Comprehensive Evaluation of the Efficient and Safe Utilization of Two Varieties of Winter Rapeseed Grown on Cadmium- and Lead-Contaminated Farmland under Atmospheric Deposition

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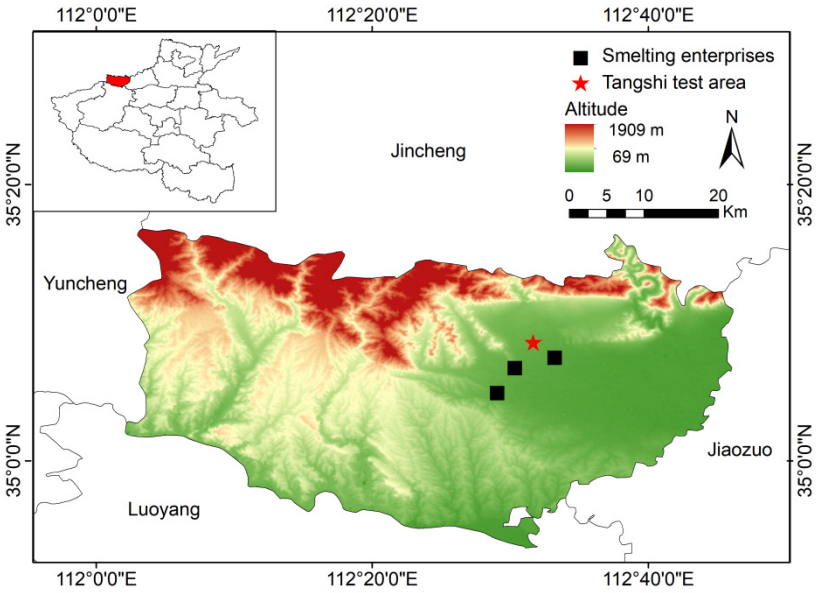

Figure S1. Field trial locations

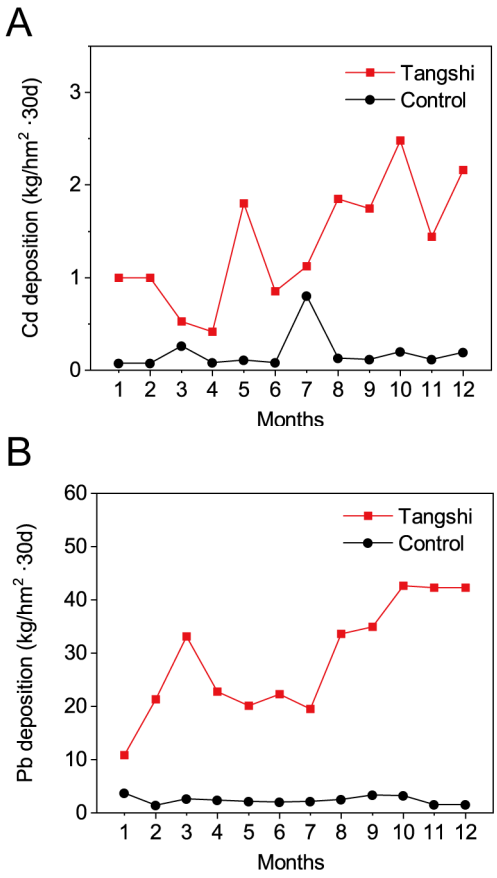

Figure S2. Annual Cd (A) and Pb (B) deposition in atmospheric dust. The control is a clean area without atmospheric deposition pollution which is 22.5 km away from Tangshi experiment area.

Table S1 Fundamental physicochemical characteristics of soils in Tangshi test area

pH	CEC	Total Cd	Total Pb	Organic matter	Total N	Total P	Total K	Available N	Available P	Available K
	mmol kg^{-1}	mg kg^{-1}		g kg^{-1}				mg kg^{-1}		
7.7	20.1	2.22	173.06	19.4	1.18	0.86	26.6	83.7	23.0	140.0

Table S2 Quality inspection of rapeseed oil of 15 cultivars

Cultivars	Erucic acid content (%)	Glucosinolate content (μmol·g^{-1} meal)	Oil content (%)	Oleic acid content (%)	protein content (%)
SY-8	0.00	29.94	38.78	59.97	25.53
SY-10	1.75	34.87	37.31	51.58	24.36
SY-092	1.12	33.18	38.01	59.28	25.45
SY-123	0.00	27.82	37.15	63.32	25.36
SY-195	1.38	30.98	36.12	62.44	24.32
QY-1	3.67	29.33	35.92	50.8	23.54
QY-10	11.33	33.00	37.36	54.15	23.61
ZS-6	2.14	52.18	38.73	64.62	25.45
ZS-7	2.58	35.29	39.89	54.16	25.23
FY-10	0.06	24.56	38.64	65.39	26.17
ZY-821	12.45	16.06	31.21	52.76	24.37
JY-4	4.61	59.53	34.97	56.16	27.38
YY-2	22.45	81.69	35.62	61.60	26.39
ZS100	42.1	117.46	37.27	66.88	27.65
SYH	41.84	128.04	38.24	65.43	27.66
Low erucic acid and low glucoside rapeseed	3	35			

Table S3 Chemical carcinogenic and non-carcinogenic risk assessments of rapeseed oil

Cultivars	*CR* (Cd)		*HQ* (Pb)	
	Adult	Child	Adult	Child
SY-8	$<1.147\times10^{-5}$	$<4.659\times10^{-5}$	0.00621	0.0252
SY-10	$<1.147\times10^{-5}$	$<4.659\times10^{-5}$	0.00436	0.0177
SY-092	$<1.147\times10^{-5}$	$<4.659\times10^{-5}$	0.00556	0.0226
SY-123	1.147×10^{-5}	4.659×10^{-5}	0.00839	0.0341
SY-195	$<1.147\times10^{-5}$	$<4.659\times10^{-5}$	<0.00011	<0.0004
QY-1	1.147×10^{-5}	4.659×10^{-5}	0.00338	0.0137
QY-10	1.147×10^{-5}	4.659×10^{-5}	0.00578	0.0235
ZS-6	1.147×10^{-5}	4.659×10^{-5}	<0.00011	<0.0004
ZS-7	1.147×10^{-5}	4.659×10^{-5}	<0.00011	<0.0004
FY-10	1.147×10^{-5}	4.659×10^{-5}	0.00436	0.0177
ZY-821	1.147×10^{-5}	4.659×10^{-5}	0.00807	0.0328
JY-4	1.147×10^{-5}	4.659×10^{-5}	0.00501	0.0203
YY-2	1.147×10^{-5}	4.659×10^{-5}	0.00403	0.0164
ZS100	1.147×10^{-5}	9.318×10^{-5}	0.00807	0.0328
SYH	1.147×10^{-5}	9.318×10^{-5}	0.00730	0.0297

HQ: hazard quotient; *CR*: carcinogenic risk. The Cd and Pb concentrations in the oil were related to the maximum values listed in Table 2.

Table S4 Detailed costs of rapeseed, maize, and wheat planting.

Planting season	Project	Unit price (CNY·hm^{-2})	Total cost (CNY·hm^{-2})
Rapeseed	Seed/seedlings	450	11,000
	Plowing	3,000	
	Sowing/transplant	750	
	Field management	5,400	
	Harvesting	1,500	
Maize	Seed/seedlings	900	103,500
	Plowing	3,000	
	Sowing/transplant	750	
	Field management	4,200	
	Harvesting	1,500	
Wheat	Seed/seedlings	1,200	11,850
	Plowing	3,000	
	Sowing/transplant	750	
	Field management	5,400	
	Harvesting	1,500	