

Supplementary material

Title: Lead (Pb) Pollution in Soil: A Systematic Review and Meta-Analysis of Contamination Grade and Health Risk in Mexico

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Table S1. Indexes of geoaccumulation, ecological risk, hazard, and cancer risk in mining/tailing soils.

Location	I _{geo}	ERI	HI		CRI (10 ⁻⁶)	
			Adult	Children	Adult	Children
AGU, Asientos	2.0	30.5	0.7	3.2	6.67	7.25
	5.8	427.7	10.3	44.5	93.62	101.69
	Mean	3.9	5.5	23.9	50.1	54.5
BCS, Los Planes basin	-2.5	1.3	0.0	0.1	0.29	0.31
	-3.4	0.7	0.0	0.1	0.16	0.17
	Mean	-2.9	0.0	0.1	0.2	0.2
HID, Zimapán	3.9	113.0	2.7	11.7	24.73	26.86
	3.6	93.6	2.3	9.7	20.49	22.26
	5.8	409.6	9.9	42.6	89.65	97.38
	4.0	118.4	2.9	12.3	25.93	28.16
	Mean	4.3	4.5	19.1	40.2	43.7
GRO, Taxco	4.4	154.1	3.7	16.0	33.73	36.63
GUA, Pozos	2.6	45.0	1.1	4.7	9.85	10.70
GUA, Xichú	4.9	216.9	5.2	22.5	47.48	51.57
QUE, Maconí	1.6	23.4	0.6	2.4	5.13	5.57
QUE, Peñamiller	-4.9	0.3	0.0	0.0	0.06	0.06
SLP, Cedral	6.7	801.3	19.3	83.3	175.40	190.52
SLP, Cerro de San Pedro	6.7	781.5	18.8	81.2	171.06	185.81
SLP, Charcas	8.3	2,394.4	57.7	248.9	524.11	569.29
	3.3	74.1	1.8	7.7	16.21	17.61
	Mean	5.8	29.8	128.3	270.2	293.5
SLP, Villa de la Paz	4.5	168.1	4.1	17.5	36.80	39.97
	3.8	102.8	2.5	10.7	22.50	24.44
	7.1	1,016.3	24.5	105.6	222.46	241.64
	3.6	90.2	2.2	9.4	19.74	21.45
	5.8	412.4	9.9	42.9	90.26	98.05
	Mean	5.0	8.6	37.2	78.4	85.1
SON, San Felipe de Jesús	9.0	3,942.2	95.0	409.7	862.92	937.31
	8.5	2,733.9	65.9	284.1	598.43	650.01
	Mean	8.8	80.5	346.9	730.7	793.7
SON, Nacozari de García	0.8	13.0	0.3	1.3	2.84	3.08
	-1.5	2.6	0.1	0.3	0.57	0.62
	Mean	-0.4	0.2	0.8	1.7	1.9
ZAC, Vetagrande	6.6	737.8	17.8	76.7	161.49	175.42
	4.4	158.0	3.81	16.42	34.58	37.56
	6.0	491.9	11.86	51.12	107.66	116.94
	Mean	5.7	11.2	48.1	101.2	110.0

CRI, cancer risk index; ERI, ecological risk index; HI, hazard index; I_{geo}, geoaccumulation index. AGU, Aguascalientes; BCS, Baja California Sur; GUA, Guanajuato; GRO, Guerrero; HID, Hidalgo; QUE, Querétaro; SLP, San Luis Potosí; SON, Sonora; ZAC, Zacatecas.

Table S2. Indexes of geoaccumulation, ecological risk, hazard, and cancer risk in agricultural soils.

Location	I _{geo}	ERI	HI		CRI (10 ⁻⁶)	
			Adult	Children	Adult	Children
AGU, Asientos	3.2	68.9	1.7	7.2	15.09	16.39
BCN, Cerro Prieto	-1.0	3.7	0.1	0.4	0.81	0.88
CHH, Aldama	-0.4	5.6	0.1	0.6	1.24	1.34
CHH, Juarez Valley	-0.8	4.3	0.1	0.5	0.95	1.03
DUR, Santiago Papasquiaro	2.7	47.6	1.1	4.9	10.41	11.31
GRO, Santa Rosa	2.5	42.5	1.0	4.4	9.28	10.08
	0.6	11.1	0.3	1.2	2.43	2.64
	6.3	605.5	14.6	62.9	132.54	143.96
	Mean	3.1	219.7	5.3	48.1	52.2
HID, Zimapán	3.6	93.6	2.3	9.7	20.49	22.26
	4.1	124.8	3.0	13.0	27.32	29.68
	5.4	319.0	7.7	33.2	69.83	75.85
	5.6	373.9	9.0	38.9	81.85	88.91
	Mean	4.7	227.8	5.5	49.9	54.2
SON, San Felipe de Jesús	5.4	309.9	7.5	32.2	67.83	73.68
SON, Yaqui and Mayo valleys	0.0	7.4	0.2	0.8	1.63	1.77
	-0.8	4.3	0.1	0.4	0.94	1.02
	Mean	-0.4	5.9	0.6	1.3	1.4
ZAC, Vetagrande	7.5	1,392.0	33.6	144.7	304.69	330.96

CRI, cancer risk index; ERI, ecological risk index; HI, hazard index; I_{geo}, geoaccumulation index. AGU, Aguascalientes; BCN, Baja California Norte; CHH, Chihuahua; DUR, Durango; GRO, Guerrero; HID, Hidalgo; SLP, San Luis Potosí; SON, Sonora; ZAC, Zacatecas.

Table S3. Indexes of geoaccumulation, ecological risk, hazard, and cancer risk in residential soils.

Location	I _{geo}	ERI	HI		CRI (10 ⁻⁶)	
			Adult	Children	Adult	Children
AGU, Asientos	-0.1	7.2	0.17	0.75	1.58	1.72
	1.2	16.8	0.40	1.74	3.67	3.98
	Mean	0.6	12.0	0.3	2.6	2.9
BCS, Los Planes basin	-3.0	1.0	0.02	0.10	0.21	0.23
	-6.7	0.1	0.00	0.01	0.02	0.02
	Mean	-4.9	0.6	0.0	0.1	0.1
CHH, Chihuahua	5.2	277.6	6.69	28.85	60.76	66.00
COA, Tlaxcala	9.0	3,922.0	94.55	407.64	858.50	932.51
	3.9	109.1	2.63	11.34	23.88	25.93
	3.2	69.3	1.67	7.20	15.16	16.47
	Mean	5.4	1366.8	33.0	299.2	325.0
DUR, Durango	1.4	19.9	0.48	2.07	4.35	4.72
MOR, Tlayacapan	2.3	36.1	0.87	3.75	7.90	8.59
NLE, Monterrey	1.0	15.4	0.37	1.61	3.38	3.67
	3.5	84.3	2.03	8.76	18.44	20.03
	Mean	2.3	49.9	1.2	10.9	11.9
PUE, Popocatepetl volcano	0.6	11.2	0.27	1.16	2.44	2.66
SLP, Cedral	2.7	48.7	1.17	5.06	10.66	11.58
SLP, Cerro de San Pedro	7.3	1,200.9	28.95	124.82	262.88	285.54
SLP, “Las Terceras”	0.6	11.2	0.27	1.16	2.45	2.66
SLP, Morales	3.8	105.6	2.54	10.97	23.11	25.10
SLP, San Luis Potosí	1.4	20.0	0.48	2.08	4.38	4.76
SLP, Villa de la Paz	3.5	84.8	2.04	8.82	18.57	20.17
	4.7	195.1	4.70	20.28	42.71	46.39
	3.2	69.1	1.67	7.19	15.14	16.44

	Mean	3.8	116.3	2.8	12.1	25.5	27.7
SON, Hermosillo	0.6	11.1	0.27	1.15	2.43	2.64	
TLA, Trinidad Tenexyecac	4.8	208.5	5.03	21.67	45.64	49.58	

CRI, cancer risk index; ERI, ecological risk index; HI, hazard index; Igeo, geoaccumulation index. AGU, Aguascalientes; BCS, Baja California Sur; CHH, Chihuahua; COA, Coahuila; DUR, Durango; MOR, Morelos; NLE, Nuevo León; PUE, Puebla; SLP; San Luis Potosí; SON, Sonora, and TLA, Tlaxcala.

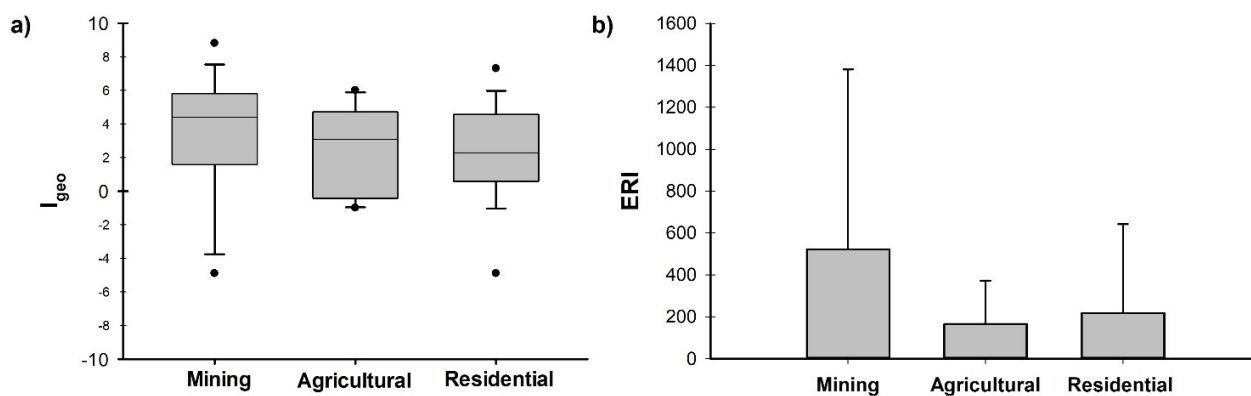


Figure S1. I_{geo} and ERI values (a and b, respectively) averaged and graphed to compare Pb contamination by land uses.