

Supplementary Materials: Characteristics of Soil Arsenic Contamination and the Potential of Pioneer Plants for Arsenic Remediation in Gold Mine Tailings

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Figure S1. Growth of dominant vegetation in the study area.

Table S1. Pioneer plant species in the study area.

Plant name	Genus	Family	Lifeform
<i>Typha orientalis</i> C. Presl	Typha Linn.	Typhaceae	Herb
<i>Lythrum salicaria</i> L.	Lythrum L.	Lythraceae	Herb
<i>Oenanthe javanica</i> (Blume) DC.	Oenanthe L.	Apiaceae	Herb
<i>Equisetum ramosissimum</i> Desf.	Equisetum L.	Equisetaceae	Herb
<i>Phragmites australis</i> (Cav.) Trin. ex Steud.	Phragmites	Poaceae	Herb
<i>Imperata cylindrica</i> (L.) P. Beauv.	Imperata Cyr.	Poaceae	Herb
<i>Eleusine indica</i> (L.) Gaertn.	Eleusine Gaertn.	Poaceae	Herb
<i>Setaria viridis</i> (L.) P. Beauv.	Beauv. Ess. Agrost.	Poaceae	Herb
<i>Bothriochloa ischaemum</i> (L.) Keng	Bothriochloa Kuntze	Poaceae	Herb
<i>Sophora davidii</i> Kom. ex Pavol	Styphnolobium Schott	Leguminosae	Shrub
<i>Melilotus officinalis</i> (L.) Pall.	Melilotus Mill.	Leguminosae	Herb
<i>Sonchus wightianus</i> DC.	Sonchus	Asteraceae	Herb
<i>Conyza canadensis</i> (L.) Cronq.	ConyzaLess.	Asteraceae	Herb
<i>Erigeron annuus</i> (L.) Pers.	Erigeron L.	Asteraceae	Herb
<i>Periploca sepium</i> Bunge	Periploca	Asclepiadaceae	Shrub

Table S2. The classification of Pi and PERI.

Pi	Pollution level	Er	Degree of ecological risk
$Pi \leq 1$	No pollution	$Ei < 40$	Low ecological risk
$1 < Pi \leq 2$	Sight pollution	$40 \leq Ei < 80$	Moderate ecological risk
$2 < Pi \leq 3$	Light pollution	$80 \leq Ei < 160$	Considerable ecological risk
$3 < Pi \leq 5$	Middle pollution	$160 \leq Ei < 320$	Very high ecological risk
$Pi \geq 5$	Severe pollution	$Ei \geq 320$	Extremely high ecological risk

Table S3. Soil nutrient classifications in China.

Level	1 Very rich	2 Rich	3 Moderate	4 Lack of	5 Very lacking	6 Extremely lacking
SOM(g·kg ⁻¹)	>40.00	30.00-40.00	20.00-30.00	10.00-20.00	6.00-10.00	<6.00
STN (g·kg ⁻¹)	>2.00	1.50-2.00	1.00-1.50	0.75-1.00	0.50-0.75	<0.50
SAN(mg·kg ⁻¹)	>150.00	120.00-150.00	90.00-120.00	60.00-90.00	30.00-60.00	<30.00
STP(g·kg ⁻¹)	>1.00	0.80-1.00	0.60-0.80	0.40-0.60	0.20-0.40	<0.20
SAP(mg·kg ⁻¹)	>40.00	20.00-40.00	10.00-20.00	5.00-10.00	3.00-5.00	<3.00
STK(g·kg ⁻¹)	>20.00	15.00-20.00	10.00-15.00	5.00-10.00	3.00-5.00	<3.00
SAK(mg·kg ⁻¹)	>200	150.00-200.00	100.00-150.00	50.00-100.00	30.00-50.00	<30.00

Table S4. Soil As bioactivity activity coefficient.

Biological activity coefficient	K ₁	K ₂	K ₃
As	0.36	0.21	0.43

Table S5. Classification of pioneer plants.

Classification	Plant species
Accumulators	<i>Lythrum salicaria</i> L. <i>Equisetum ramosissimum</i> Desf.
Root compartments	<i>Typha orientalis</i> C. Presl <i>Oenanthe javanica</i> (Blume) DC. <i>Phragmites australis</i> (Cav.) Trin. ex Steud. <i>Imperata cylindrica</i> (L.) P. Beauv. <i>Eleusine indica</i> (L.) Gaertn. <i>Setaria viridis</i> (L.) P. Beauv.
Excluders	<i>Bothriochloa ischaemum</i> (L.) Keng <i>Sophora davidii</i> Kom. ex Pavol <i>Melilotus officinalis</i> (L.) Pall. <i>Sonchus wightianus</i> DC. <i>Conyza canadensis</i> (L.) Cronq. <i>Erigeron annuus</i> (L.) Pers. <i>Periploca sepium</i> Bunge