



Supplementary Materials

Table S1. Comparisons Between PTE Contents, Enrichment Levels, and Potential Ecological Risk of Surface Sediments from Lake Maracaibo and other Aquatic Ecosystems in the World

PTE	Ecosystem	mg·kg ⁻¹ DW	EF	Igeo	Ci/ERMi	RAC (%)	Reference
Ti	Lake Maracaibo (Venezuela)	7.200-176.722	0.16-1.69	-4.87 ± 1.26			This study
V	Lake Maracaibo (Venezuela)	1.770-113.500	12.88-55.45	0.55-1.52		0.4-16.9	This study
Cr	Gulf of Cariaco (Venezuela)	21 ± 11	0.17-1.13	-2.90 ± 0.97	0.01-0.10	0-2	[62]
	Bay of Bengal (Bangladesh)	311-1,232	2.46-26.3	2-4			[63]
	Chaohu lake (China)	68.68-129.98	1.79-7.22			0.73-1.51	[14]
	Bahía Blanca estuary (Argentina)	18.90-29.80	0.29-0.30	< 0			[60]
	Gala lake (Turkey)	31.78-153.2			0.239-1.042		[61]
	Guadiana estuary (Spain)	14-49					[64]
	Lake Maracaibo (Venezuela)	6.100-15.071	3.01-48.20	-0.76 ± 0.39	0.02-0.04		This study
Ni	Gulf of Cariaco (Venezuela)	21 ± 7	0.73-1.96	-2.38 ± 0.53	0.19-0.66	0-6	[62]
	Bay of Bengal (Bangladesh)	8-45	0.05-0.99	0			[63]
	Chaohu lake (China)	21.95-66.26	1.64-3.72			8.08-18.34	[14]
	Bahía Blanca estuary (Argentina)	9.74-10.32	0.25-0.80	< 0			[60]
	Gala lake (Turkey)	9.88-60.04			0.201-1.164		[61]
	Guadiana estuary (Spain)	20.8-41.6				4.80	[64]
	Lake Maracaibo (Venezuela)	0.702-9.810	0.29-1.45	-3.10 ± 0.96	0.12-0.05		This study
Cu	Gulf of Cariaco (Venezuela)	58 ± 23	2.34-5.75	-0.34 ± 0.60	0.11-0.34	0-13	[62]
	Bay of Bengal (Bangladesh)	6-1,635	0.12-26.12	0-5			[63]
	Chaohu lake (China)	28.02-396.12	2.68-36.72			1.67-16.50	[14]
	Bahía Blanca estuary (Argentina)	15.01-17.42	0.64-1.17	< 0			[60]
	Gala lake (Turkey)	2.560-26.40			0.007-0.067		[61]
	Guadiana estuary (Spain)	7.5-71.9				8.96	[64]
	Lake Maracaibo (Venezuela)	1.060-13.302	0.54-5.19	-3.10 ± 1.19	0.00-0.05		This study
Zn	Gulf of Cariaco (Venezuela)	75 ± 27	1.73-2.92	-1.03 ± 0.58	0.08-0.28	7-24	[62]
	Bay of Bengal (Bangladesh)	58-978	1.11-10.1	0-4			[63]
	Chaohu lake (China)	73.81-415.05	2.35-18.58			3.60-50.77	[14]
	Bahía Blanca estuary (Argentina)	32.68-59.37	0.55-1.10	< 0			[60]
	Gala lake (Turkey)	16.38-96.48			0.061-0.351		[61]
	Guadiana estuary (Spain)	102-483				36.13	[64]
	Lake Maracaibo (Venezuela)	4.700-53.401	3.83-17.55	-0.58 ± 0.96	0.01-0.13		This study

PTE: potentially toxic elements; EF: enrichment factor, < 1: low enrichment level, 1-3: moderate, 3-6: considerable, > 6: very high [39]; Igeo: geoaccumulation index, ≤ 0: unpolluted, 0-1: unpolluted/moderately polluted, 1-2: moderately polluted, 2-3: moderately/strongly polluted, 3-4: strongly polluted, 4-5: strongly/extremely polluted, 5-6: extremely polluted [47]; Ci/ERMi: ratio of the PTE concentration and the guideline of effects range medium [4]; RAC: risk assessment code, < 1%: no risk, 1-10%: low, 11-30%: medium, 31-50%: high, > 50%: very high [53].

Table S1. Continued

PTE	Ecosystem	mg·kg ⁻¹ DW	EF	Igeo	Ci/ERMi	RAC (%)	Reference
As	Bay of Bengal (Bangladesh)	1-12	1.21-7.14	0-3			[63]
	Gala lake (Turkey)	0.019-0.292			0.000-0.003		[61]
	Guadiana estuary (Spain)	8.8-81.8				1.63	[64]
	Lake Maracaibo (Venezuela)	0.050-10.099	11.71-91.35	1.08 ± 1.98	0.07-0.04	1.0-81.4	This study
Se	Lake Maracaibo (Venezuela)	0.020-0.812	1.12-80.83	-0.04 ± 1.88		7.3-94.3	This study
Cd	Gulf of Cariaco (Venezuela)	3.7 ± 0.9	24-82	2.98 ± 0.39	0.20-0.51		[62]
	Bay of Bengal (Bangladesh)	0.01-1.16	0.08-3.98	0-2			[63]
	Guadiana estuary (Spain)	0.10-1.40				88.01	[64]
	Gala lake (Turkey)	0.040-0.920			0.008-0.090		[61]
	Lake Maracaibo (Venezuela)	0.370-10.030	29.28-82.57	1.31 ± 1.12	0.04-1.04		This study
Sn	Lake Maracaibo (Venezuela)	< 0.025-0.027	0.01-20.44	-6.55 ± 2.93			This study
Hg	Guadiana estuary (Spain)	0.16-4.43					[64]
	Lake Maracaibo (Venezuela)	0.053-0.520	0.44-35.00	-2.97 ± 0.85	0.07-0.73	0.0-26.5	This study
	Gulf of Cariaco (Venezuela)	6 ± 2	0.55-1.17	-2.52 ± 0.85	0.01-0.04	-	[62]
	Bay of Bengal (Bangladesh)	16-22	0.47-3.36	0-1			[63]
Pb	Chaohu lake (China)	17.42-60.28	1.39-5.56			0.01-4.26	[14]
	Bahía Blanca estuary (Argentina)	6.97-15.95	0.56-1.39	< 0			[60]
	Gala lake (Turkey)	2.800-27.94			0.027-0.229		[61]
	Guadiana estuary (Spain)	22.9-47.9				0.19	[64]
	Lake Maracaibo (Venezuela)	4.011-110.020	2.41-85.01	1.04 ± 1.63	0.02-0.50	1.5-21.0	This study

PTE: potentially toxic elements; EF: enrichment factor, < 1: low enrichment level, 1-3: moderate, 3-6: considerable, > 6: very high [39]; Igeo: geoaccumulation index, ≤ 0: unpolluted, 0-1: unpolluted/moderately polluted, 1-2: moderately polluted, 2-3: moderately/strongly polluted, 3-4: strongly polluted, 4-5: strongly/extremely polluted, 5-6: extremely polluted [47]; Ci/ERMi: ratio of the PTE concentration and the guideline of effects range medium [4]; RAC: risk assessment code, < 1%: no risk, 1-10%: low, 11-30%: medium, 31-50%: high, > 50%: very high [53].

Table S2. Mean-effects Range Medium-Quotient (m-ERM-Q) Values of Elemental Concentrations in Surface Sediments of Lake Maracaibo

Sampling site	<i>C_i/ERM_i</i>							m-ERM-Q	
	Cr	Ni	Cu	Zn	As	Cd	Hg		Pb
PR	0.02	0.07	0.01	0.11	0.09	0.38	0.57	0.11	0.17
SC	0.03	0.17	0.01	0.12	0.14	0.56	0.36	0.20	0.20
D-2	0.03	0.12	0.02	0.12	0.13	1.04	0.40	0.27	0.27
D-4	0.03	0.14	0.03	0.13	0.11	0.51	0.18	0.27	0.17
D-5A	0.02	0.01	0.00	0.01	0.00	0.04	0.27	0.05	0.05
NO-2	0.03	0.14	0.03	0.13	0.03	0.51	0.07	0.03	0.12
O-13	0.03	0.12	0.04	0.12	0.03	0.46	0.18	0.11	0.14
O-20	0.04	0.14	0.05	0.12	0.06	0.48	0.18	0.39	0.18
C-1	0.02	0.08	0.01	0.06	0.03	0.56	0.27	0.02	0.13
C-11	0.02	0.11	0.04	0.06	0.08	0.28	0.40	0.30	0.16
C-9	0.02	0.10	0.01	0.09	0.08	0.25	0.26	0.32	0.14
CA-2	0.02	0.12	0.02	0.07	0.03	0.40	0.73	0.03	0.18
D-33	0.04	0.19	0.05	0.12	0.07	0.55	0.21	0.50	0.22
El Tablazo Bay	0.03	0.12	0.01	0.12	0.12	0.47	0.47	0.15	0.19
Strait of Maracaibo	0.03	0.10	0.02	0.10	0.07	0.53	0.23	0.15	0.15
Lake	0.03	0.12	0.03	0.09	0.05	0.43	0.32	0.24	0.16

C_i/ERM_i: ratio of the elemental concentration and the guideline of effects range medium [50, 51]; m-ERM-Q: < 0.1 toxicity probability for biota 9% (low), 0.11-0.5, 21% (medium-low), 0.51-1.5, 49% (medium-high), > 1.5, 76% (high priority side) [4, 51].