Effect of reductive soil disinfestation on soil properties and microbial communities of ginseng cultivated soils, and assessment of its sterilizing effect

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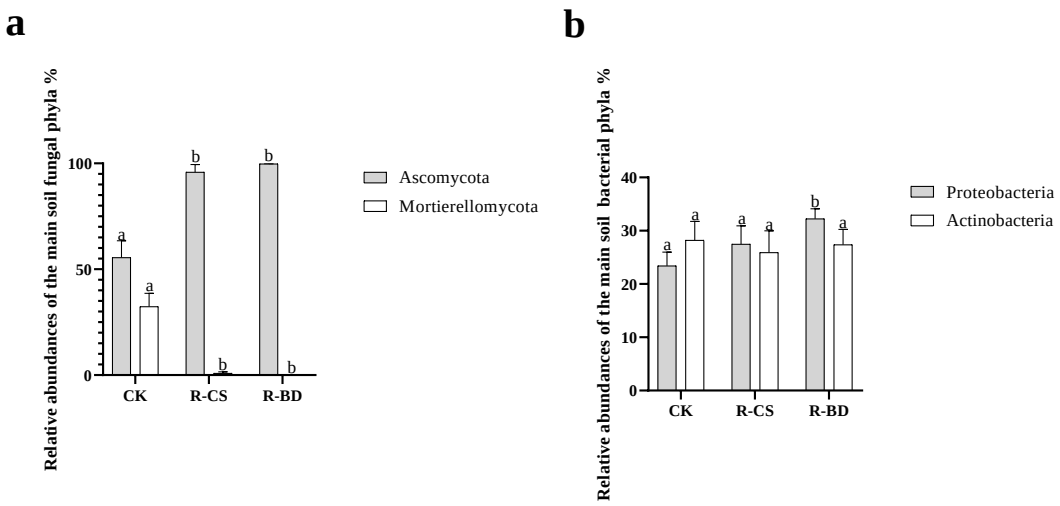

Figure S1. Relative abundances of the dominant (a) fungal and (b) bacterial phyla. Different lowercase letters indicate significant differences between the different groups within the same microbial taxa ($P < 0.05$).

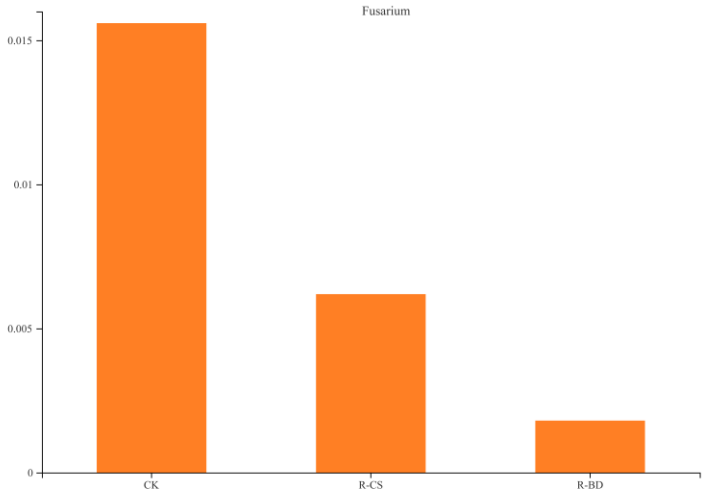

Figure S2. Relative abundances of *Fusarium*.

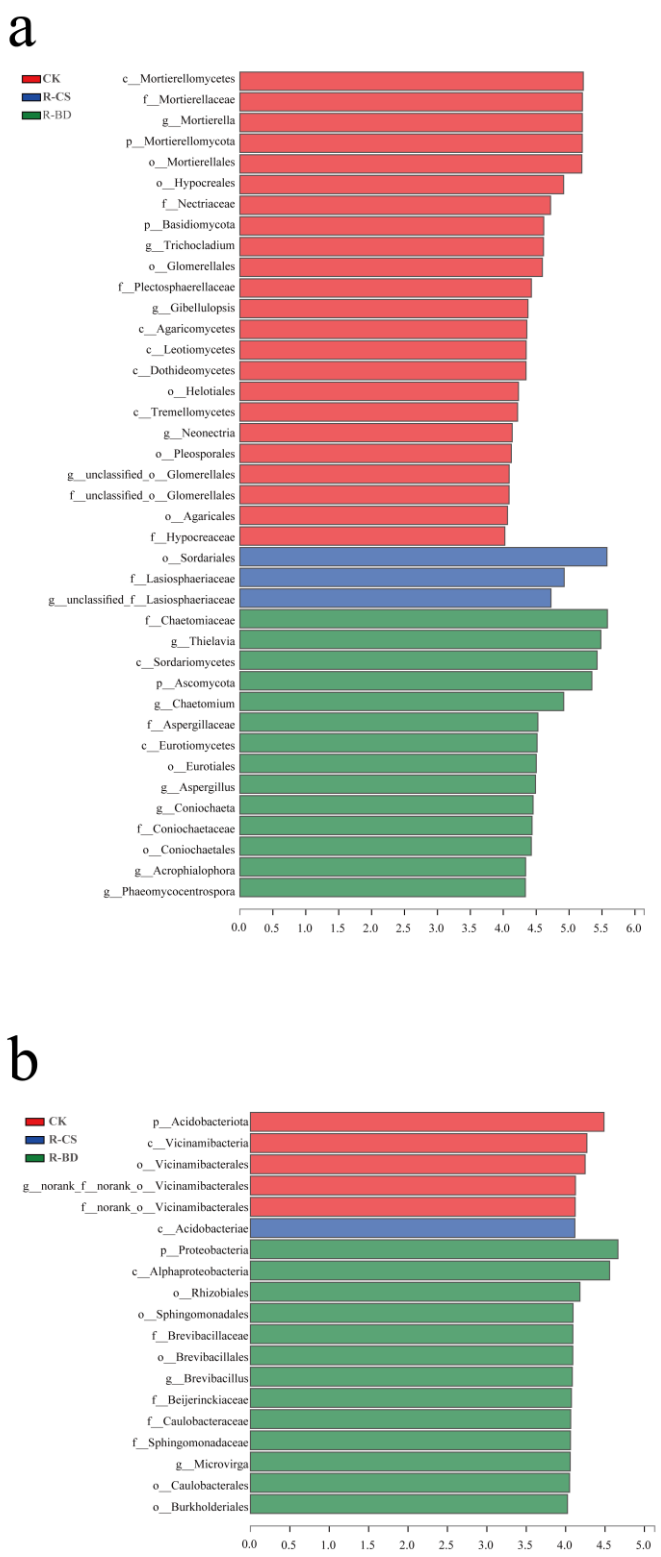

Figure S3. The indicator microorganisms with LDA scores in (a) fungi and (b) bacterial communities associated with each treated soil from the three groups.

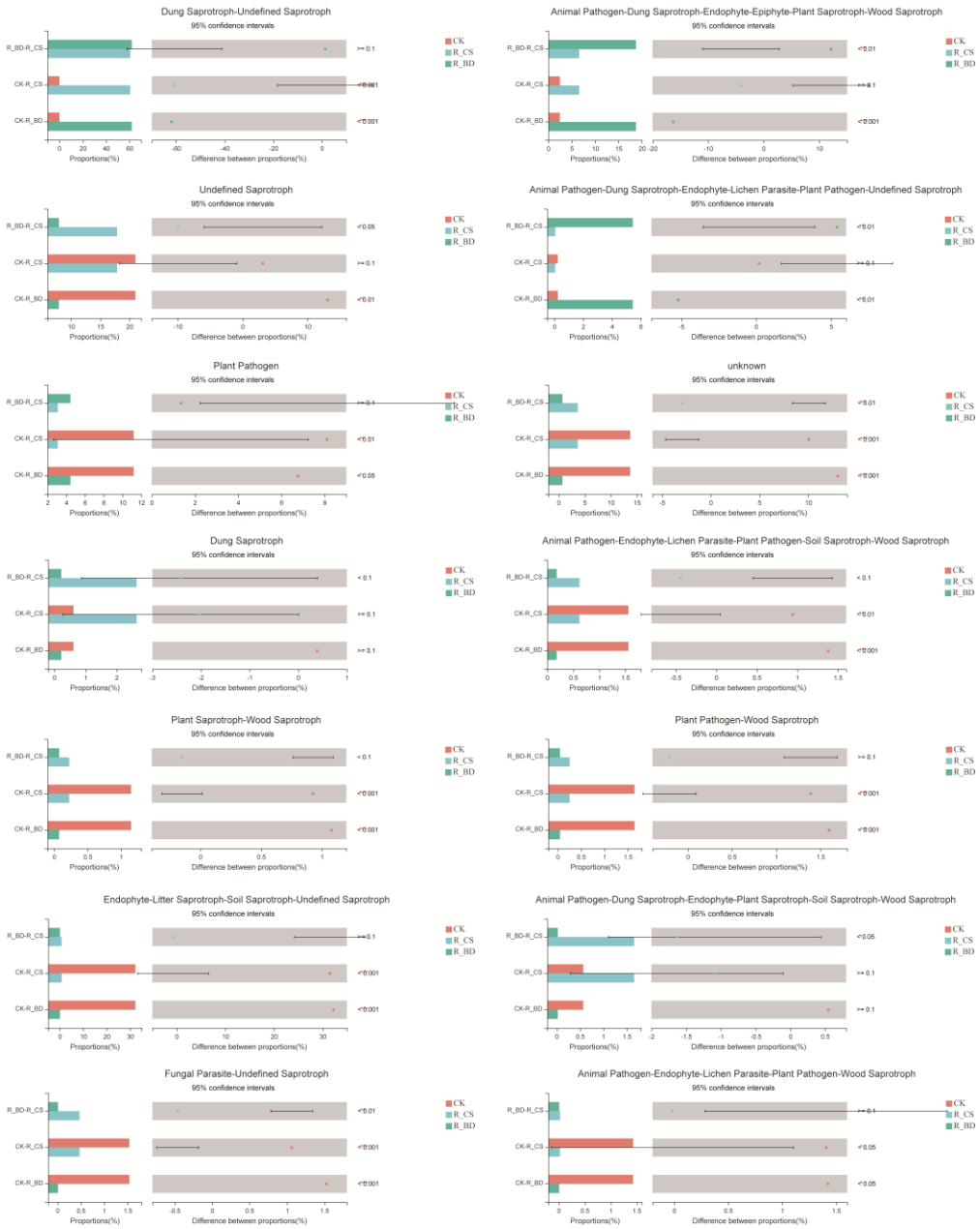

Figure S4. The fungal functional guilds with significant differences among the three groups.

	CCA1	CCA2	r2	p-values
AP	-0.5984	-0.8012	0.9375	0.002
AK	-0.8956	0.4448	0.5572	0.013
OM	-0.7739	-0.6333	0.9198	0.001
AN	-0.906	0.4232	0.4494	0.085
pH	-0.4166	0.9091	0.9386	0.007
EC	-0.0275	-0.9996	0.8798	0.001
CAT	-0.3266	0.9452	0.6993	0.01
URE	-0.8807	-0.4738	0.9702	0.001
LAC	-0.7839	0.6209	0.9431	0.001
PHO	-0.9466	-0.3223	0.9899	0.001
SUC	-0.7364	0.6766	0.9504	0.001

Table S1. Component extracted matrix of RDA for soil fungi community.

	RDA1	RDA2	r2	p-values
AP	-0.9403	-0.3403	0.8525	0.004
AK	-0.6186	0.7857	0.4446	0.058
OM	-0.9858	-0.1682	0.9141	0.001
AN	-0.5326	0.8464	0.4163	0.067
pH	0.1072	0.9942	0.8446	0.003
EC	-0.54	-0.8417	0.7829	0.006
CAT	0.2291	0.9734	0.5208	0.029
URE	-0.9994	0.0359	0.9491	0.001
LAC	-0.3289	0.9444	0.8987	0.001
PHO	-0.9739	0.2269	0.94	0.001
SUC	-0.3039	0.9527	0.8813	0.001

Table S2. Component extracted matrix of RDA for soil bacteria community.

Pathway level1	Pathway level2	CK	R-CS	R-BD
Metabolism	Global and overview maps	1.22E+08	1.25E+08	1.29E+08
Metabolism	Carbohydrate metabolism	27479262	28190104	29136471
Metabolism	Amino acid metabolism	23866732	24489035	25754360
Metabolism	Energy metabolism	13708209	14003777	14303328
Metabolism	Metabolism of cofactors and vitamins	12945275	13268486	13692821
Environmental Information Processing	Membrane transport	8302312	8805057	9554326
Genetic Information Processing	Translation	8643903	8572721	8638242
Environmental Information Processing	Signal transduction	7295523	7921425	8437048
Genetic Information Processing	Replication and repair	7273257	7389794	7552934
Cellular Processes	Cellular community - prokaryotes	6978362	7208157	7681789
Metabolism	Lipid metabolism	6844616	7118444	7441611
Metabolism	Nucleotide metabolism	6965665	7104693	7304592
Metabolism	Xenobiotics biodegradation and metabolism	5588117	5927108	6489883
Metabolism	Biosynthesis of other secondary metabolites	4698977	4819176	4935801
Metabolism	Metabolism of other amino acids	4567074	4793976	5045281
Genetic Information Processing	Folding, sorting and degradation	4206445	4236815	4298376
Metabolism	Glycan biosynthesis and metabolism	3579994	3675169	3656238
Metabolism	Metabolism of terpenoids and polyketides	3370271	3427862	3604977
Cellular Processes	Cell motility	2816149	3148346	3383164
Cellular Processes	Cell growth and death	2726460	2832335	3001970
Human Diseases	Drug resistance: antimicrobial	2217029	2374837	2513267
Organismal Systems	Endocrine system	2021744	2104096	2171850
Human Diseases	Infectious disease: bacterial	1941425	2059214	2217002
Human Diseases	Cancer: overview	1583093	1729481	1913445
Organismal Systems	Aging	1407159	1495909	1607553
Human Diseases	Neurodegenerative disease	1087059	1216616	1367536
Human Diseases	Infectious disease: viral	829582.3	924261.2	1085095
Organismal Systems	Environmental adaptation	840871.1	878749.9	949363.2
Cellular Processes	Transport and catabolism	827352.8	884098.7	925489.9
Human Diseases	Drug resistance: antineoplastic	784931	849666.6	933738
Human Diseases	Endocrine and metabolic disease	775640.6	794076.2	839944.5
Human Diseases	Cardiovascular disease	573418.9	635541	709956.7
Organismal Systems	Nervous system	617739.8	613208.6	644071.1
Human Diseases	Cancer: specific types	528781.5	595746.2	690268.4
Genetic Information Processing	Transcription	423788.7	429721.5	436842.3
Organismal Systems	Immune system	383513.1	418313.8	429494.7
Human Diseases	Infectious disease: parasitic	197926	212285.1	236854.2
Human Diseases	Substance dependence	128030.8	121551	137545.1
Organismal Systems	Circulatory system	94692.91	105329.6	123635.8
Organismal Systems	Excretory system	93227.9	99233.84	98084.12
Human Diseases	Immune disease	72084.27	87302.8	88329.74
Organismal Systems	Digestive system	62844.98	75744.63	78839.23
Organismal Systems	Development and regeneration	31293.02	31316.12	29678.34

Cellular Processes	Cellular community - eukaryotes	1707.24	2200.5	2914.5
Organismal Systems	Sensory system	327	718	627
Environmental Information Processing	Signaling molecules and interaction	598.76	469.75	492

Table S3. Bacterial function prediction of ginseng cultivation soil in diferent groups (hierarchy level 2).