

Table S1. Soil physical and chemical properties.

Plot	SBD	NO ₃ ⁻	NH ₄ ⁺	TP	TK	pH	SOM	TN
WA	0.99±0.0	67.82±3.	12.89±0.	0.52±0.0	24.51±12	4.55±0.	23.82±2.	4.64±0.
	03c	06a	86ab	6a	.03a	08a	91a	47a
WB	1.1±0.05	59.70±3.	8.63±1.5	0.36±0.0	18.64±1.	4.53±0.	22.34±2.	4.67±0.
	b	87ab	8b	3b	81a	05a	24ab	15a
WC	1.22±0.0	66.61±5.	11.36±2.	0.45±0.0	15.79±0.	4.57±0.	20.97±0.	4.06±0.
	3a	42a	41ab	6ab	69a	09a	32ab	14a
WC	1.22±0.0	56.67±4.	16.81±4.	0.52±0.0	25.5±2.3	4.59±0.	20.00±0.	4.08±1.
K	3a	27b	68a	5a	8a	08a	78b	12a

All data are presented as mean ± SD (n = 3). Different lowercase letters in the same column indicate statistically significant differences under different treatments ($P < 0.05$).

Table S2. Importance value (%) of understory vegetation.

	Node	Species	WCK	WA	WB	WC
Shrub	A	<i>Smilax china</i> L.	2.15	3.84	3.6	3.26
	B	<i>Quercus serrata</i>	13.93	5.61	7.64	5.93
	C	<i>Ardisia crispa</i>	—	—	0.99	—
	D	<i>Aralia elata</i>	3.89	1.45	8.17	2.97
	E	<i>Sarcandra glabra</i>	—	—	—	0.77
	F	<i>Ficus tikoua</i>	4.11	—	2.71	0.63
	G	<i>Urena lobata</i> L.	4.71	11.71	—	2.95
	H	<i>Rubus lambertianus</i> Ser.	1.96	—	—	—
	I	<i>Citrus reticulata</i> Blanco	—	1.4	—	—
	J	<i>Ficus gasparriniana</i>	2.06	5.32	2.95	2.03
	K	<i>Dalbergia hupeana</i>	—	3.44	—	—
	L	<i>Rhododendron simsii</i>	—	—	0.8	1.17
	M	<i>Mallotus barbatus</i> (Wall.)	9.58	11.16	11.7	13.44
	N	<i>Actinidia rubricaulis</i>	—	—	1.11	1.17
	O	<i>Maesa japonica</i>	—	—	—	0.67
	P	<i>Callerya congestiflora</i>	1.96	1.81	3.36	2.14
	Q	<i>Lycium chinense</i>	—	—	0.25	—
	R	<i>Helwingia japonica</i>	8.16	—	—	1.65
	S	<i>Symplocos lancifolia</i>	—	—	0.34	—
	T	<i>Camellia japonica</i> L.	4.8	—	—	0.93
	U	<i>Litsea cubeba</i>	3.11	3.65	1.6	2.41
	V	<i>Ampelopsis delavayana</i>	—	1.17	1.2	1.6
	W	<i>Callicarpa giraldii</i>	—	—	1.03	—
	X	<i>Smilax arisanensis</i>	—	—	2.02	2.38
	Y	<i>Rubus pirifolius</i>	—	—	2.69	4.07
	Z	<i>Ardisia pusilla</i>	—	—	—	0.82
	AA	<i>Mallotus repandus</i>	2.72	—	5.17	—
	AB	<i>Rubus corchorifolius</i>	—	1.57	4.31	4.04
	AC	<i>Eurya japonica</i> Thunb.	—	—	—	2.56
	AD	<i>Glochidion puberum</i>	3.09	—	—	—

	AE	<i>Debregeasia orientalis</i>	–	3.12	2.25	
	AF	<i>Rubus chroosepalus</i>	–	–	2.62	4.72
	AG	<i>Myrsine africana</i> L.	1.96	11.51	0.55	3.72
	AH	<i>Broussonetia kaempferi</i>	–	1.45	2.48	–
	AI	<i>Eurya loquaiana</i>	3.05	5.57	4.17	5.46
	AJ	<i>Viburnum utile</i> Hemsl.	2.43	–	–	2.56
	AK	<i>Pericampylus glaucus</i>	–	1.18	5.74	1.33
	AL	<i>Litsea pungens</i> Hemsl.	–	1.36	1.29	0.64
	AM	<i>Melastoma malabathricum</i>	1.62	3.73	2.89	3.61
	AN	<i>Cinnamomum camphora</i>	22.73	10.24	10.05	9.01
	AO	<i>Ardisia japonica</i>	1.96	6.71	1.32	3.99
	AP	<i>Gardenia jasminoides</i>	–	1.45	0.99	3.62
	AQ	<i>Ficus stenophylla</i>	–	1.9	1.95	0.95
	AR	<i>Euscaphis japonica</i>	–	–	1.61	2.65
Herb	AS	<i>Pittosporum glabratum</i>	–	–	–	1.37
	AT	<i>Microlepidia marginata</i>	4.1	–	–	2.91
	AU	<i>Eupatorium japonicum</i>	–	1.81	4.14	4.06
	AV	<i>Blumea megacephala</i>	2.28	–	3.41	3.38
	AW	<i>Lophatherum gracile</i>	–	4.79	6.52	4
	AX	<i>Dryopteris fuscipes</i>	2.3	4.64	2.74	1.89
	AY	<i>Woodwardia japonica</i>	–	2.74	4.04	2.75
	AZ	<i>Parathelypteris glanduligera</i>	9.57	3.34	–	7.27
	BA	<i>Synotis nagensium</i>	7.37	2.33	–	6.72
	BB	<i>Pteridium aquilinum</i>	17.05	24.05	6.11	9.61
	BC	<i>Microlepidia hancei</i>	3.1	5.7	8.51	6.56
	BD	<i>Miscanthus sinensis</i>	12.9	3.56	11.69	6.39
	BE	<i>Arthraxon hispidus</i>	–	4.09	3.46	2.63
	BF	<i>Dicranopteris pedata</i>	3.5	9.23	13.26	16.18
	BG	<i>Odontosoria chinensis</i>	9.21	2.33	6.74	4.25
	BH	<i>Iris tectorum</i>	14.25	16.32	7.8	–
	BI	<i>Setaria plicata</i>	11.05	7.84	3.35	10.95
	BJ	<i>Cyperus rotundus</i> L.	–	–	8.92	–
	BK	<i>Oplismenus compositus</i>	1.59	7.23	2.68	1.35
	BL	<i>Oxalis corniculata</i> L.	1.72	–	–	2.52
	BM	<i>Hylodesmum podocarpum</i>	–	–	3.68	–
	BN	<i>Arachniodes chinensis</i>	–	–	2.92	6.56

Table S3. Alpha diversity of soil fungal community.

Plot	ace	Chao	Shannon	Simpson
WA	847.97±77.01a	834.50±81.41a	4.27±0.543a	0.05±0.03a
WB	603.24±178.45a	598.35±167.59a	3.58±0.299a	0.09±0.04a
WC	699.66±115.02a	704.25±117.745a	4.27±0.19a	0.04±0.01a
WCK	798.83±114.89a	792.20±109.82a	4.14±0.34a	0.05±0.02a

All data are presented as means ± SD (n = 3). Different lowercase letters in the same column indicate

statistically significant differences under different treatments ($P < 0.05$).

Table S4. Network center coefficient of soil fungal community at the phyla level.

Node Name	Degree Centrality	Closeness Centrality	Betweenness Centrality
WA	0.84	0.86	0.35
WB	0.74	0.73	0.14
WC	0.74	0.73	0.14
WCK	0.68	0.68	0.11
p__Ascomycota	0.21	0.56	0.01
p__Basidiobolomycota	0.21	0.56	0.01
p__Basidiomycota	0.21	0.56	0.01
p__Blastocladiomycota	0.16	0.53	<0.01
p__Calcarisporiellomycota	0.21	0.56	0.01
p__Chytridiomycota	0.21	0.56	0.01
p__Entorrhizomycota	0.21	0.56	0.01
p__GS01	0.05	0.48	0.00
p__Glomeromycota	0.21	0.56	0.01
p__Kickxellomycota	0.21	0.56	0.01
p__Mortierellomycota	0.21	0.56	0.01
p__Mucoromycota	0.21	0.56	0.01
p__Olpidiomycota	0.05	0.48	<0.01
p__Rozellomycota	0.21	0.56	0.01
p__Zoopagomycota	0.21	0.56	0.01
p__unclassified_k__Fungi	0.21	0.56	0.01

Table S5. Network center coefficient of soil fungal community at the genera level.

Node Name	Degree Centrality	Closeness Centrality	Betweenness Centrality	Degree
<i>Mortierella</i>	0.11	0.30	0.24	5
<i>Clavulina</i>	0.04	0.24	0.10	2
<i>unclassified_o__Sordariales</i>	0.06	0.26	0.01	3
<i>Penicillium</i>	0.11	0.28	0.18	5
<i>unclassified_o__GS23</i>	0.09	0.28	0.14	4
<i>Sagenomella</i>	0.13	0.30	0.13	6
<i>Trichoderma</i>	0.02	0.17	<0.01	1
<i>unclassified_o__Chaetothyriales</i>	0.04	0.20	0.04	2
<i>unclassified_p__Rozellomycota</i>	0.02	0.17	<0.01	1
<i>Cladophialophora</i>	0.09	0.21	0.05	4
<i>Chaetosphaeria</i>	0.02	0.16	<0.01	1
<i>Saitozyma</i>	0.06	0.20	0.04	3
<i>Tolypocladium</i>	0.06	0.22	0.08	3
<i>Metarhizium</i>	0.09	0.24	0.16	4
<i>Geminibasidium</i>	0.06	0.23	0.11	3
<i>unclassified_f__Herpotrichiellaceae</i>	0.06	0.27	0.20	3
<i>Russula</i>	0.02	0.18	<0.01	1

<i>Talaromyces</i>	0.06	0.24	0.13	3
<i>Tomentella</i>	0.02	0.19	<0.01	1
<i>Membranomyces</i>	0.04	0.19	0.03	2
<i>Fusicolla</i>	0.04	0.19	0.03	2
<i>Pseudopithomyces</i>	0.04	0.21	0.05	2
<i>Scytalidium</i>	0.06	0.21	0.08	3
<i>Paraboeremia</i>	0.02	0.17	<0.01	1
<i>Trichophaea</i>	0.09	0.24	0.18	4
<i>unclassified_f_Thelephoraceae</i>	0.02	0.20	<0.01	1
<i>Umbelopsis</i>	0.11	0.29	0.29	5
<i>Amanita</i>	0.04	0.20	0.04	2
<i>unclassified_c_Agaricomycetes</i>	0.02	0.18	<0.01	1
<i>Rhizopogon</i>	0.04	0.22	0.04	2
<i>unclassified_f_Hyaloscyphaceae</i>	0.09	0.28	0.10	4
<i>unclassified_o_Helotiales</i>	0.11	0.30	0.20	5
<i>unclassified_c_Eurotiomycetes</i>	0.09	0.25	0.10	4
<i>Penicillifer</i>	0.09	0.26	0.03	4
<i>Helvellosebacina</i>	0.04	0.25	<0.01	2
<i>Inocybe</i>	0.06	0.27	0.07	3
<i>unclassified_f_Ceratobasidiaceae</i>	0.11	0.25	0.10	5
<i>Chloridium</i>	0.04	0.22	0.01	2
<i>unclassified_f_Agaricaceae</i>	0.09	0.25	0.03	4
<i>unclassified_k_Fungi</i>	0.11	0.25	0.08	5
<i>Bifiguratus</i>	0.04	0.26	0.07	2
<i>Tylospora</i>	0.04	0.24	<0.01	2
<i>Oidiodendron</i>	0.02	0.22	<0.01	1
<i>unclassified_o_Leucosporidiales</i>	0.02	0.20	<0.01	1
<i>unclassified_o_Venturiales</i>	0.02	0.02	<0.01	1
<i>unclassified_p_Ascomycota</i>	0.02	0.02	<0.01	1
<i>unclassified_o_GS11</i>	0.02	0.16	<0.01	1
<i>unclassified_c_Dothideomycetes</i>	0.02	0.20	<0.01	1

Table S6. Degree values of different species.

Node_Name	Degree
A	6
AN	10
AO	3
B	5
BB	10
BC	11
BD	6
BF	6
BG	6
BI	7

D	6
M	6
P	3
U	11
<i>Amanita</i>	3
<i>Archaeorhizomyces</i>	1
<i>Bifiguratus</i>	2
<i>Ciliophora</i>	5
<i>Clavulina</i>	1
<i>Clitopilus</i>	2
<i>Clonostachys</i>	1
<i>Dactylella</i>	2
<i>Fusarium</i>	3
<i>Geomyces</i>	1
<i>Gliocladiopsis</i>	1
<i>Gongronella</i>	3
<i>Humicolopsis_f_Pezizomycotina_fam_Incertae_sedis</i>	1
<i>Ilyonectria</i>	1
<i>Lactarius</i>	4
<i>Mycena</i>	1
<i>Neocosmospora</i>	5
<i>Rasamsonia</i>	4
<i>Russula</i>	1
<i>Scytalidium</i>	1
<i>Solicoccozyma</i>	1
<i>Talaromyces</i>	4
<i>Thelonectria</i>	4
<i>Tomentella</i>	1
<i>Trechispora</i>	3
<i>Trichoderma</i>	4
<i>Trichophaea</i>	7
<i>Tylospora</i>	1
<i>Umbelopsis</i>	1
<i>Unclassified_c_Entorrhizomycetes</i>	5
<i>Unclassified_c_Leotiomyces</i>	3
<i>Unclassified_c_Sordariomycetes</i>	1
<i>Unclassified_f_Agaricaceae</i>	2
<i>Unclassified_f_Chaetosphaeriaceae</i>	1
<i>Unclassified_f_Herpotrichiellaceae</i>	1
<i>Unclassified_f_Hymenochaetaceae</i>	4
<i>Unclassified_f_Thelephoraceae</i>	1
<i>Unclassified_f_Trichosporonaceae</i>	1
<i>Unclassified_o_Rhizophydiales</i>	1
<i>Unclassified_o_Venturiales</i>	6

<i>Unclassified_p__Ascomycota</i>	1
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For a specific explanation of plant nodes, see Table S2.