

Supplementary Information for:

**Stoichiometric plasticity of microbial communities is similar
between litter and soil in a tropical rainforest**

Author names. Nicolas Fanin^{1*}, Nathalie Fromin²⁺, Sandra Barantal³, Stephan Hättenschwiler²

Affiliations. ¹Interaction Soil Plant Atmosphere (ISPA), UMR 1391, INRA - Bordeaux Sciences Agro, 71 avenue Edouard Bourlaux, 33882 Villenave-d'Ornon cedex, France

²Centre of Evolutionary and Functional Ecology (CEFE), UMR 5175, CNRS - Université de Montpellier - Université Paul-Valéry Montpellier - EPHE, 1919 route de Mende, 34293 Montpellier, France

³School of Biological Sciences, Royal Holloway, University of London, Egham, United Kingdom

* nicolas.fanin@inra.fr

⁺current address: PROMES-CNRS, 7 rue du Four Solaire, F-66120 Odeillo, France

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Table S1 | Concentrations and ratios of C, N and P in litter and soil in response to fertilization treatments**(mean $\pm$ SD, $n = 5$ per treatment).** Different letters indicate significant differences among treatments.

	Without phosphorus				With phosphorus			
	Ctrl	+C	+CN	+N	+P	+CP	+NP	+CNP
<i>Litter Elements and Ratios</i>								
C (g kg ⁻¹)	48.9 $\pm$ 1.1 ^a	45.9 $\pm$ 2.7 ^a	45.8 $\pm$ 3.5 ^a	48.0 $\pm$ 1.1 ^a	47.9 $\pm$ 4.1 ^a	47.4 $\pm$ 1.2 ^a	49.0 $\pm$ 0.6 ^a	46.6 $\pm$ 2.5 ^a
N (g kg ⁻¹)	1.56 $\pm$ 0.12 ^a	1.38 $\pm$ 0.11 ^a	1.43 $\pm$ 0.06 ^a	1.49 $\pm$ 0.15 ^a	1.56 $\pm$ 0.16 ^a	1.53 $\pm$ 0.09 ^a	1.50 $\pm$ 0.09 ^a	1.48 $\pm$ 0.04 ^a
P (g kg ⁻¹)	0.029 $\pm$ 0.009 ^a	0.024 $\pm$ 0.006 ^a	0.024 $\pm$ 0.004 ^a	0.024 $\pm$ 0.009 ^a	0.046 $\pm$ 0.003 ^{ab}	0.081 $\pm$ 0.028 ^c	0.060 $\pm$ 0.010 ^{bc}	0.069 $\pm$ 0.012 ^{bc}
C:N	31.5 $\pm$ 2.4 ^a	33.3 $\pm$ 2.3 ^a	32.0 $\pm$ 2.5 ^a	32.4 $\pm$ 3.0 ^a	30.7 $\pm$ 1.9 ^a	30.9 $\pm$ 2.1 ^a	32.6 $\pm$ 2.1 ^a	31.5 $\pm$ 2.3 ^a
N:P	59.5 $\pm$ 26.3 ^{bc}	59.0 $\pm$ 17.4 ^{bc}	58.9 $\pm$ 10.7 ^{bc}	67.5 $\pm$ 24.0 ^c	33.4 $\pm$ 2.5 ^{ab}	22.1 $\pm$ 11.9 ^a	25.6 $\pm$ 5.1 ^a	21.5 $\pm$ 2.8 ^a
C:P	1904.6 $\pm$ 957.8 ^{bcd}	1979.5 $\pm$ 628.8 ^{cd}	1900.8 $\pm$ 447.8 ^{bcd}	2218.9 $\pm$ 894.3 ^d	1024.4 $\pm$ 18.8 ^{abc}	693.4 $\pm$ 412.9 ^a	835.0 $\pm$ 153.4 ^{ab}	684.8 $\pm$ 123.5 ^a
<i>Soil Elements and Ratios</i>								
C (g kg ⁻¹)	2.39 $\pm$ 0.99 ^a	2.30 $\pm$ 0.62 ^a	2.14 $\pm$ 0.44 ^a	2.27 $\pm$ 0.54 ^a	1.68 $\pm$ 0.41 ^a	1.75 $\pm$ 0.26 ^a	1.70 $\pm$ 0.34 ^a	1.91 $\pm$ 0.36 ^a
N (g kg ⁻¹)	0.15 $\pm$ 0.06 ^a	0.13 $\pm$ 0.04 ^a	0.12 $\pm$ 0.02 ^a	0.12 $\pm$ 0.04 ^a	0.11 $\pm$ 0.02 ^a	0.13 $\pm$ 0.02 ^a	0.13 $\pm$ 0.04 ^a	0.14 $\pm$ 0.03 ^a
P (g kg ⁻¹)	0.012 $\pm$ 0.002 ^{abc}	0.010 $\pm$ 0.002 ^a	0.011 $\pm$ 0.003 ^{abc}	0.010 $\pm$ 0.002 ^{ab}	0.014 $\pm$ 0.003 ^{bc}	0.016 $\pm$ 0.002 ^c	0.015 $\pm$ 0.003 ^c	0.015 $\pm$ 0.003 ^c
C:N	15.2 $\pm$ 1.15 ^a	17.1 $\pm$ 4.08 ^a	18.3 $\pm$ 5.94 ^a	18.7 $\pm$ 5.23 ^a	14.3 $\pm$ 0.56 ^a	12.9 $\pm$ 1.31 ^a	13.5 $\pm$ 3.42 ^a	13.5 $\pm$ 1.63 ^a
N:P	12.4 $\pm$ 3.37 ^{bc}	13.6 $\pm$ 1.74 ^c	10.5 $\pm$ 1.84 ^{abc}	11.5 $\pm$ 2.55 ^{abc}	7.98 $\pm$ 0.63 ^a	8.60 $\pm$ 1.68 ^{ab}	8.74 $\pm$ 2.19 ^{ab}	9.29 $\pm$ 1.30 ^{ab}
C:P	190.9 $\pm$ 58.4 ^{abc}	230.8 $\pm$ 41.9 ^c	201.6 $\pm$ 100.2 ^{bc}	211.4 $\pm$ 45.1 ^c	114.4 $\pm$ 12.4 ^a	110.6 $\pm$ 19.5 ^a	112.5 $\pm$ 7.0 ^a	124.1 $\pm$ 5.8 ^{ab}

Table S2 | Results from full factorial mixed linear models to test for the effects of fertilization (addition or not of either one of C, N and P) and their interactions on substrate stoichiometry. Significant effects are displayed in boldface (** $P < 0.01$, *** $P < 0.001$). There were no significant interactions.

Source of variation	d.f.	F-value	P-value		d.f.	F-value	P-value
(a) Litter stoichiometry				(b) Soil stoichiometry			
C:N				C:N			
+C	32	0.04	0.84	+C	32	0.00	1.00
+N	32	0.54	0.47	+N	32	1.46	0.24
+P	32	1.61	0.21	+P	32	12.48	0.001**
N:P				N:P			
+C	32	1.73	0.20	+C	32	0.38	0.54
+N	32	0.01	0.97	+N	32	1.18	0.29
+P	32	59.73	<0.001***	+P	32	29.42	<0.001***
C:P				C:P			
+C	32	1.14	0.2931	+C	32	0.47	0.50
+N	32	0.01	0.9559	+N	32	0.01	0.95
+P	32	49.38	<0.001***	+P	32	46.05	<0.001***

Table S3 | Results from full factorial mixed linear models to test for the effects of fertilization (addition or not of either one of C, N and P) and their interactions on microbial stoichiometry. Only significant interaction terms are included in the final models. Significant effects are displayed in boldface (* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$).

Source of variation	d.f.	F-value	P-value		d.f.	F-value	P-value
<i>(a) Litter microbial stoichiometry</i>				<i>(b) Soil microbial stoichiometry</i>			
C:N _{mic}				C:N _{mic}			
+C	30	1.23	0.28	+C	31	1.27	0.27
+N	30	0.77	0.39	+N	31	1.79	0.19
+P	30	2.85	0.10	+P	31	1.52	0.23
+C × +P	30	4.58	0.041*				
+C × +N × +P	30	5.36	0.028*				
N:P _{mic}				N:P _{mic}			
+C	31	2.13	0.16	+C	31	0.10	0.76
+N	31	0.22	0.64	+N	31	0.66	0.42
+P	31	4.89	0.035*	+P	31	9.34399	0.005**
+C × +N × +P	31	4.90	0.035*				
C:P _{mic}				C:P _{mic}			
+C	32	0.27	0.60	+C	31	8.34	0.007**
+N	32	0.00	0.99	+N	31	0.15	0.70
+P	32	14.08	<.001***	+P	31	26.74	<.001***

Figure S1 | Relationships between C, N and P in the microbial biomass (mean $\pm$ SD) for litter

(a, b, c) and soil (d, e, f). The eight fertilization treatments ($n = 5$ per treatment) were separated graphically into two sub-groups: those that received P (red diamonds; +P, +CP, +NP, +CNP) and those that did not (white circles; ctrl, +C, +N, +CN).

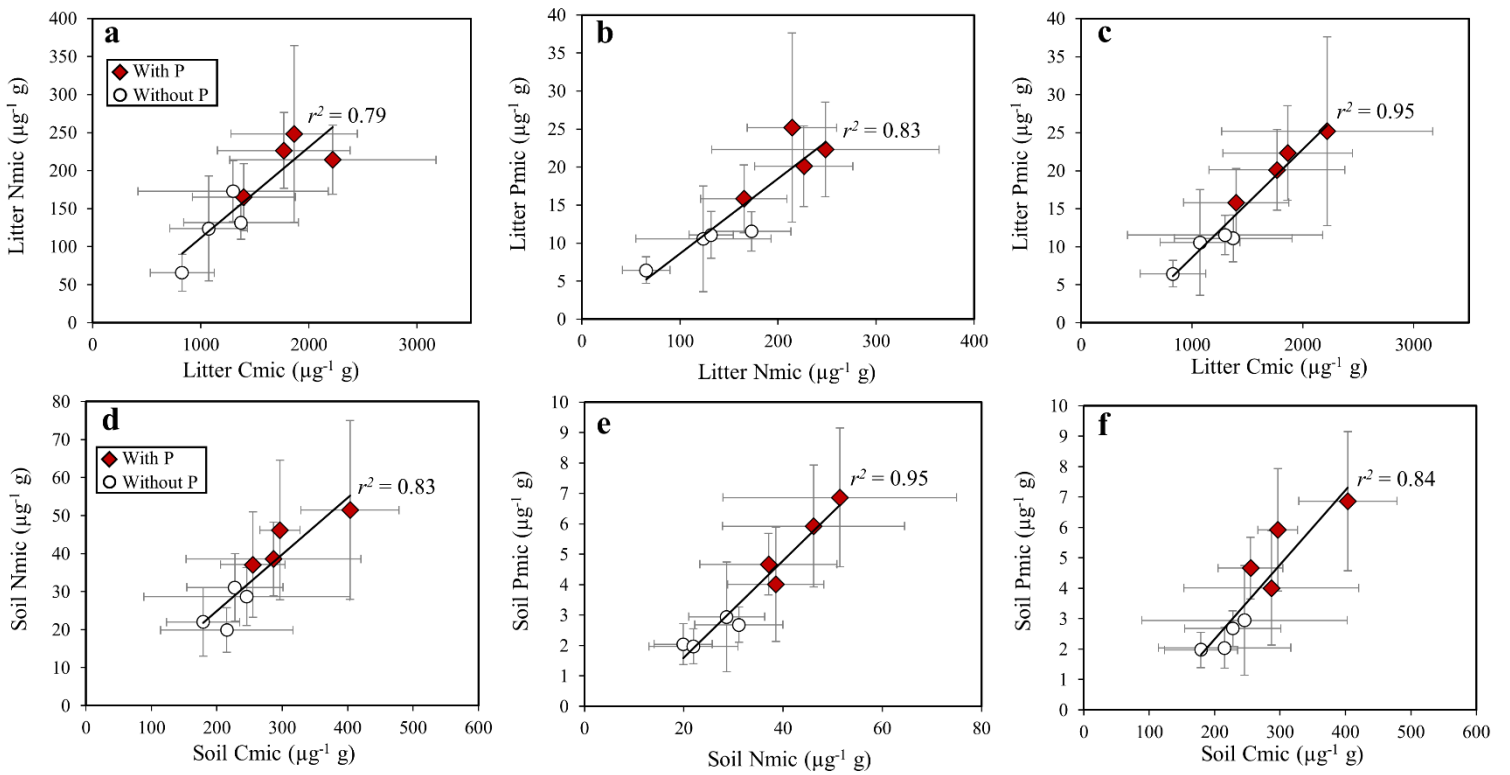


Figure S2 | Relationships between microbial biomass and substrate stoichiometry (log₁₀-transformed) in litter (a, b, c) and soil (d, e, f). The eight fertilization treatments ($n = 5$ per treatment) were separated graphically into two sub-groups: those that received P (red diamonds; +P, +CP, +NP, +CNP) and those that did not (white circles; ctrl, +C, +N, +CN).

