

Figure S1. Overhead photograph of the sampling *Rhus typhina* plantation (A) and the exsiccate of *R. typhina* (B). The exsiccate is preserved in the herbarium of the Institute of Botany, Jiangsu Province and the Chinese Academy of Sciences, and the photograph is provided by the Chinese Virtual Herbarium (https://www.cvh.ac.cn/).

Table S1. The chemicals detected from the extracts of the soil from the root zone of *Rhus typhina*

1-friedelen-3-ol	friedelin	phthalandione
3-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2-propenal	ferulic acid	quercetin
3,5-dihydroxybenzamid	gallic acid	stearic acid, 2,3-bis(trimethylsiloxy)propyl ester
3,4,5-trihydroxybenzoic acid ethyl ester	globulol	succinic acid
3-carene	hexanal	thymol
4-hydroxybenzaldehyde	ledol	vanillum
acetylacetone	limonene	α-cubebene
apigenine	malic acid	α-pinene
benzoic acid	malic acid	α-terpinene
camphene	o-hydroxybenzoic acid	α-terpineol
catechine	p-cymene	β-cyclocitral
coumarin	p-hydroxybenzoic acid	β-myrcene

Table S2. Results of the two-factor analysis of variances for the RIs of indicators

Indicators' RI	Concentration		Identity of receivers		Interactions	
	F	*P*	*F*	*P*	*F*	*P*
Germination rate	10.226	<0.001	12.786	<0.001	6.39	<0.001
Seedling survival rate	24.764	<0.001	13.595	<0.001	17.13	<0.001
Content of chlorophyll a	514.003	<0.001	211.067	<0.001	113.86	<0.001
Content of chlorophyll b	711.239	<0.001	360.827	<0.001	210.954	<0.001
Chlorophyll a/b	754.011	<0.001	360.987	<0.001	199.426	<0.001
Root activity	143.009	<0.001	36.138	<0.001	38.229	<0.001
Activity of catalase	38.168	<0.001	59.158	<0.001	164.887	<0.001
Activity of peroxidase	205.805	<0.001	19.096	<0.001	31.295	<0.001
Activity of superoxide dismutase	22.009	<0.001	254.258	<0.001	54.84	<0.001
Content of malondialdehyde	2.419	0.103	11.59	<0.001	4.81	<0.001
Shoot length	0.132	0.877	0.171	0.972	0.591	0.81
Root length	0.143	0.868	1.317	0.279	1.594	0.148
Shoot biomass	0.466	0.631	0.363	0.871	0.489	0.886
Root biomass	1.45	0.248	2.045	0.095	0.926	0.521

Table S3. Results of the principal component analysis

Indicators′ RI	Principal components			
	PC1	PC2	PC3	PC4
Germination rate	-0.07	0.30	0.00	-0.81
Seedling survival rate	0.08	0.10	0.71	0.21
Shoot length	0.19	-0.60	0.15	0.12
Root length	-0.05	0.47	-0.27	0.66
Shoot biomass	0.74	-0.27	0.42	-0.05
Root biomass	0.40	-0.55	-0.59	0.24
Content of chlorophyll a	0.83	0.50	0.00	-0.01
Content of chlorophyll b	0.83	0.48	-0.04	0.03
Root activity	-0.37	0.65	-0.07	0.13
Content of malondialdehyde	-0.29	0.01	0.61	0.31
Eigenvalue	2.349	1.966	1.495	1.319
Cumulative contribution rate	23.49%	43.15%	58.10%	71.29%