

5Supplementary Materials

Table S1. Information list of the literatures selected in our database

Number	Author	Year	Title	Journal	Pages
1	Santos PF, et al.	1981	The role of mites and nematodes in early stages of buried litter decomposition in a desert.	Ecology	664-669.
2	Tian G, et al.	1992	Biological effects of plant residues with contrasting chemical compositions under humid tropical conditions-decomposition and nutrient release	Soil Biology & Biochemistry	1051-1060.
3	Curry JP, et al.	1997	Role of earthworms in straw decomposition in a winter cereal field.	Soil Biology & Biochemistry	555-558.
4	Liu ZG, et al.	2002	Exotic earthworms accelerate plant litter decomposition in a Puerto Rican pasture and a wet forest.	Ecological Applications	1406-1417.
5	Joo SJ, et al.	2006	Contribution of microarthropods to the decomposition of needle litter in a Japanese cedar (<i>Cryptomeria japonica</i> D. Don) plantation.	Forest Ecology and Management	192-198.
6	Bastow JL, et al.	2008	Wood decomposition following a perennial lupine die-off: A 3-year litterbag study.	Ecosystems	442-453.
7	Milcu A, et al.	2011	All size classes of soil fauna and litter quality control the acceleration of litter decay in its home environment.	Oikos	1366-1370.
8	Huan Fan	2014	Effects of soil fauna on litter decomposition and N mineralization under different land management patterns in northern Jiangsu province	Nanjing Forestry University	
9	Zhan peng,Liu	2014	Decomposition of picea jezoensis twig and the function of soil fauna in Changbai Mo	Northeast Normal University	
10	Schmidt A, et al.	2015	Effects of residue management on decomposition in irrigated rice fields are not related to Changes in the decomposer community.	Plos One	19
11	Fujii S, et al.	2016	Plant species control and soil faunal involvement in the processes of above- and	Oikos	883-892.

			below-ground litter decomposition.		
12	Fujii S, et al.	2018	Tree leaf and root traits mediate soil faunal contribution to litter decomposition across an elevational gradient.	Functional Ecology	840-852.
13	Tresch S, et al.	2019	Litter decomposition driven by soil fauna, plant diversity and soil management in urban gardens.	Science of the Total Environment	1614-1629.
14	Song XX, et al.	2020	The contributions of soil mesofauna to leaf and root litter decomposition of dominant plant species in grassland.	Applied Soil Ecology	8
15	Cassani MT, et al.	2021	Litter decomposition by soil fauna: effect of land use in agroecosystems	Heliyon	8

Table S2. The 95% confidence interval (CI), d.f., and Q-value based on subcomponent grouping and test for heterogeneity.

Comparison	Group	95% CI		d.f.	Q-value
Total		25.3	39.5	267	4311.3
Climate zone	Temperate	7.75	30.8	110	1651.9
	Subtropical	42.0	65.4	109	1557.1
	Tropical	11.3	18.3	46	112.2
Ecosystem type	Farmland	-2.11	15.2	103	286.7
	Forest	-6.28	7.9	61	1082.7
	Grassland	25.9	43.2	90	1228.6
Decomposition time (month)	12-24	4.40	17.9	6	3.78
	6-12	12.8	25.0	81	1224.2
	0-6	30.9	53.2	178	3040.6
Mesh size (mm)	>2	38.7	61.7	105	1140.5
	1-2	33.2	105.3	38	1194.2
	0.5-1	7.43	20.0	121	1692.5

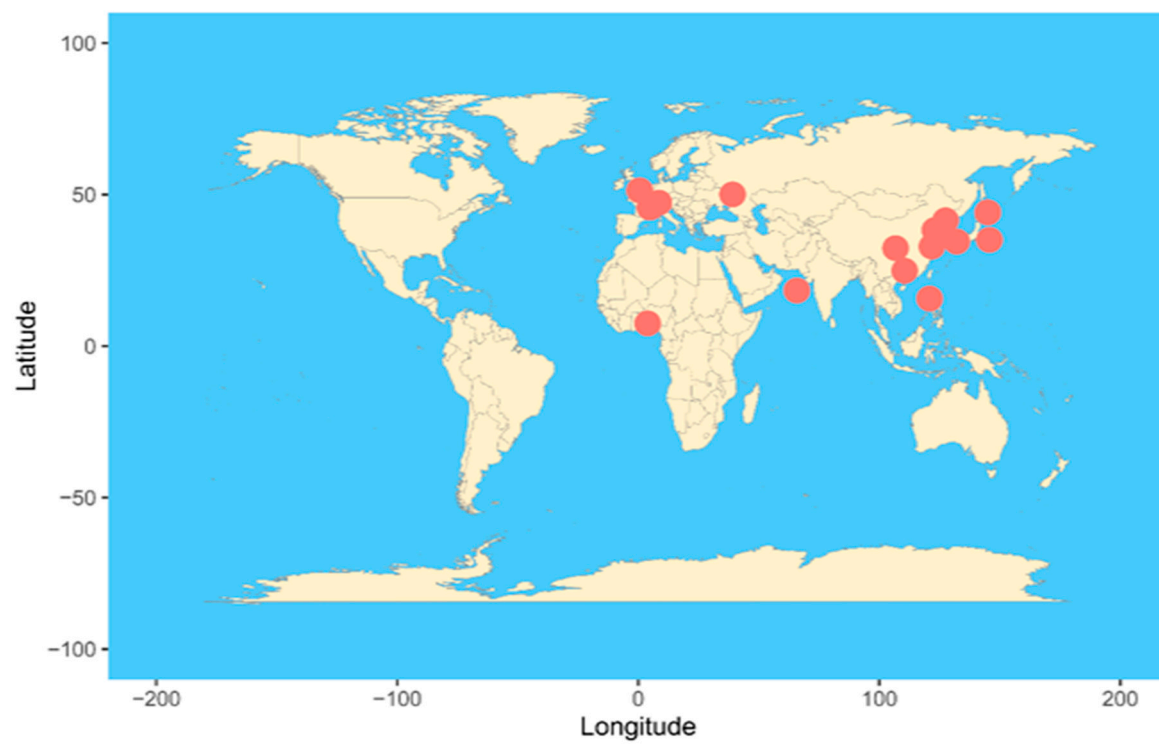


Figure S1. Geographical distribution of the experimental sites in this study