

Table S1. The Pearson correlations among root chemical properties, heavy metals and diversity indices of rhizosphere soil microbial community.

	Bacteria					Fungi				
	<i>H'</i>	<i>S</i>	<i>d_{Max}</i>	<i>En</i>	<i>D</i>	<i>H'</i>	<i>S</i>	<i>d_{Max}</i>	<i>En</i>	<i>D</i>
Root N	0.028	0.006	0.0730	0.058	0.019	0.226	0.191	0.208	0.11	0.253
Root C	-0.277	-0.200	-0.233	-0.36	-0.284	0.286	0.304	0.290	-0.583	0.273
Root C/N	0.036	0.081	0.018	-0.02	0.042	-0.096	-0.071	-0.089	-0.213	-0.114
Root S	-0.802	-0.809	-0.807	-0.777	-0.813	0.13	0.170	0.169	-0.393	0.091
Root Cd	0.865	0.871	0.899 *	0.845	0.861	0.239	0.211	0.214	0.058	0.264
Root Cr	0.649	0.602	0.608	0.687	0.663	-0.349	-0.378	-0.371	0.641	-0.323
Root Cu	0.621	0.586	0.633	0.653	0.616	0.144	0.120	0.130	0.203	0.161
Root Pb	0.176	0.279	0.299	0.058	0.172	0.440	0.378	0.380	-0.262	0.500
Root Zn	0.737	0.726	0.779	0.743	0.716	0.545	0.544	0.547	-0.293	0.540

Note: Abbreviations represent total nitrogen (N), total carbon (C), total sulphur (S), ration of carbon and nitrogen (C/N), Shannon-Wiener index (*H'*), Species richness (*S*), Margalef (*d_{Max}*), and Evenness (*En*), Simpson index (*D*). * Correlation is significant at the 0.05 level (2-tailed).

Table S2. The Pearson correlations among soil physicochemical properties, heavy metals and diversity indices of non-rhizosphere soil microbial community.

	Bacteria					Fungi				
	<i>H'</i>	<i>S</i>	<i>d_{Max}</i>	<i>En</i>	<i>D</i>	<i>H'</i>	<i>S</i>	<i>d_{Max}</i>	<i>En</i>	<i>D</i>
MH ₄ ⁺ -N	0.399	0.463	0.459	-0.374	0.425	0.165	0.127	0.135	0.176	0.207
NO ₃ ⁺ -N	-0.336	-0.315	-0.311	-0.159	-0.313	0.947 *	0.960 **	0.957 *	-0.289	0.929 *
NO ₂ ⁺ -N	0.241	0.166	0.154	0.38	0.235	-0.692	-0.697	-0.698	0.817	-0.68
Olsen-P	-0.389	-0.407	-0.414	0.094	-0.37	0.269	0.289	0.283	0.618	0.25
N	-0.188	-0.117	-0.109	-0.412	-0.161	0.997 **	0.996 **	0.996 **	-0.542	0.995 **
C	0.305	0.262	0.262	0.073	0.323	0.769	0.755	0.756	-0.37	0.784
C/N	0.366	0.245	0.235	0.609	0.339	-0.923 *	-0.924 *	-0.926 *	0.527	-0.915 *
S	0.962 **	0.951 *	0.949 *	-0.079	0.970 **	0.234	0.176	0.189	-0.319	0.296
SWC	-0.261	-0.176	-0.18	-0.321	-0.252	-0.424	-0.425	-0.423	0.674	-0.422
pH	0.576	0.531	0.522	0.128	0.59	0.003	-0.028	-0.023	0.296	0.041
PS	-0.035	0.049	0.051	-0.302	-0.049	-0.716	-0.724	-0.72	0.128	-0.709
As	0.669	0.698	0.697	-0.142	0.656	-0.704	-0.746	-0.736	-0.062	-0.659
Cd	0.879 *	0.786	0.781	0.311	0.879*	0.045	0.007	0.013	-0.221	0.089
Cu	-0.453	-0.588	-0.598	0.742	-0.475	-0.614	-0.567	-0.579	0.863	-0.659
Pb	-0.813	-0.688	-0.679	-0.493	-0.807	0.212	0.242	0.239	-0.078	0.176
Zn	0.081	0.171	0.178	-0.528	0.113	0.918 *	0.896 *	0.901 *	-0.497	0.937 *

Note: Abbreviations represent Shannon-Wiener index (*H'*), Species richness (*S*), Margalef (*d_{Max}*), and Evenness (*En*), Simpson index (*D*). Soil physical and chemical properties include total nitrogen (N), total carbon (C), total sulphur (S), ration of carbon and nitrogen (C/N), soil water content (SWC), soil pH, particle size (PS), ammonium nitrogen (NH₄⁺-N), nitrate nitrogen (NO₃⁺-N), nitrite nitrogen (NO₂⁺-N) and Olsen-P. ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

Table S3. The Pearson correlations among transfer factors of different heavy metals and diversity indices of soil microbial community.

			TF-Cd	TF-Cr	TF-Cu	TF-Pb	TF-Zn
Rhizosphere	Bacteria	<i>S</i>	-0.714	-0.704	-0.656	-0.398	-0.150
		<i>H'</i>	-0.752	-0.761	-0.735	-0.312	-0.211
		<i>En</i>	-0.776	-0.808	-0.810	-0.217	-0.282
		<i>d_{Max}</i>	-0.676	-0.677	-0.670	-0.439	-0.204
		<i>D</i>	-0.775	-0.781	-0.738	-0.283	-0.184
	Fungi	<i>S</i>	0.580	0.549	0.213	-0.924 *	-0.504
		<i>H'</i>	0.567	0.543	0.218	-0.935 *	-0.460
		<i>En</i>	-0.695	-0.695	-0.447	0.871	0.396
		<i>d_{Max}</i>	0.583	0.550	0.208	-0.921 *	-0.507
		<i>D</i>	0.551	0.536	0.226	-0.942 *	-0.412
Non-rhizosphere	Bacteria	<i>S</i>	-0.584	-0.741	-0.960 **	0.289	-0.601
		<i>H'</i>	-0.554	-0.714	-0.918 *	0.456	-0.527
		<i>En</i>	0.123	0.139	0.284	0.774	0.486
		<i>d_{Max}</i>	-0.581	-0.739	-0.958 *	0.282	-0.608
		<i>D</i>	-0.542	-0.705	-0.923 *	0.425	-0.550
	Fungi	<i>S</i>	0.833	0.735	0.312	-0.531	-0.694
		<i>H'</i>	0.798	0.691	0.252	-0.533	-0.737
		<i>En</i>	-0.143	-0.017	0.232	0.046	0.774
		<i>d_{Max}</i>	0.825	0.725	0.299	-0.534	-0.704
		<i>D</i>	0.758	0.641	0.186	-0.531	-0.780

Note: Abbreviations represent Shannon-Wiener index (*H'*), Species richness (*S*), Margalef (*d_{Max}*), and Evenness (*En*), Simpson index (*D*). ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).