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Supplementary Materials: A Pooled Data Analysis to Determine the Relationship between Selected Metals and Arsenic Bioavailability in Soil

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Table S1. The raw data for pooled analysis.

Reference	Study	RBA	BAC	As (mg/kg)	Fe (g/kg)	Al (g/kg)	P (mg/kg)	pH	Index *
(Bradham et al., 2011)	1	49.9		990	20.9	11.8		6.1	1
	1	50.9		829	20.5	9.4		6.3	1
	1	52.8		379	18.9	9		5	1
	1	11.45		837	294.4	13.2		7.2	1
	1	15.9		244	46	21.7		7.3	1
	1	14.4		173	63.4	20.9		6.6	1
	1	15		6899	144.5	15		5.2	1
	1	40.9		280	72.3	3.9		2.1	1
	1	14.8		4495	120.1	12.3		2.6	1
	1	43.9		601	29.2	17.2		5	1
	1	42.9		1513	34	10		4	1
(Juhasz et al., 2015)	2	10.8		275	89.6	52.4	2567		1
	2	12.9		210	60.6	44.2	2350		1
	2	6.8		81	60.3	26.7	1067		1
	2	10.1		358	96.2	65.1	1710		1
	2	10.9		200	52.8	29	2393		1
	2	18.2		215	107	73.9	2340		1
	2	16.4		981	141	77.8	2294		1
	2	15.7		1221	96.8	66.9	3787		1
	2	45.8		949	27.1	7.1	718		1
	2	30.7		1126	18.4	2.9	578		1
	2	27.5		1695	18.2	2.4	375		1
	2	70.5		1306	24.6	10.4	628		1
	2	36.2		2270	32.1	14	838		1
(Juhasz et al., 2009)	3	63.6	89	267	17.6	22.2	234	8.8	0
	3	36	43	42	13.7	18.3	385	8.4	0
	3	29.4	32	1114	0	16.3	874	7.8	0
	3	24	23	257	25.8	27.8	242	6.4	0
	3	36	43	751	14.5	10.8	422	8.3	0
	3	45.6	59	91	10	5.1	130	7.5	0
	3	25.2	25	713	0	94.7	3144	5.7	0
	3	63.6	89	228	17.9	22.4	2941	5.2	0
	3	31.2	35	807	23.5	10.9	546	7.6	0
	3	13.2	5	577	24.6	17.6	468	6.6	0
	3	23.4	22	190	21	8.3	200	8.6	0
	3	18.6	14	88	21	9.6	370	8.1	0
(Denys et al., 2012)	4	3.5		1500				6.8	1
	4	3.25		25000				7.2	1
	4	13.5		105				7.9	1
	4	3		390				7.4	1

	4			43				7.9	1
	4	10.5		247				7.7	1
	4	4.75		214				6.9	1
	4	7		297				6.7	1
	4	10.75		283				8.1	1
	4	57.5		21				6.6	1
	4	69.67		61				7.9	1
	4	33.67		24				7.2	1
	4			18				6.9	1
	4	100		20				7.6	1
	4	43		190				7	1
(Rodriguez et al., 1999; Denys et al., 2012)	5	2.7			297	11.9		2.6	1
	5	3.3			317	11.7		2.6	1
	5	8.3			285	16		3.1	1
	5	22.1			25	18		3.1	1
	5	30.1			166	30.2		5.7	1
	5				209	24.3		7.4	1
	5				117	36.2		7.7	1
	5	28.7			166	32		7.1	1
	5	30.1			172	26.4		7.4	1
	5	16.4			183	27.4		7.4	1
	5	6.2			70.7	75.6		3.9	1
	5	42.8			20.1	46.4		4.6	1
	5	29.1			204	17.3		7.5	1
	5	18.7			225	24.8		7.3	1
	5	36.5			61.7	35.6		7.6	1
(Rodriguez et al., 1999; Denys et al., 2012; Bradham et al., 2013)	6	39.9		280	72.3	3.9		2.1	1
	6	14.5		4495	120.1	12.3		2.6	1
	6	26.7		182	24.1	20.5		6.8	1
	6	48.7		990	20.9	11.8		6.1	1
	6	49.7		829	20.5	9.4		6.3	1
	6	51.6		379	18.9	9		5	1
	6	11.2		837	294.4	13.2		7.2	1
	6	24		769	59.2	6.3		5.6	1
	6	26.3		336	25.5	27.4		6.6	1
	6	35.2		446	49.2	71.7		6.6	1
	6	20.9		437	38.6	44.2		6.6	1
	6	35		422	37	43.3		6.6	1
	6	33.2		340	32	44.8		5.6	1
(Rodriguez et al., 1999; Denys et al., 2012; Bradham et al., 2013; Bradham et al., 2015)	7	15.3		244	42.58	24.04	1690	7.5	1
	7	13.9		173	60.65	19.97	1400	6.4	1
	7	14.5		6900	139.41	15.97	1090	5.5	1
	7	39.5		280	77.88	4.482	62	2.3	1
	7	14.3		4490	140.13	14.4	948	2.7	1
	7	17		491	42.83	12.95	1800	6.9	1
	7	18.6		207	39.38	21.52	2320	6.7	1
	7	26.4		182	22.94	21.93	780	6.9	1
	7	48.2		990	17.65	12.52	1060	6.4	1
	7	49.2		829	15.67	10.22	631	6.5	1
	7	51.1		379	14.38	10.66	178	5.1	1
	7	11.4		837	276.28	14.74	1310	7.1	1
	7	42.3		601	31.25	19.09	1020	5	1
	7	41.5		1510	38.59	10.86	989	4	1
	7	16.2		879	36.05	4.136	6740	5.9	1
	7	26.1		322	26.56	37.69	1170	6.2	1
	7	34.9		462	46.65	66.85	1410	6.2	1
	7	20.7		401	40.96	53.48	1440	5.6	1
	7	34.7		422	35.21	47	1770	5.9	1
	7	32.8		340	23.17	20.93	1640	5.7	1
	7	46		396	20.35	12.75	1280	5.6	1
	7	28.7		197	23.44	27.36	50	5.2	1
	7	22.9		884	29.96	28.44	51	6.4	1
	7	17.8		293	35.51	40.12	34	6.5	1
	7	19.6		223	28.33	34.15	45	5.4	1
	7	17.8		494	37.84	28.01	36	6	1

	7	11.1		738	31.19	19.74	43	6.6	1
	7	4.3		777	174.23	2.74	194	2.9	1
	7	2.9		943	106.44	0.678	46	3.1	1
	7	1.9		898	199.07	1.7	159	3.3	1
	7	3.5		668	179	3.68	184	3.5	1
	7	35.9		981	31.95	11.35	861	8.3	1
	7	44.6		246	20.48	22.98	197	8.8	1
	7	23.5		108	33.66	26.45	157	7.8	1
	7	22.8		184	31.24	20.71	16	6.4	1
	7	21.5		965	97.66	72.08	24	5.7	1
	7	6.4		573	30.35	9.06	66	6.6	1
	7	14		583	25.49	4.7	25	7.6	1
	7	20.2		239	23.86	10.7	4	8.6	1
	7	28.8		313	19.15	18.86	16	5.2	1
(Rodriguez et al., 1999; Bradham et al., 2013; Bradham et al., 2015)	8	38.1		676					1
	8	52.4		313					1
	8			1663					1
	8			15952					1
	8	32		290					1
	8	34.4		388					1
	8	43.35		382					1
	8	38.9		364					1
	8			149					1
	8	17.8		234					1
	8	23.6		367					1
	8	19		300					1
	8	50.7		181					1
	8	17		1230					1
	8	18		394					1
	8	5		1492					1
	8			689					1
	8			490					1
	8			90					1
	8	100		1239					1
	8			1414					1
	8			1767					1
	8			2961					1
	8			191					1
	8	31		150					1
	8	7		268					1
	8	5		724					1
	8	60.2		200					1
	8	18.6		3957					1
	8			591					1
	8	13		647					1
	8			41051					1
	8	44.1		590					1
	8	41.8		1400					1
	8			105					1
	8	15		123					1
	8	20		1000					1
	8	19		549					1
	8	28		339					1
	8	93		514					1
	8	40.3		312					1
	8	42.2		983					1
	8	36.7		390					1
	8	23.8		813					1
	8	21.2		368					1
	8	23.5		516					1
	8	24		301					1
	8	13		1412					1
(Juhasz et al., 2007b;	9	19.2	15	22	13	14.4	222	8.3	0
	9	33	38	319	17.3	15.8	232	8.8	0
	9	20.4	17	421	40.3	24	417	8.5	0

Bradham et al., 2013; Bradham et al., 2015)	9	27	28	208	27.3	19.2	520	8.3	0
	9	24.6	24	564	39.6	18.2	583	8.6	0
	9	16.8	11	246	34.1	39.4	296	6	0
	9	36.6	44	129	4.8	6.2	280	6.6	0
	9	13.8	6	463	23.8	17	470	5.9	0
	9	26.4	27	227	20.6	15.3	482	7.6	0
	9	25.2	25	198	19.5	10.6	521	8.6	0
	9	33.6	39	147	11.8	12.3	231	9	0
	9	39	48	1345	24.2	8.4	1410	8.7	0
	9	17.4	12	3601	117.2	93.3	3795	6	0
	9	17.4	12	1834	62	75.1	3048	5.9	0
	9	34.8	41	1346	53.5	20.8	2609	6	0
	9	24	23	39	8.7	9.9	2204	5.4	0
	9	21	18	1458	39.4	29.8	4358	5	0
	9	18	13	482	24.8	16.9	2515	4.6	0
	9	19.2	15	1465	93.9	98.9	4962	5.3	0
	9	24	23	83	7.1	9.1	548	5.3	0
	9	15.6	9	315	83.1	79	6801	4.7	0
	9	32.4	37	71	5.5	3.8	708	7.1	0
	9	37.8	46	3034	43	24.2	8159	6.8	0
	9	31.2	35	12781	254.1	12.9	699	8.7	0
	9	25.2	25	7099	189.2	23.5	786	6.1	0
	9	31.8	36	11280	245	12.8	658	9	0
	9	24.6	24	11013	263.6	16.2	795	6.6	0
	9	21	18	1063	23.7	9.9	335	8.5	0
	9	16.2	10	606	24.1	11.2	614	8.1	0
	9	10.8	1	422	80.8	38.6	781	6	0
	9	11.16	1.6	142	42.7	36	508	6.3	0
	9	10.92	1.2	358	40.6	24.1	466	5.4	0
	9	10.86	1.1	375	73.1	37.6	768	6	0
	9	15.6	9	50	18	8.3	230	8.2	0
	9	15.6	9	34	19	11	290	8.2	0
	9	12.9	4.5	41	20	7.8	70	8.2	0
	9	14.4	7	13	10	5.9	180	8.1	0
	9	13.2	5	61	18	6.1	120	7.9	0
(Juhasz et al., 2007b; Brattin and Casteel, 2013)	10	40		312					1
	10	42		983					1
	10	37		390					1
	10	24		813					1
	10	21		368					1
	10	24		516					1
	10	18		234					1
	10	24		367					1
	10	38		676					1
	10	52		313					1
	10	44		74					1
	10	37		73					1
	10	47		320					1
	10	26		3500					1
(Juhasz et al., 2007a, b)	11	72.2		267	17.6	22.2	234	8.8	1
	11	41.6		42	13.7	18.3	385	8.4	1
	11	20		1114	68.3	16.3	874	7.8	1
	11	10.1		257	25.8	27.8	242	6.4	1
	11	22.5		751	14.5	10.8	422	8.3	1
	11	80.5		91	10	5.1	130	7.5	1
	11	29.3		713	98.6	94.7	3144	5.7	1
	11	43.8		228	17.9	22.4	2941	5.2	1
	11	41.7		807	23.5	10.9	546	7.6	1
	11	7		577	24.6	17.6	468	6.6	1
	11	16.4		190	21	8.3	200	8.6	1
	11	12.1		88	21	9.6	370	8.1	1
(Juhasz et al., 2007b;	12	48.7		990	20.9	11.8		6.1	1
	12	49.7		829	20.5	9.4		6.3	1
	12	51.6		379	18.9	9		5	1
	12	11.2		837	294.4	13.2		7.2	1

Juhasz et	12	15.5		244	46	21.7		7.3	1
al., 2014)	12	14.1		173	63.4	20.9		6.6	1
	12	14.7		6899	144.5	15		5.2	1
	12	39.9		280	72.3	3.9		2.1	1
	12	14.5		4495	120.1	12.3		2.6	1
	12	42.1		1513	34	10		4	1
(Oomen	13	51.39		72					0
et al.,	13	12.78		213					0
2002)	13	60.3		81					0
(Roberts	14	13		650					1
et al.,	14	13		1412					1
2006)	14	31		189					1
	14	19		300					1
	14	24		301					1
	14	15		125					1
	14	18		394					1
	14	17		1230					1
	14	5		1492					1
	14	7		268					1
	14	19		339					1
	14	28		546					1
	14	20		1000					1
	14	5		724					1
(Ruby et	15	48		3900				6.6	1
al., 1996)	15	20		410				7.8	1
	15	28		170				7.6	1
(Wragg	16	8.62		11300					1
et al.,	16	4.07		17500					1
2011)	16	7.88		13500					1
	16	22.8		11500					1
	16	38.7		405					1
	16	43		450					1
	16	39.1		1180					1
	16	32.9		5020					1
	16	21.9		4650					1
	16	37		676					1
	16	51		313					1
(Zhu et	17	10.896		8.95				8.27	0
al., 2016)	17	10.956		18.12				8.01	0
(Ollson et	18	20.7		170	13.6			6	0
al., 2016)	18	65.943		2270	27.2			8.1	0
	18	55.251		17400	66.4			7.8	0
	18	43.866		9020	101			6.1	0
	18	71.982		1780	27.9			7.8	0
	18	73.962		1170	27			8.1	0
(Xia et	19	80.99		333.67				7.12	0
al., 2016)	19	42.38		220.5				5.68	0
	19	64.9025		419.5				4.45	0
	19	47.33		714				4.92	0
	19	86.93		271				7.66	0
	19	87.92		166.5				7.73	0
	19	80.99		174.5				7.31	0
(Li et al.,	20	52.8		36	30.4				1
2015)	20	16.2		41	37.5				1
	20	65		119	26.5				1
	20	27.2		171	28.8				1
	20	13.9		75	69.5				1
	20	6.38		743	115				1
	20	7.29		1470	143				1
	20	73.1		22	30.7				1
	20	34.1		87	22.7				1
	20	8.31		861	41				1
	20	14		2556	219				1
	20	30.1		4172	18.2				1
	21	21.36		74.5	34.1	50		7.4	0

(Yin et al., 2015)	21	20.34		80	32.2	47.3		7.2	0
	21	20.52		78.3	33.2	48.6		8.2	0
	21	14.76		88.1	33.5	67.4		5	0
	21	90.66		843	51.2	56.1		7.6	0
	21	18.36		174.3	35.9	63.9		5.3	0
	21	14.58		38.1	39.7	83.6		6.1	0
	21	23.28		143.3	27.5	53.8		7.6	0
	21	13.5		33.9	22.3	46.3		7.9	0
	21	14.82		32.5	22.4	46.3		7.7	0
	21	41.58		419.9	25.9	38.7		7.3	0
	21	15.72		15.5	22.3	52.2		5.6	0
	21	70.86		287.3	36.8	47.2		7.3	0
	21	16.26		146.3	33.6	69		4.7	0
	21	22.8		58.8	27.5	58.8		7.6	0
	21	18.18		95.2	32.6	61.3		7.2	0
	21	13.32		24.2	34.1	74.9		7.5	0
	21	16.8		160.7	35.5	71.5		5.8	0
(Wilson et al., 2014)	22	12.244		22.2			152	4.29	0
	22	13.5992		12.1			80.8	5.99	0
	22	11.2528		8.3			40	6.25	0
(Das et al., 2013)	23	13.62		7	46.179			6.7	0
	23	22.98		16	42.372			6.8	0
	23	26.76		17	26.632			7.1	0
	23	27.9		19	27.378			6.8	0
	23	24.6		48	37.902			6.8	0
	23	31.32		108	24.918			7.1	0
	23	30.84		183	28.923			7.2	0
	23	37.98		417	39.487			7.3	0
(Appleton et al., 2012)	24	22.58		32					0
	24	30.5		25					0
	24	25.55		313					0
	24	9.71		36					0
	24	6.74		120					0
	24	18.62		26					0
	24	23.57		47					0
	24	12.68		1009					0
	24	9.71		94					0
	24	15.65		42					0
	24	5.75		72					0
(Cave et al., 2013)	25	3.374		31.9					0
	25	3.275		23.1					0
	25	4.067		51					0
	25	4.067		27.9					0
	25	3.176		24.3					0
	25	11.69		55					0
	25	3.077		23.3					0
	25	2.978		43.8					0
	25	4.463		54.8					0
	25	3.473		41.8					0
	25	4.562		39.3					0
	25	5.75		44.3					0
	25	3.671		23.3					0
	25	4.166		28.9					0
	25	3.671		52.2					0
	25	4.859		60					0
	25	5.453		57.9					0
	25	3.077		33.1					0
	25	3.275		18.8					0
	25	3.374		43.8					0
	25	4.265		44.3					0
	25	3.671		42					0
	25	3.374		35					0
	25	4.166		27.4					0
	25	3.572		50.1					0
	25	6.344		43.8					0

	25	7.433		51.5					0
	25	2.78		33.8					0
	25	5.453		61.7					0
	25	3.869		31.3					0
	25	2.483		20.9					0
	25	3.473		21.3					0
	25	4.661		35.4					0
	25	3.176		38.6					0
	25	2.186		19.4					0
	25	2.582		19.3					0
	25	3.77		24.4					0
	25	1.988		17.4					0
	25	3.671		30.4					0
	25	5.057		43.8					0
	25	6.146		61					0
	25	6.74		70.4					0
	25	2.483		19.6					0
	25	2.879		23					0
	25	5.354		50.8					0
	25	5.156		32.3					0
	25	3.275		24.9					0
	25	2.879		25.8					0
	25	3.275		18.5					0
	25	3.374		32.7					0
(Mingot et al., 2011)	26	43.28571429		7	7.4	7.9	520	7.96	0
	26	44.22439024		8.2	8.5	8.8	550	8.3	0
	26	35.325		6.4	12.1	11.4	2110	7.92	0
	26	32.4		7	13.8	12.4	2540	8	0
	26	34.2		5.7	13.7	11.4	600	8.41	0
	26	31.74098361		6.1	13.5	11.5	610	8.55	0
	26	43.25454545		5.5	10.4	9.6	670	8.29	0
	26	37.83934426		6.1	9.7	6.7	640	8.82	0
	26	30.80869565		11.5	9.8	8.3	590	8.68	0
	26	31.2		8.4	8	6.8	380	8.96	0
	26	33.86666667		9	11.4	6.4	530	8.92	0
	26	31.5		10	12.3	6.4	580	8.66	0
	26	36.87567568		7.4	11.8	7.6	550	8.83	0
	26	35.8056338		7.1	10	6.1	450	8.9	0
	26	40.11891892		7.4	9	7.7	580	8.76	0
	26	36.03050847		5.9	8.5	6.8	600	8.38	0
	26	34.47692308		6.5	12.1	8.4	510	8.78	0
	26	37.34754098		6.1	11.9	9.2	570	9	0
	26	34.00952381		6.3	7.1	6.4	520	8.83	0
	26	37.74545455		4.4	7.3	7.6	570	8.62	0
	26	36.53898305		5.9	9.7	7	670	8.89	0
	26	45.43404255		4.7	6.6	6.7	490	8.4	0
	26	32.00487805		8.2	10.1	6.9	450	8.33	0
	26	37.075		4.8	8.4	5.8	380	8.45	0
	26	32.64444444		5.4	9.2	8.2	530	7.99	0
	26	36.53333333		5.4	10	8	530	8.46	0
	26	32.97966102		5.9	8	6.1	500	8.56	0
	26	29.98125		6.4	7	4.5	380	8.66	0
	26	37.3875		6.4	12.8	12.5	540	8.59	0
	26	33.52258065		6.2	12.8	13.1	730	8.62	0
	26	33.81038961		7.7	12.2	9.9	880	8.34	0
	26	35.89411765		8.5	14.3	11.4	990	8.38	0
(Lu et al., 2011)	27	12.705		31.41428571	34.85714286			7.174285714	0
	27	20.27		25.75	32.23333333			7.436666667	0
	27	12.5893		26.1	33.38333333			6.281666667	0
	27	14.841		17.33333333	25.68333333			7.343333333	0
	28	11.58		88.3	49.5			6.4	0

(Cornejo-Ponce and Acarapi-Cartes, 2011)	28	11.46		85.4	50.1			6.7	0
	28	10.98		89.5	48.7			6.4	0
	28	12.84		74.5	49.1			7.3	0
	28	13.14		73.3	48.3			7	0
	28	11.64		72.7	47.9			7	0
	28	11.16		94.4	50.5			7	0
	28	11.46		95.8	51.1			7.2	0
	28	12		91.1	49.5			7.3	0
	28	12.12		93.8	49.1			7.3	0
(Meunier et al., 2010)	29	11.46		77000					0
	29	10.572		310000					0
	29	11.94		21000					0
	29	12.54		15000					0
	29	10.5		73000					0
	29	10.278		210000					0
	29	11.64		19000					0
	29	11.16		39000					0
	29	10.92		49000					0
	29	38.4		7200					0
	29	11.46		62000					0
	29	11.28		24000					0
	29	16.8		24000					0
	29	11.4		21000					0
	29	11.7		320					0
	29	24.6		410					0
	29	23.4		650					0
	29	19.8		740					0
	29	12.54		7200					0
	29	10.488		6300					0
	29	28.8		460					0
	29	17.4		890					0
	29	22.2		2300					0
	29	18.6		6800					0
	29	19.8		5300					0
	29	18		9200					0
	29	16.8		200					0
	29	12.72		34000					0
	29	15.18		19000					0
(Subacz et al., 2007)	30	41.58		44.4	6.27			7.38	0
	30	25.44		24.7	4.27			7.73	0
	30	24.96		700	3.77			8.79	0
	30	42.48		17.1	2.09			8.47	0
	30	27.18		15.5	11.3			6.99	0
	30	24.3		323	10.4			6.4	0
	30	21.48		12.3	83.9			6.4	0
	30	26.94		743	8.71			5.9	0
	30	53.7		315	4.78			5.35	0
(Pouschat and Zagury, 2006)	31	28.013						6.1	0
	31	26.678						6.17	0
	31	23.563						6.37	0
	31	55.158						7.13	0
	31	42.253						7.17	0
	31	61.744						6.2	0
	31	41.185						6.18	0
	31	43.143						6.35	0
	31	46.347						6.62	0
	31	28.636						6.64	0
	31	25.61						5.47	0
	31	26.055						5.27	0
(Datta and Sarkar, 2005)	32	72.12		15			208		1
	32	63.24		16.5			4875		1
	32	63.14		14			6812		1
	32	52.39		17			1688		1

(Bradham et al., 2011)	1	30.1		990	20.9	11.8	0	6.1	1

Note: *, index equals 1 and 0 represent the RBA data from *in vivo* and *in vitro* approaches (using equations from Table 1 to convert), respectively.

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