

Supplementary Material: Bioavailable and Bioaccessible Fractions of Potentially Toxic Elements in Copper Mining Wastes in the Southeastern Amazon

Table S1. Total contents of potentially toxic elements [1].

Area	Value	Ba	Cr	Co	Cu	Mo	Ni	Pb	Zn
		mg kg ⁻¹							
NF (n = 5)	Mean	140.0	80.5	54.6	438.7	0.5	31.9	17.8	34.9
	Standard deviation	0.0	0.4	0.8	186.5	0.0	2.8	0.8	1.5
AO (n = 5)	Mean	120.0	13.0	24.9	2113.3	0.8	29.1	16.8	25.0
	Standard deviation	12.2	1.2	2.1	70.8	0.1	1.1	1.7	2.4
AR (n = 5)	Mean	145.0	1407.5	62.6	19034.0	2.9	492.0	4.3	5.5
	Standard deviation	8.7	66.1	1.3	3036.6	0.0	17.9	0.1	1.1
IT (n = 5)	Mean	47.5	46.3	26.3	1486.5	14.3	156.9	14.3	16.3
	Standard deviation	4.3	3.3	7.2	1244.2	2.7	58.2	6.0	1.3

Table S2. Concentrations of potentially toxic elements in chemical fractions.

Element	F1 (mg kg ⁻¹)		F2 (mg kg ⁻¹)		F3 (mg kg ⁻¹)		F4 (mg kg ⁻¹)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
AO (n = 5)								
Ba	8.4	0.4	50.0	0.5	7.0	0.1	54.5	1.0
Co	0.1	0.0	1.9	0.1	<DL	-	22.9	0.1
Cr	<DL	-	<DL	-	<DL	-	13.0	0.0
Cu	221.1	3.1	391.6	2.3	159.0	11.2	1341.6	16.6
Mo	<DL	-	<DL	-	<DL	-	0.8	0.0
Ni	<DL	-	1.0	0.0	<DL	-	28.1	0.0
Pb	<DL	-	1.2	0.0	<DL	-	15.6	0.0
Zn	1.0	0.1	3.1	0.1	2.3	0.6	18.6	0.4
AR (n = 5)								
Ba	4.1	0.2	16.5	0.1	4.1	0.2	120.3	0.1
Co	<DL	-	2.4	0.1	<DL	-	60.3	0.1
Cr	<DL	-	10.6	0.1	5.8	0.1	1391.1	0.0
Cu	1706.1	123.8	7495.5	207.1	1097.0	44.1	8735.3	127.3
Mo	<DL	-	<DL	-	<DL	-	2.9	0.0
Ni	0.3	0.1	17.2	0.1	7.0	0.1	467.6	0.1
Pb	<DL	-	<DL	-	<DL	-	4.3	0.0
Zn	0.5	0.1	0.9	0.0	2.7	0.2	1.4	0.3
IT (n = 5)								
Ba	<DL	-	0.4	0.0	2.2	0.1	44.9	0.2
Co	<DL	-	<DL	-	<DL	-	26.3	0.0
Cr	<DL	-	3.4	0.2	<DL	-	42.9	0.2
Cu	73.0	0.1	48.3	4.5	379.3	2.9	985.9	7.3
Mo	5.0	1.0	<DL	-	<DL	-	9.4	1.0
Ni	2.9	0.3	4.5	0.1	3.8	0.0	145.7	0.2
Pb	<DL	-	1.0	0.2	<DL	-	13.3	0.2
Zn	1.0	0.1	0.8	0.1	9.6	0.2	4.9	0.1

DL–detection limit. SD–standard deviation.

Table S3. Properties of the samples studied [1].

Area	pH	OM	CEC	Na ²⁺
	In water	g kg ⁻¹	cmol _c dm ⁻³	cmol _c dm ⁻³
NF (n = 5)	5.4 ± 0.2	41.5 ± 1.5	12.3 ± 0.2	0.0 ± 0.0
AO (n = 5)	6.2 ± 0.4	17.1 ± 2.0	7.0 ± 0.9	0.1 ± 0.0
AR (n = 5)	6.6 ± 0.7	17.1 ± 0.7	12.7 ± 0.2	0.2 ± 0.0
IT (n = 5)	8.0 ± 0.5	0.3 ± 0.3	3.8 ± 0.2	0.6 ± 0.2

The values are presented as the means ± standard deviations.

Reference

1. Covre, W.P.; Ramos, S.J.; Pereira, W.V. da S.; Souza, E.S. de; Martins, G.C.; Teixeira, O.M.M.; Amarante, C.B. do; Dias, Y.N.; Fernandes, A.R. Impact of Copper Mining Wastes in the Amazon: Properties and Risks to Environment and Human Health. *J. Hazard. Mater.* **2022**, *421*, 126688, doi:10.1016/j.jhazmat.2021.126688.