

Supporting information

Dendroremediation potential of six *Quercus* species to polluted soil in historic copper mining sites

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Table S1 Plant height (cm), base stem diameter (mm) of six *Quercus* species planted in control, T1 and T2 before cultivation.

Quercus species	Treatments	Height (cm)	Stem diameter (mm)
<i>Q. fabri</i>	Control	66.3±2.1	4.70±0.17
	T1	64.0±1.7	4.75±0.10
	T2	63.3±1.5	4.29±0.22
<i>Q. pagoda</i>	Control	61.7±3.8	4.73±0.11
	T1	63.0±2.6	4.78±0.19
	T2	61.7±1.5	4.46±0.21
<i>Q. phellos</i>	Control	66.0±1.0	5.35±0.15
	T1	66.7±1.5	5.36±0.09
	T2	64.0±1.0	5.18±0.06
<i>Q. nuttallii</i>	Control	68.0±2.0	5.19±0.15
	T1	66.0±1.0	5.57±0.19
	T2	69.0±1.0	5.09±0.07
<i>Q. acutissima</i>	Control	65.3±3.2	4.88±0.17
	T1	66.0±3.0	4.77±0.15
	T2	66.0±2.0	5.23±0.20
<i>Q. virginiana</i>	Control	68.7±1.5	5.39±0.15
	T1	67.0±1.7	5.22±0.07
	T2	70.0±1.0	5.17±0.06

Table S2 The recovery data for elemental analysis using inductively coupled plasma atomic emission spectrometry (ICP-AES)

	CRM	Cd	Zn	Pb
GB-07603	Measured values	0.43±0.04	53.4±1.3	42.6±3.0
	Certified values	0.38	55.1±4.2	47.2±3.0
	Recovery rate(%)	113.29	97.07	90.56

Table S3 AHP method for three criteria regardless of T1 and T2 treatments

	plant growth	photosynthesis	metal accumulation capacity	Weight	consistency ratio
Plant growth	1	1	2/3	0.29	0.00
Photosynthesis	1	1	2/3	0.29	
Metal accumulation	1 1/2	1 1/2	1	0.43	

Table S4 Plant height (cm), stem diameter (mm), leaf biomass and stem biomass (g, DW) of six *Quercus* species cultivated in control, T1 and T2 for 150 d

<i>Quercus</i> species	Treatments	Plant height	Stem diameter	Leaf biomass	Stem biomass
<i>Q. fabri</i>	control	118±7.7	6.6±0.13	6.7±0.05	21.6±1.70
	T1	104±4.9	5.5±0.04	2.1±0.36	12.2±2.60
	T2	103±3.2	5.1±0.56	2.6±0.28	11.8±1.29
<i>Q. pagoda</i>	control	96±4.9	5.6±0.32	3.5±1.03	15.4±0.87
	T1	93±5.5	5.3±0.19	1.6±0.27	11.0±1.66
	T2	98±6.6	5.4±0.47	1.6±1.28	16.3±1.03
<i>Q. phellos</i>	control	118±13.3	6.9±1.65	10.5±0.48	43.3±0.99
	T1	107±8.5	7.2±0.45	11.1±2.44	27.2±4.88
	T2	103±3.8	7.7±0.43	7.3±0.02	30.2±5.61
<i>Q. nuttallii</i>	control	99±15.3	6.5±0.97	2.6±0.46	20.9±4.66
	T1	110±3.5	7.5±0.20	4.8±1.59	25.5±5.52
	T2	108±4.5	7.4±0.30	2.9±0.55	23.7±2.75
<i>Q. acutissima</i>	control	110±6.5	5.8±0.38	6.9±1.74	19.2±5.54
	T1	109±9.3	5.8±0.61	7.2±2.03	16.2±3.18
	T2	115±4.2	5.8±0.45	7.2±1.24	21.4±7.01
<i>Q. virginiana</i>	control	126±5.5	6.6±0.30	4.1±0.25	23.2±1.83
	T1	107±12.9	7.1±0.99	6.0±0.43	19.7±3.53
	T2	112±19.9	6.7±0.32	5.0±0.36	19.5±0.92
Significances	T	ns	ns	**	***
	S	**	**	****	****
	T×S	ns	ns	****	**

Data represent the mean of three replicates ± SD (n=3). *p* values of the two-way ANOVAs of soil treatments (T), oak species (S), and heir interactions (T×S) were also shown.

ns, not significant; *, $p \leq 0.05$; **, $p \leq 0.01$; ***, $p \leq 0.001$; ****, $p \leq 0.0001$

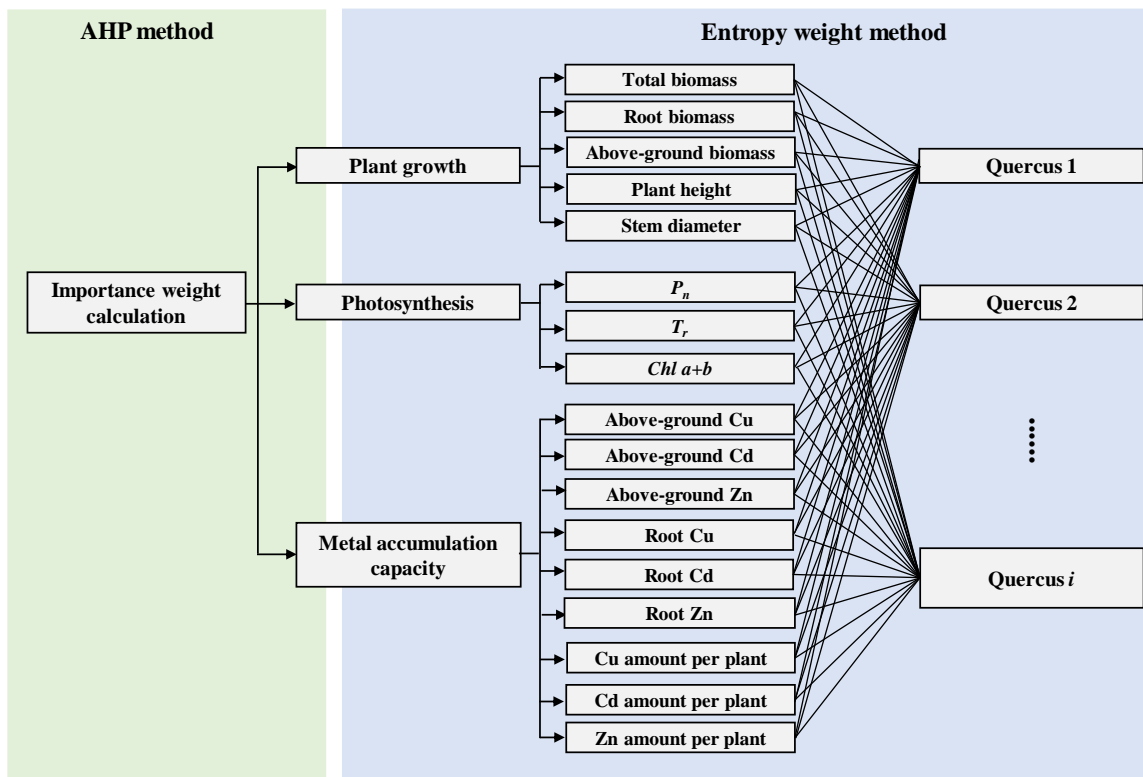


Figure S1 The framework of AHP-EW method for calculating importance weights of phytoremediation potential

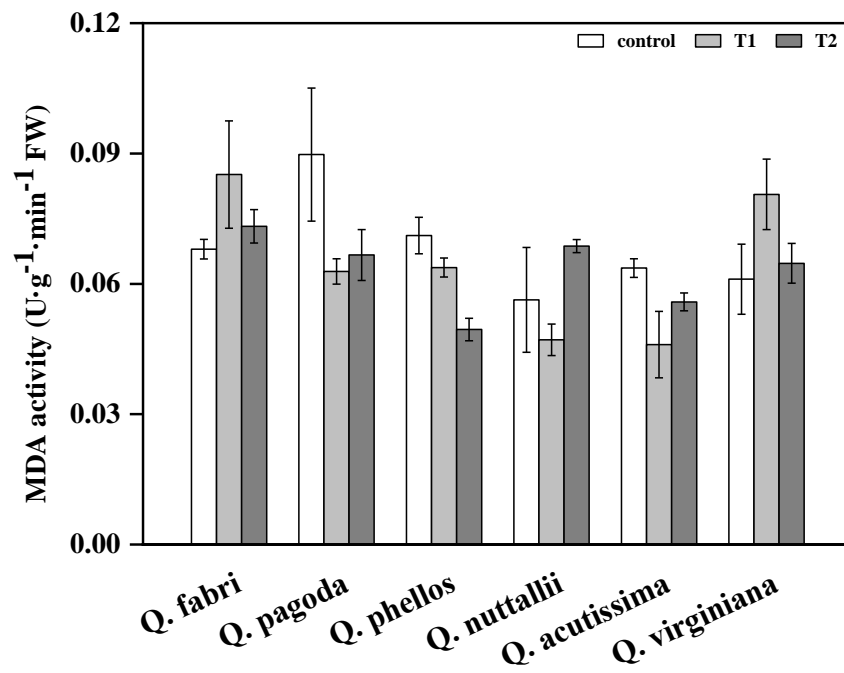


Figure S2 Effects of different heavy metal contaminated soils on malonaldehyde (MDA) content in leaves of six *Quercus* species