

Article

Structural Selectivity of PAH Removal Processes in Soil, and the Effect of Metal Co-Contaminants

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Supplementary Materials

Table S1: Slope, m , (\pm Standard error) for the relationship between PAH Relative Molar Mass (RMM) and % removal of initial PAH concentration over a 40-week period at different metal concentrations.

Week No	Metal concentration							
	Control	[Cd] = 134 mg kg ⁻¹	[Cd] = 302 mg kg ⁻¹	[Cd] = 620 mg kg ⁻¹	[Pb] = 339 mg kg ⁻¹	[Pb] = 523 mg kg ⁻¹	[Pb] = 782 mg kg ⁻¹	[Hg] [†] = 1,115 mg kg ⁻¹
1	-0.3333 (0.1000)	-0.2501 (0.0915)	-0.2938 (0.0959)	-0.2545 (0.0724)	-0.2412 (0.0690)	-0.2389 (0.0701)	-0.2435 (0.0755)	-0.1845 (0.0429)
2	-0.3377 (0.0952)	-0.2788 (0.0935)	-0.3085 (0.0837)	-0.3073 (0.0737)	-0.3270 (0.0652)	-0.2910 (0.0724)	-0.2606 (0.0824)	-0.2128 (0.0389)
3	-0.3429 (0.0713)	-0.2899 (0.0856)	-0.3146 (0.0727)	-0.3363 (0.0674)	-0.3330 (0.0747)	-0.3266 (0.0653)	-0.3263 (0.0821)	-0.2598 (0.0537)
5	-0.3082 (0.0743)	-0.2856 (0.0869)	-0.3483 (0.0667)	-0.4194 (0.0665)	-0.3438 (0.0707)	-0.3630 (0.0585)	-0.3733 (0.0801)	-0.2950 (0.0597)
7	-0.2715 (0.0684)	-0.2717 (0.0837)	-0.3620 (0.0644)	-0.4261 (0.0658)	-0.3352 (0.0676)	-0.3613 (0.0612)	-0.3869 (0.0765)	-0.3225 (0.0603)
9	-0.2559 (0.0640)	-0.2468 (0.0803)	-0.3510 (0.0658)	-0.4145 (0.0665)	-0.3279 (0.0647)	-0.3546 (0.0628)	-0.3952 (0.0706)	-0.3725 (0.0618)
12	-0.2446 (0.0615)	-0.2464 (0.0753)	-0.3423 (0.0671)	-0.4109 (0.0654)	-0.3036 (0.0673)	-0.3427 (0.0604)	-0.3857 (0.0718)	-0.3827 (0.0629)
15	-0.2243 (0.0615)	-0.2491 (0.0690)	-0.3341 (0.0671)	-0.4075 (0.0653)	-0.2844 (0.0712)	-0.3355 (0.0634)	-0.3764 (0.0729)	-0.3994 (0.0639)
20	-0.2087 (0.0591)	-0.2189 (0.0624)	-0.3364 (0.0667)	-0.4107 (0.0710)	-0.2791 (0.0701)	-0.3274 (0.0660)	-0.3618 (0.0717)	-0.4072 (0.0660)
25	-0.1927 (0.0580)	-0.1995 (0.0610)	-0.3249 (0.0678)	-0.4025 (0.0723)	-0.2541 (0.0696)	-0.3155 (0.0702)	-0.3484 (0.0727)	-0.4102 (0.0659)
30	-0.1742 (0.0552)	-0.1749 (0.0588)	-0.3099 (0.0648)	-0.4068 (0.0686)	-0.2398 (0.0677)	-0.2924 (0.0662)	-0.3296 (0.0697)	-0.4169 (0.0648)
35	-0.1532 (0.0474)	-0.1777 (0.0477)	-0.2892 (0.0627)	-0.3841 (0.0657)	-0.2232 (0.0662)	-0.2683 (0.0634)	-0.3150 (0.0702)	-0.4124 (0.0593)
40	-0.1320 (0.0371)	-0.1550 (0.0419)	-0.2638 (0.0589)	-0.3679 (0.0644)	-0.2247 (0.0586)	-0.2540 (0.0618)	-0.2962 (0.0659)	-0.4006 (0.0581)

[†]Abiotic control: an initial concentration of 627 mg kg⁻¹ applied, which was increased to 1,115 mg kg⁻¹ at 5 weeks

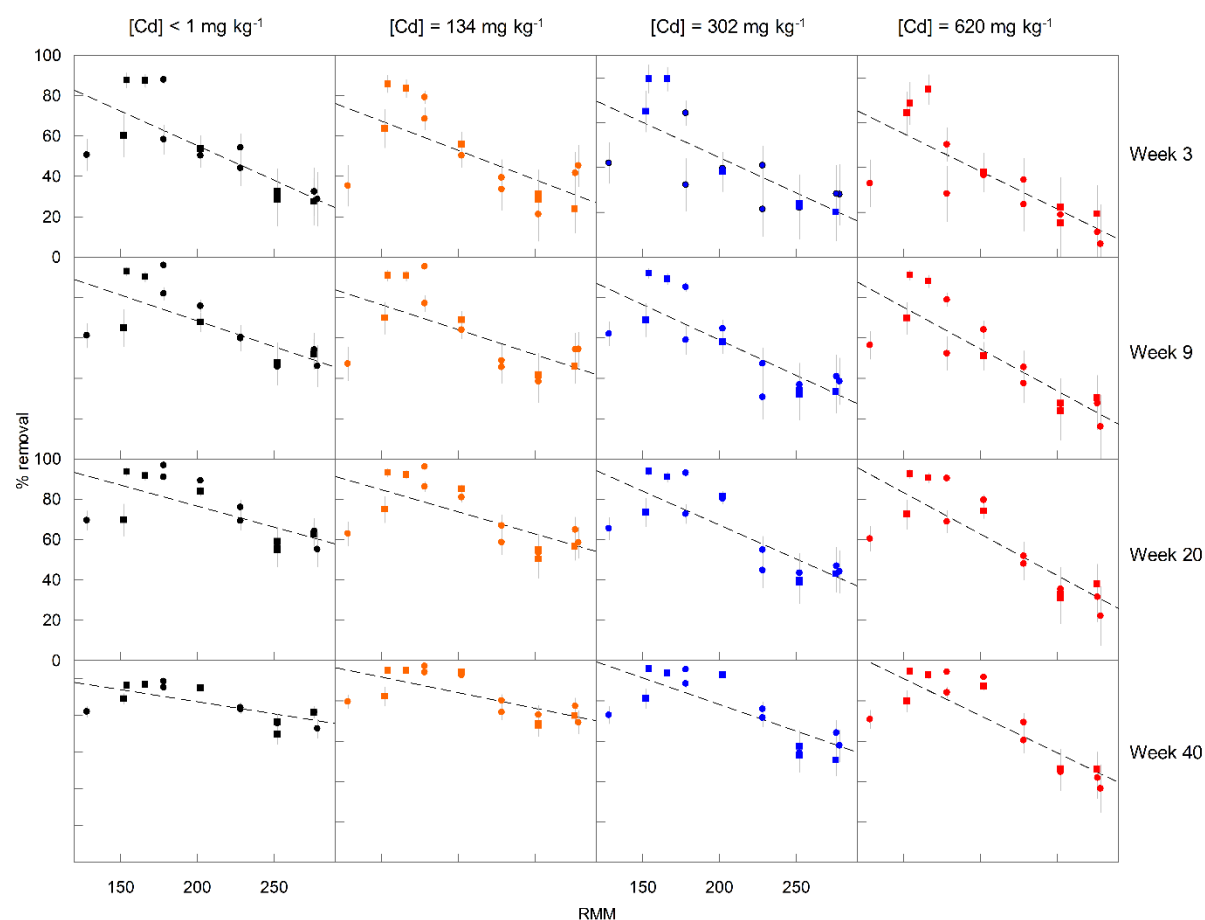


Figure S1. Change in slope, m , with time at different applied cadmium concentrations. The panels show the relationship between PAH Relative Molar Mass (RMM) and % removal of initial concentration at 3, 9, 20 and 40 weeks after application of the PAH mixture to soil microcosms in the presence of four different cadmium concentrations. The symbols represent 16 individual PAHs: the filled circles and filled square show alternant and non-alternant PAHs respectively. The dashed line is the line of best fit through the points. Error bars are ± 1 standard deviation.

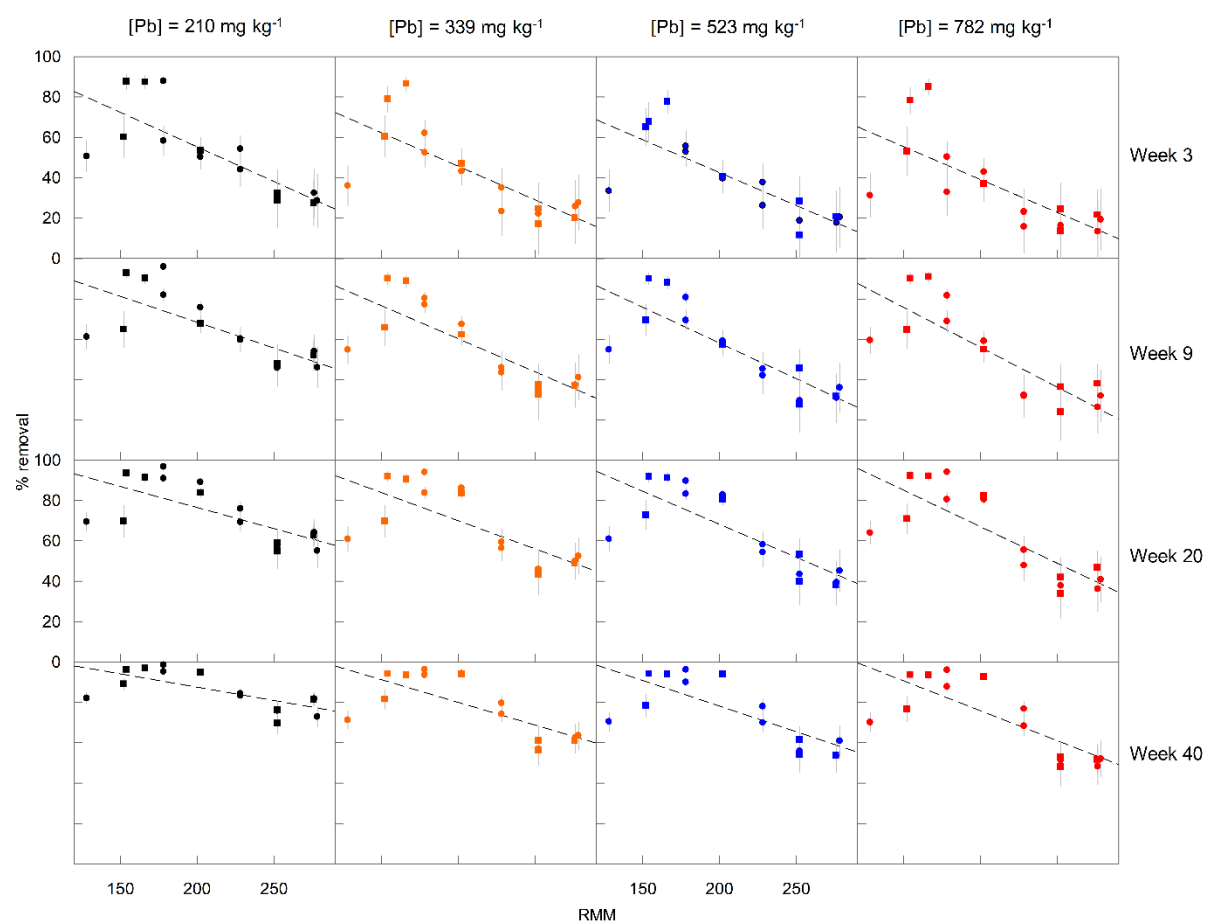


Figure S2. Change in slope, m , with time at different applied lead concentrations. The panels show the relationship between PAH Relative Molar Mass (RMM) and % removal of initial concentration at 3, 9, 20 and 40 weeks after application of the PAH mixture to soil microcosms in the presence of four different lead concentrations. The symbols represent 16 individual PAHs: the filled circles and filled square show alternant and non-alternant PAHs respectively. The dashed line is the line of best fit through the points. Error bars are ± 1 standard deviation.

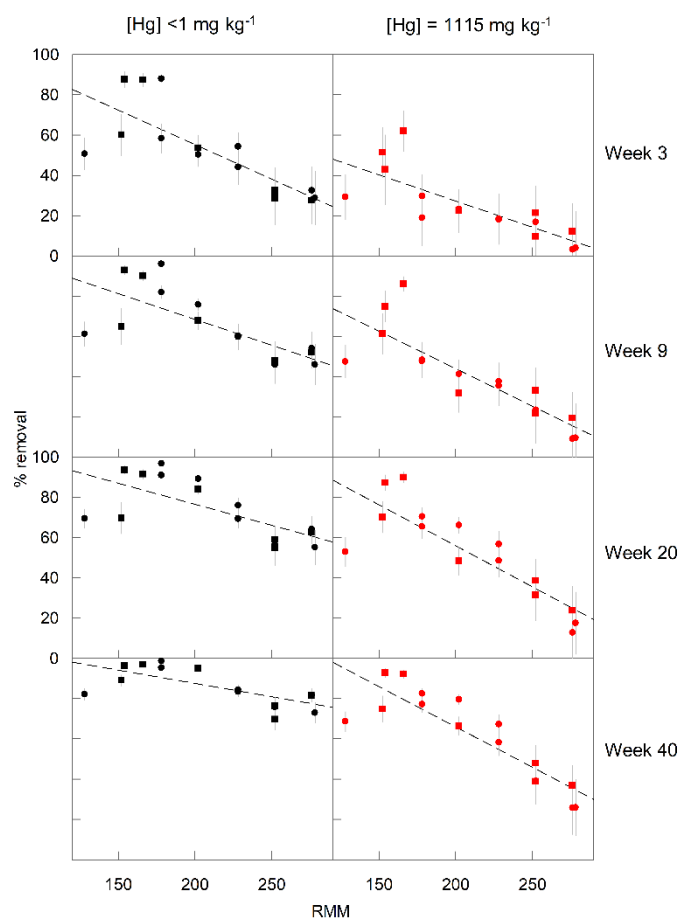


Figure S3. Change in slope, m , with time at different applied mercury concentrations. The panels show the relationship between PAH Relative Molar Mass (RMM) and % removal of initial concentration at 3, 9, 20 and 40 weeks after application of the PAH mixture to soil microcosms in the presence mercury. The symbols represent 16 individual PAHs: the filled circles and filled square show alternant and non-alternant PAHs respectively. The dashed line is the line of best fit through the points. Error bars are ± 1 standard deviation.