
Supplemental information

Table S1. Results (*P*-values) showing the effect of nutrient addition on early (1 year) decomposition of leaves and absorptive roots of *Pinus massoniana* and *Schima superba*.

Species	Type	+N vs. CK		+P vs. CK		+NP vs. CK	
		Effect	<i>P</i>	Effect	<i>P</i>	Effect	<i>P</i>
<i>Pinus massoniana</i>	Leaves	+	0.027	+	< 0.001	+	0.001
	Absorptive roots	-	0.019	<i>ns</i>	0.084	<i>ns</i>	0.959
<i>Schima superba</i>	Leaves	<i>ns</i>	0.657	+	0.008	<i>ns</i>	0.057
	Absorptive roots	-	0.036	<i>ns</i>	0.091	<i>ns</i>	0.669

CK, control; +N, nitrogen addition; +P, phosphorus addition; and +NP, addition of both nitrogen and phosphorus. For effect, '+', '-', and '*ns*' indicate positive, negative, and no effect of nutrient addition on decomposition compared to CK, respectively.

Table S2. Residual carbon fractions of leaves and absorptive roots decomposing after 3 years decomposition since litterbag placement.

Substrates	CK			+N			+P			+NP		
	AUR	Cell	Hemi	AUR	Cell	Hemi	AUR	Cell	Hemi	AUR	Cell	Hemi
<i>Pinus massoniana</i> leaves	36.64 (2.15)	7.22 (1.25)	9.79 (1.45)	36.48 (1.44)	5.75 (0.65)	7.90 (0.49)	34.35 (2.05)	6.18 (0.66)	8.93 (1.47)	36.97 (1.82)	5.56 (0.35)	7.62 (0.29)
<i>Pinus massoniana</i> absorptive roots	30.64 ^{bc} (2.34)	3.39 ^a (0.26)	5.46 ^b (0.15)	40.21 ^a (2.43)	3.24 ^a (0.07)	6.21 ^a (0.11)	27.78 ^c (2.28)	2.47 ^b (0.15)	4.48 ^c (0.08)	35.94 ^{ab} (2.79)	3.07 ^a (0.04)	5.68 ^b (0.18)
<i>Schima superba</i> leaves	12.10 (1.52)	2.79 (0.52)	3.99 (0.20)	16.97 (1.73)	5.20 (0.96)	6.66 (0.85)	14.48 (1.21)	4.21 (0.78)	5.77 (1.13)	12.46 (1.41)	3.46 (0.97)	3.79 (1.15)
<i>Schima superba</i> absorptive roots	20.03 ^b (1.70)	3.54 ^{bc} (0.40)	4.18 ^{ab} (0.31)	28.42 ^a (1.88)	4.85 ^a (0.40)	5.11 ^a (0.63)	17.97 ^b (0.41)	3.08 ^c (0.31)	3.61 ^b (0.21)	25.91 ^a (1.27)	4.25 ^{ab} (0.09)	4.26 ^{ab} (0.18)

Values are means (SE, $n=4$), and the unit of the value is %. Significant differences between means were determined using Tukey's honestly significant difference test. Different letters in a row indicate that the same carbon fractions have significant differences among treatments ($n=4$, $P < 0.05$). CK, control; +N, nitrogen addition; +P, phosphorus addition; +NP, addition of both nitrogen and phosphorus; AUR, acid unhydrolyzable residue; Cell, cellulose; Hemi, hemicellulose.

Table S3 Microbial extracellular enzymatic activities of leaves and absorptive roots decomposing after 3 years decomposition since litterbag placement.

		<i>Pinus massoniana</i>		<i>Pinus massoniana</i>		<i>Schima superba</i>		<i>Schima superba</i>	
		Leaves		Absorptive Roots		Leaves		Absorptive Roots	
CK	Hydrolytic enzymes	BG	22.81 ^b (4.02)	25.15 (3.10)	55.58 ^b (23.23)	51.87 ^a (5.85)			
		NAG	13.37 ^c (0.94)	12.77 (1.51)	18.34 ^c (0.98)	64.40 ^a (9.22)			
		CBH	1.66 ^b (0.15)	2.79 (0.99)	5.46 ^b (1.91)	4.35 (1.27)			
		AP	482.88 ^c (182.19)	138.46 ^a (22.76)	256.61 ^b (122.72)	134.20 ^a (10.24)			
	Oxidative enzymes	PER	0.47 ^A (0.06)	0.41 ^A (0.14)	0.73 (0.45)	0.74 ^B (0.13)			
		PPO	0.35 ^B (0.03)	0.16 ^A (0.04)	0.10 (0.05)	0.40 ^A (0.04)			
		+N	Hydrolytic enzymes	BG	16.72 ^b (5.42)	40.47 (6.15)	56.39 ^b (17.33)	54.08 ^a (13.21)	
				NAG	9.59 ^c (0.85)	21.39 (8.26)	14.70 ^c (1.41)	41.69 ^b (14.66)	
CBH	1.56 ^b (0.28)			3.02 (1.48)	4.13 ^b (1.18)	3.66 (0.91)			
AP	600.61 ^c (96.20)			156.70 ^a (9.93)	202.60 ^b (20.58)	84.90 ^b (9.40)			
Oxidative enzymes	PER		0.21 ^C (0.04)	0.17 ^B (0.03)	0.20 (0.06)	0.19 ^C (0.05)			
	PPO		0.27 ^B (0.14)	0.07 ^B (0.01)	0.07 (0.03)	0.19 ^C (0.08)			
	+P		Hydrolytic enzymes	BG	36.25 ^a (7.28)	33.56 (10.99)	191.02 ^a (14.13)	43.90 ^{ab} (10.99)	
				NAG	28.97 ^a (3.79)	19.35 (17.40)	113.28 ^a (16.49)	54.30 ^{ab} (1.45)	
CBH		4.43 ^a (0.82)		2.04 (0.63)	10.39 ^a (4.12)	3.93 (0.54)			
AP		1616.60 ^a (92.34)		156.38 ^a (7.80)	1007.70 ^a (111.43)	150.96 ^a (14.34)			
Oxidative enzymes	PER	0.24 ^{BC} (0.02)	0.25 ^B (0.02)	0.59 (0.49)	1.00 ^A (0.16)				
	PPO	1.22 ^A (0.53)	0.14 ^A (0.02)	0.10 (0.04)	0.39 ^A (0.02)				
+NP	Hydrolytic	BG	21.10 ^b (9.38)	34.95 (9.01)	166.84 ^a (34.09)	31.80 ^b (6.41)			

enzymes	NAG	18.79 ^b (3.71)	5.86 (6.00)	61.08 ^b (17.30)	41.69 ^b (13.80)
	CBH	5.02 ^a (0.36)	2.99 (0.49)	3.54 ^b (2.27)	3.98 (0.06)
	AP	1285.56 ^b (69.51)	106.35 ^b (9.57)	889.09 ^a (256.68)	79.01 ^b (11.04)
Oxidative	PER	0.31 ^B (0.09)	0.24 ^B (0.02)	0.79 (0.40)	0.58 ^B (0.03)
enzymes	PPO	0.66 ^B (0.36)	0.06 ^B (0.02)	0.06 (0.04)	0.28 ^B (0.08)

Values are means \pm SE ($n = 4$), and the unit is $\text{nmol g}^{-1} \text{h}^{-1}$. Significant differences between means were determined using Tukey's honestly significant difference test. Different letters in a column indicate that the same enzyme have significant differences among treatments ($n = 4$, $P < 0.05$). BG, β -1,4-glucosidase; NAG, β -1,4-N-acetylglucosaminidase; CBH, cellobiohydrolase; AP, acid phosphatase; PER, peroxidase; PPO, polyphenol oxidase. CK, control; +N, nitrogen addition; +P, phosphorus addition; +NP, addition of both nitrogen and phosphorus.