 ± 750	98.7	750 ± 130	1.3	0.5 ± 0.2	0.0009
TCDD (ng)	[a]ND	[a]ND		2.5 ± 0.4		[a]ND	
PeCDD (ng)	22 ± 16	350 ± 360	99.5	24 ± 2.3	0.45	0.1 ± 0	0.0013
HxCDD (ng)	1800 ± 1600	35000 ± 30000	100	620 ± 74	0.03	2 ± 0.9	0.0000
HpCDD (ng)	8000 ± 4400	150000 ± 81000	99.8	3600 ± 1000	0.20	3.8 ± 2.1	0.0002
OCDD (ng)	1700 ± 350	31000 ± 4000	99.6	1400 ± 460	0.37	0.9 ± 0.4	0.0002

[a]ND = Not detected. [b]Calculated from the detection limit of PCDEs

Table S2. Log K_{OC} for CPs and PCDD/Fs ± standard deviations determined in this study and previously reported data on experimentally determined log K_{OC} values, with references in parenthesis.

	This study Log K_{DOC}	Log K_{OC} , literature data for humic and fulvic acids	This study Log K_{POC}	Log K_{OC} ,literature data from soils
25 / 24-DCP	3.5 ± 0.4		3.9 ± 0.3	
246-TCP	3.1 ± 0.5		3.7 ± 0.5	
2356/2346-TeCP	3.4 ± 0.7		4.0 ± 0.8	
PCP	3.1 ± 0.7		3.6 ± 0.9	
1237/1238- TeCDD	-	5.39-6.55(14)	-	
2378-TeCDD	-	7.25 (13)	-	7.59 (13), 6.44-6.66 (41), 6.8 (10), 4.76-6.50 (42)
12347-PeCDD	-	4.5-6.46 (14)	-	
12378- PeCDD	4.9 ± 0.2	5.95 (12)	6.3 ± 0.3	
12468/12479- PeCDD	5.4 ± 0.1		6.6 ± 0.1	
12478-PeCDD	4.5 ± 0.3		6.1 ± 0.3	
123478-HxCDD	-	5.13-6.32 (14), 6.06 (12)	-	7.1 (10)
123678- HxCDD	5.9 ± 0.3	6.06 (12)	7.2 ± 0.6	
123789/123467- HxCDD	5.6 ± 0.3	6.08 (12)	7.3 ± 0.6	
124679/124689-HxCDD	6.6 ± 0.2		7.8 ± 0.4	
123468-HxCDD	6.7 ± 0.3		7.8 ± 0.5	
123679/123689- HxCDD	6.5 ± 0.4		7.9 ± 0.5	
1234678- HpCDD	6.0 ± 0.3	6.09 (12), 6. 09-7.19 (15), 6.35-7.65 (44)	7.5 ± 0.5	
1234679- HpCDD	6.2 ± 0.3		7.7 ± 0.4	
OCDD	6.3 ± 0.2	6.07 (12)	7.6 ± 0.3	
2378- TeCDF	-	6.02 (12)	-	5.2-5.3 (43)
12378- PeCDF	-	6.03 (12)	-	
23478/12369- PeCDF	-	6.0 (12)	-	
12478/13478/13467/12467- PeCDF	5.8 ± 0.2		6.7 ± 0.1	
123478- HxCDF	-	6.02 (12)	-	
123678- HxCDF	-	5.95 (12)	-	
123789- HxCDF	-	6.15 (12)	-	
234678- HxCDF	-	6.05 (12)	-	
123468- HxCDF	5.7 ± 0.2		6.1 ± 0.2	
134678/124678- HxCDF	5.9 ± 0.2		6.4 ± 0.2	
124679- HxCDF	5.8 ± 0.2		6.4 ± 0.2	
1234678- HpCDF	6.0 ± 0.2	5.93 (12)	6.8 ± 0.2	
1234689- HpCDF	5.6 ± 0.2		6.1 ± 0.2	
1234789- HpCDF	5.8 ± 0.2	5.93 (12)	6.8 ± 0.2	
OCDF	6.2 ± 0.2	5.98 (12)	7.0 ± 0.2	

(10) Broman et al., 1991; (12) Kim and Osako, 2004; (13) Lodge and Cook, 1989; (14) Webster et al., 1986; (15) Yabuta et al., 2004; (41) Walters and Guiseppielle, 1988; (42) Puri et al., 1989, (43) Muir et al., 1992; (44) Tanaka et al., 2005.