

Supporting information

Table S1 Soil chemical properties (October data from Sun et al. 2015a)

Treatment	Control	NPK	NPK+LS	NPK+HS	NPK+PM	NPK+CM
pH	7.05±0.03a [†]	5.42±0.09d	5.17±0.05e	5.10±0.04e	6.00±0.04c	6.89±0.02b
TC (g·kg ⁻¹)	6.44±0.16e	8.34±0.34d	10.5±0.44c	11.8±0.22c	12.9±0.64b	20.3±1.31a
TN (g·kg ⁻¹)	0.78±0.04d	0.97±0.06e	1.19±0.06c	1.57±0.23b	1.73±0.10b	2.27±0.10a
C:N ratio	8.26±0.38b	8.64±0.49ab	8.80±0.20a	7.63±1.13abc	7.44±0.11c	8.95±0.22a
DOC (mg·kg ⁻¹)	108±6.19b	126±8.28a	110±14.8ab	125±10.8ab	102±28.9ab	115±8.54ab
DON (mg·kg ⁻¹)	0.69±0.24d	3.32±1.20c	2.38±0.83c	7.75±1.49b	4.98±1.77abc	8.07±1.90a
NH ₄ ⁺ -N (mg·kg ⁻¹)	3.49±0.36b	8.00±0.31a	8.88±0.71a	9.16±4.98a	3.83±0.59b	3.43±0.74b
NO ₃ ⁻ -N (mg·kg ⁻¹)	2.75±0.56d	6.53±0.95c	8.58±1.45cd	10.7±2.83bd	12.8±0.85b	15.6±0.94a
Available P (mg·kg ⁻¹)	2.66±0.81d	22.2±2.24c	25.4±2.36c	27.9±4.24c	105±9.80a	74.3±3.06b
Available K (mg·kg ⁻¹)	129±1.54d	130±7.15d	155±9.99c	184±5.25b	186±8.07b	509±21.3a

Means of four replicates per treatment are presented (with standard deviation).

TC: total carbon; TN: total nitrogen; DOC: dissolved organic carbon; DON: dissolved organic nitrogen.

[†] Different letters indicate significant difference between treatments detected by Mann-Whitney U test ($P < 0.05$).

Table S2 The nearest species of dominant OTUs determined by nucleotide BLAST

	OTU ID	Identity (%)	Alignment length	E-value	Bit score	Nearest taxonomy
AOA	AOTU108	83.6	642	1.71E-180	643	Candidatus <i>Nitrososphaera gargensis</i> Ga9.2
	AOTU267	79.6	637	8.30E-153	551	Archaeon G61
	AOTU275	85.6	634	0	715	Thaumarchaeota archaeon MY3
	AOTU294	97.7	599	0	1000	Candidatus <i>Nitrosotalea devanaterri</i>
	AOTU296	79.0	634	1.08E-138	504	Archaeon G61
	AOTU327	90.8	630	0.0	839	<i>Nitrososphaera viennensis</i> EN76
	AOTU343	79.2	591	6.98E-108	394	Archaeon G61
	AOTU352	80.6	634	8.86E-159	571	Candidatus <i>Nitrososphaera gargensis</i> Ga9.2
AOB	BOTU3	97.4	458	0	747	<i>Nitrosospira</i> sp. Nsp12
	BOTU26	98.6	494	0	872	<i>Nitrosospira</i> sp.
	BOTU71	92.5	496	0	719	<i>Nitrosospira</i> sp. Np39-19
	BOTU101	94.1	495	0	751	<i>Nitrosolobus multiformis</i>
	BOTU129	95.4	456	0	713	<i>Nitrosospira</i> sp. Nsp17
	BOTU186	90.2	490	0	664	<i>Nitrosospira</i> sp. CT2F
	BOTU191	94.8	497	0	765	<i>Nitrosospira briensis</i> C-128
	BOTU240	93.3	498	0	728	<i>Nitrosolobus multiformis</i>