Supporting Information

Table S1 Basic physicochemical properties of tested soil.

Parameters	Unit	ZZ	CS
Total Pb	mg/kg	93.1	46.14
Total Zn	mg/kg	118.84	178.56
Total Cu	mg/kg	29.01	30.12
Total Cd	mg/kg	0.99	0.78
Total As	mg/kg	17.32	45.36
pH	–	4.51	5.24
OM	g/kg	45.25	42.73
CEC	cmol/kg	12	14.26

Notes: OM, organic matter; CEC, cation exchange capacity; ZZ, Zhuzhou City, Hunan Province; CS, Changsha City, Hunan Province.

Table S2 Fertilization measures and planting density of plants.

Type	Plants	Abbr.	PD	Basal fertilizer	Topdressing
Winter crops	*Brassica napus* L.	BN	1.67×10^5	NPK, 600 kg/ha	Urea, 225 kg/ha
	Cichorium intybus L.	CI	1.67×10^5	NPK, 750 kg/ha	Urea, 300 kg/ha
	Brassica rapa var. chinensis (Linnaeus) Kitamura	CK	6.67×10^4	NPK, 450 kg/ha	
	Brassica rapa var. glabra Regel	GR	6.67×10^4	NPK, 450 kg/ha	
	Hylotelephium erythrostictum (Miq.) H. Ohba	HE	4.44×10^5	NPK, 750 kg/ha	Urea, 150 kg/ha
	Ixeris polycephala Cass.	IP	1.67×10^5	NPK, 750 kg/ha	Urea, 300 kg/ha
	Linum usitatissimum L.	LU	4.00×10^6	NPK, 600 kg/ha	Urea, 150 kg/ha
	Phedimus aizoon	PA	4.44×10^5	NPK, 750 kg/ha	Urea, 150 kg/ha
	Sedum alfredii Hance	SA	4.44×10^5	NPK, 750 kg/ha	Urea, 150 kg/ha
	Vicia faba L.	VF	1.67×10^5	NPK, 570 kg/ha	Urea, 300 kg/ha
Summer crops	*Abelmoschus esculentus* (Linn.) Moench	AE	4.00×10^4	NPK, 450 kg/ha	NPK, 450 kg/ha
	Arachis hypogaea Linn.	AH	1.67×10^5	NPK, 750 kg/ha	Urea, 300 kg/ha
	Celosia argentea L.	CA	1.67×10^5	NPK, 750 kg/ha	Urea, 300 kg/ha
	Celosia cristata L.	CC	1.67×10^5	NPK, 750 kg/ha	Urea, 300 kg/ha
	Calendula officinalis L.	CO	4.44×10^5	NPK, 600 kg/ha	Urea, 450 kg/ha
	Glycine max（L.）merr.	GM	1.67×10^5	NPK, 450 kg/ha	Urea, 150 kg/ha
	Helianthus annuus Linn.	HA	6.67×10^4	NPK, 750 kg/ha	Urea, 300 kg/ha
	Nicotiana tabacum L.	NT	2.78×10^4	NPK, 750 kg/ha	Urea, 225 kg/ha
	Sorghum bicolor	SB	1.25×10^5	NPK, 750 kg/ha	Urea, 300 kg/ha
	Sesamum indicum	SI	1.67×10^5	NPK, 600 kg/ha	Urea, 225 kg/ha
	Saccharum officinarum L.	SO	4.00×10^4	NPK, 500 kg/ha	NPK, 1000 kg/ha
	Stevia rebaudiana (Bertoni) Hemsl.	SR	1.67×10^5	NPK, 600 kg/ha	Urea, 450 kg/ha

Notes: PD, Planting density (plants/ha); NPK, Ternary compound fertilizer ($N:P_2O_5:K_2O=15:15:15$).

Table S3 The categories of potential ecological risk represented by E_i and ERC.

E_i	Individual ecological risk	ERC	Potential ecological risk
$E_i < 40$	Low risk	ERC < 150	Low risk
$40 \leq E_i < 80$	Moderate risk	150 ≤ ERC < 300	Moderate risk
$80 \leq E_i < 160$	Considerable risk	300 ≤ ERC < 600	Considerable risk
$160 \leq E_i < 320$	High risk	ERC > 600	High risk
$E_i > 320$	Extremely high risk		

Notes: E_i is the individual ecological risk of heavy metal I; ERC, ecological risk coefficient.

Table S4 Noncarcinogenic and carcinogenic risk assessment of vegetable oil and ecological risk coefficient of seed meal.

Parameters	Oil crop	Cd	Pb	As	Total
CR	AH	5.72×10^{-6}a	0.00b	1.33×10^{-5}c	1.91×10^{-5}c
	BN	4.07×10^{-6}abc	2.81×10^{-7}a	3.14×10^{-5}abc	3.58×10^{-5}bc
	GM	2.19×10^{-6}bc	2.23×10^{-7}a	2.20×10^{-5}bc	2.44×10^{-5}bc
	HA	4.77×10^{-6}ab	2.41×10^{-7}a	5.74×10^{-5}a	6.25×10^{-5}a
	LU	1.44×10^{-6}c	8.13×10^{-8}ab	4.56×10^{-5}ab	4.72×10^{-5}ab
	SI	3.98×10^{-6}abc	2.32×10^{-7}a	2.01×10^{-5}bc	2.43×10^{-5}bc
HQ	AH	1.50×10^{-2}a	0.00b	2.96×10^{-2}c	4.46×10^{-2}b
	BN	1.07×10^{-2}abc	8.27×10^{-3}a	6.98×10^{-2}abc	8.88×10^{-2}ab
	GM	5.76×10^{-3}bc	6.55×10^{-3}a	4.89×10^{-2}bc	6.12×10^{-2}b
	HA	1.25×10^{-2}ab	7.09×10^{-3}a	1.27×10^{-1}a	1.47×10^{-1}a
	LU	3.79×10^{-3}c	2.39×10^{-3}ab	1.01×10^{-1}ab	1.07×10^{-1}ab
	SI	1.04×10^{-2}abc	6.82×10^{-3}a	4.46×10^{-2}bc	6.19×10^{-2}b
ERC	AH	16.65±2.02d	1.13±0.20d	4.48±1.08cd	22.27±1.87d
	BN	85.28±9.70b	4.32±0.75b	8.12±0.73b	97.73±9.46b
	GM	36.64±8.04c	1.58±0.25d	5.31±0.55c	43.54±8.69c
	HA	165.86±24.29a	6.18±0.20a	12.72±0.29a	184.77±24.53a
	LU	12.56±0.50d	1.82±0.46d	3.16±0.96d	17.54±0.86d
	SI	82.08±0.92b	2.82±0.70c	7.67±1.90b	92.58±1.95b

Notes: Different lowercase letters represent significant differences among treatments ($p < 0.05$). BN, *Brassica napus* L; AH, *Arachis hypogaea* Linn; SI, *Sesamum indicum*; HA, *Helianthus annuus* Linn; LU, *Linum usitatissimum* L.; GM, *Glycine max* (L.) merr; CR, carcinogenic risk; HQ, noncarcinogenic risk; ERC, ecological risk coefficient.

Table S5 Soil total and TCLP-Cd content after phytoremediation (mg/kg).

Type	Plant	Total Cd	TCLP-Cd
Winter crops	Original	0.993±0.010a	0.385±0.008a

	BN	0.992±0.021a	0.385±0.011a
	CI	0.890±0.022c	0.315±0.027c
	CK	0.996±0.004a	0.380±0.003a
	GR	0.991±0.006a	0.384±0.003a
	HE	0.942±0.020b	0.354±0.008b
	IP	0.973±0.013a	0.378±0.009a
	LU	0.994±0.010a	0.376±0.010a
	PA	0.984±0.008a	0.375±0.011a
	SA	0.873±0.014c	0.307±0.007c
	VF	0.984±0.008a	0.381±0.004a
Summer crops	Original	0.993±0.010a	0.385±0.008a
	AE	0.979±0.002bc	0.373±0.004abc
	AH	0.959±0.011d	0.373±0.006abc
	CA	0.973±0.004c	0.377±0.006ab
	CC	0.973±0.004c	0.365±0.012c
	CO	0.912±0.014f	0.343±0.010d
	GM	0.988±0.002ab	0.382±0.005a
	HA	0.954±0.009d	0.369±0.004bc
	NT	0.925±0.003e	0.330±0.001e
	SB	0.975±0.005c	0.378±0.006ab
	SI	0.977±0.008bc	0.379±0.002ab
	SO	0.984±0.006abc	0.381±0.009a
	SR	0.974±0.012c	0.379±0.009ab

Notes: Different lowercase letters represent significant differences among treatments ($p < 0.05$). AE, *Abelmoschus esculentus* (Linn.) Moench; AH, *Arachis hypogaea* Linn; BN, *Brassica napus* L; CA, *Celosia argentea* L; CC, *Celosia cristata* L; CI, *Cichorium intybus* L; CK, *Brassica rapa* var. chinensis (Linnaeus) Kitamura; CO, *Calendula officinalis* L; GM, *Glycine max* (L.) merr; GR, *Brassica rapa* var. glabra Regel; HA, *Helianthus annuus* Linn.; HE, *Hylotelephium erythrostictum* (Miq.) H. Ohba; IP, *Ixeris polycephala* Cass; LU, *Linum usitatissimum* L.; NT, *Nicotiana tabacum* L; PA, *Phedimus aizoon*; SA, *Sedum alfredii* Hance; SB, *Sorghum bicolor*; SI, *Sesamum indicum*; SO, *Saccharum officinarum* L; SR, *Stevia rebaudiana* (Bertoni) Hemsl; VF, *Vicia faba* L.