

Table S1. Chemical attributes of mineral soil (0-10 cm layer) at Jaguariaíva, Paraná state, Brazil ^[a]

Chemical attributes	
pH ^[b]	3.5
Ca ²⁺ , cmolc dm ⁻³	0.15
Mg ²⁺ , cmolc dm ⁻³	0.10
K ⁺ , cmolc dm ⁻³	0.03
Al ³⁺ , cmolc dm ⁻³	2.0
H+Al ³⁺ , cmolc dm ⁻³	9.1
CEC, cmolc dm ⁻³	9.39
BS, %	3.49
m, %	86
P, mg dm ⁻³	0.1
Fe, mg dm ⁻³	39.5
Zn, mg dm ⁻³	0.23
Cu, mg dm ⁻³	0.93
Mn, mg dm ⁻³	0.41
OC, g dm ⁻³	23

^[a] Chemical analysis was performed following the protocols described by Marques & Motta (2003).

^[b] pH (0.01 mol L⁻¹ CaCl₂); Ca²⁺, Mg²⁺, Al³⁺ (extracted with 1 mol L⁻¹ KCl); H+Al³⁺ (0.5 mol L⁻¹ calcium acetate extraction). CEC: cation exchange capacity pH 7.0. BS: base saturation. m: Al³⁺ saturation. K⁺, P, Mn, Fe, Cu, and Zn (Mehlich-1 extraction). OC: organic carbon (volumetric method by potassium dichromate).

Table S2. Nutrient concentration of F (fragmented) and H (humidified) organic horizons in the *Pinus herrerae* stand litter layer at Jaguariaíva, Paraná state, Brazil. Chemical analysis was performed following the protocols described by Martins & Reissmann (2007).

Nutrient	F horizon		H horizon	
	Mean	SD	Mean	SD
P, g kg ⁻¹	0.26	0.08	0.37	0.02
K, g kg ⁻¹	0.23	0.04	0.24	0.03
Ca, g kg ⁻¹	0.21	0.06	0.20	0.02
Mg, g kg ⁻¹	0.09	0.04	0.05	0.01
Al, mg kg ⁻¹	2270	611	2310	283
Cu, mg kg ⁻¹	4.1	1.5	3.7	0.3
Zn, mg kg ⁻¹	4.8	1.6	4.9	0.5
Fe, mg kg ⁻¹	2023	1224	1341	110
Mn, mg kg ⁻¹	31.0	12.2	25.2	2.1

SD: standard deviation