

Table S1 Physicochemical parameters of sediment/soil of samples

Sample name	Nitrate	Ammonia	Total	Total																					
	nitrogen (mg/kg)	nitrogen (mg/kg)	nitrogen (mg/kg)	Water content	Conductivity pH (µs/cm)	TOC	Acy (		PAH (ng/g		FLR (ng/ g)	PHE (ng/g)	Ant (ng/ g)	FLT (ng /g)	PYR		CHR		BaA (n g/g)	BkF (ng /g)	BaP (ng/ g)	BbF (ng/ g)	DhA (	BgP (ng /g)	IcP (ng/ g)
							ng/g	ng/g	ng/g	ng/g					ng/g	ng/g									
							ng/g	ng/g	ng/g	ng/g					ng/g	ng/g									
Dit-bh-2	3.96	42.02	1721.97	0.27	6.47	308.00	11.04	3.96	3.10	3.57	896.04	16.21	91.03	38.60	69.03	97.74	107.96	51.28	142.19	81.48	37.34	16.18	68.96	67.40	
Dit-bh-4	1.72	22.29	1876.01	0.28	6.92	256.00	13.12	58.15	4.38	5.92	1248.41	25.48	147.99	91.51	119.98	123.31	144.61	64.84	168.83	67.74	42.58	19.89	78.89	84.32	
Dit-es-1	4.79	198.64	1316.95	0.40	6.50	1833.00	5.47	32.07	1.19	3.01	633.07	11.37	86.10	55.74	54.75	46.94	51.84	39.54	85.02	42.33	28.04	15.83	36.17	43.14	
Agr-bh-2	1.11	2.17	772.53	0.21	7.05	279.00	5.40	5.68	0.67	0.43	106.21	3.67	23.74	2.28	12.69	6.82	11.52	4.27	3.70	10.06	4.06	0.55	8.11	7.96	
Agr-bh-4	2.71	25.10	772.99	0.27	6.93	160.80	10.30	16.69	0.68	0.60	75.39	2.82	13.64	8.13	6.37	3.58	5.30	2.00	2.06	3.12	1.54	0.55	3.95	4.36	
Agr-es-1	0.37	8.89	690.86	0.22	7.02	134.00	10.30	16.31	0.50	0.43	55.45	4.68	17.79	3.01	3.78	3.12	2.64	0.64	0.43	0.30	0.43	0.55	0.30	0.55	
Riv-bh-2	0.92	2.70	1373.16	0.19	6.80	259.00	25.70	74.14	0.87	0.93	496.16	11.78	62.16	95.66	37.02	21.51	37.51	15.30	16.45	22.19	15.12	8.59	41.08	35.86	
Riv-bh-4	0.76	4.19	946.35	0.23	7.15	132.90	20.10	2.80	0.52	0.45	166.63	2.84	30.09	17.29	15.46	9.25	17.53	6.45	6.47	9.26	6.74	3.85	20.14	17.50	
Riv-es-1	0.49	5.30	943.81	0.22	6.99	70.10	0.90	12.79	0.95	0.91	156.45	2.84	16.60	29.61	17.52	10.51	12.59	9.72	6.60	9.46	6.56	0.55	9.37	9.87	

Table S2 KEGG Orthology contributed by the main PAHs degrading bacteria at different sampling points

Sampling points Genus									
	Dit-bh-2	Dit-es-1	Riv-bh-4	Riv-es-1	Dit-bh-4	Agr-bh-4	Agr-bh-2	Riv-bh-2	Agr-es-1
<i>Actinoplanes</i>	K00480		K00448				K00448		
	K04102	K00480	K00480	K00448	K00480	K00480	K00480	K00480	K00480
							K04102		
<i>Bradyrhizobium</i>	K00448				K00448			K00448	K00448
	K00449		K00449	K00448	K00449	K00480		K00449	K00449
	K00480	K00480	K00480	K00449	K00480	K04100	K00448	K00480	K00480
	K04100	K04100	K04100	K00480	K04100	K04101	K00480	K04100	K04100
	K04101		K04101	K04101	K04101	K04102	K04101	K04101	K04101
	K04102		K04102		K04102			K04102	K04102
					K00449	K00449	K00449	K00449	K00449
<i>Mycobacterium</i>			K00449		K00480	K00480	K00480	K04102	K00480
	K00449		K04102						
	K00480		K11948	K00449	K11946	K04102	K04102	K11946	K04102
			K18252		K11948	K11946	K11946	K11948	K11946
<i>Nocardioides</i>					K18252	K11948	K11948	K18252	K11948
	K00448			K00448					
	K00449		K00449	K00449	K00449	K00449	K00449	K00449	K00449
<i>Pseudolabrys</i>	K04101			K04101	K04101	K04101		K04101	K04101
	K00448		K00448	K00448	K00448	K00448	K00449	K00448	K00448
	K00449		K00449	K00449	K00449	K00449	K00480	K00449	K00449

Sampling points									
Genus	Dit-bh-2	Dit-es-1	Riv-bh-4	Riv-es-1	Dit-bh-4	Agr-bh-4	Agr-bh-2	Riv-bh-2	Agr-es-1
<i>Rhizobium</i>	K00480		K00480		K00480	K00480	K04102	K00480	K00480
	K04100		K04100		K04100	K04102		K04102	K04102
	K04101		K04102		K04101	K18069		K18069	K18069
	K04102		K18069		K04102				
	K18069				K18069				
				K00448					
			K00448					K00449	
	K00480			K00449	K00480	K00480	K00480		K00480
			K00480					K00480	
	K04102		K04102	K04102	K04102	K04102	K04102	K04102	K04102
<i>Rhodoplanes</i>	K00480		K00480		K00480		K00480	K00480	K00480
	K04100	K00480	K04100	K00480	K04100	K00480	K04100	K04100	K04100
	K04101	K04101	K04101	K04102	K04101	K04101	K04101	K04101	K04101
	K04102	K04102	K04102		K04102	K04102	K04102	K04102	K04102
			K00448				K00448	K00448	K00448
<i>Rubrobacter</i>	K00448		K00449	K00449	K00448	K00448	K00449	K00449	K00449
	K00449		K00480		K00449	K00449	K00480	K00480	K00480
						K00448	K00448		K00448
<i>Streptomyces</i>					K00449				
	K00449		K00480	K00480	K00480	K00449	K00449	K00480	K00449
	K00480		K04101	K04101	K04101	K00480	K00480	K04101	K00480
	K04101				K04102	K04101	K04101	K04102	K04101
<i>unclassified_c__Betaproteobacteria</i>						K04102	K04102		K04102
	K00480		K00480		K00480	K00480	K00480	K00480	K04102

Sampling points									
Genus	Dit-bh-2	Dit-es-1	Riv-bh-4	Riv-es-1	Dit-bh-4	Agr-bh-4	Agr-bh-2	Riv-bh-2	Agr-es-1
	K04100		K04100		K04100	K04101	K04101	K04100	K18067
	K04101		K04101		K04101	K04102		K04101	
	K04102		K04102		K04102	K18067		K04102	
			K14581					K18074	