

Table S1. Primers and protocols for RT-qPCR.

Target Gene	Primers ^a	Product (bp)	PCR Protocol
<i>AOB-amoA</i>	amoA-1F/amoA-2R (McTavish et al., 1993)	491	94°C for 3 min, 40 cycles of 94°C for 30 s, 55°C for 30 s, 72°C for 45 s, 72°C for 10 min (Chen et al., 2008)
<i>AOA-amoA</i>	Arch-amoAF/Arch-amoAR (Francis et al., 2005)	635	94°C for 3 min, 40 cycles of 94°C for 30 s, 53°C for 1 min, 72°C for 1 min, 72°C for 10 min (Chen et al., 2008)
<i>nirK</i>	nirK1F (Henry et al., 2004)/ nirK5R (Braker et al., 1998)	472	94°C for 3 min, 40 cycles of 95°C for 15 s, 58°C for 30 s, 72°C for 30 s, 72°C for 10 min (Bannert et al., 2011)
<i>nirS</i>	cd3AF (Michotey et al., 2000)/ R3cd (Throbäck et al., 2004)	425	94°C for 3 min, 40 cycles of 95°C for 45 s, 57°C for 45 s, 72°C for 45 s, 72°C for 10 min (Bannert et al., 2011)

^a F stands for forward primer and R stands for reverse primer.

Table S2. TC and TN contents in soil under different treatments at the harvest stages in the 2016 and 2017 growing seasons of purple caitai Different letters in the same column indicate significant differences at the level of 0.05. I, inorganic N fertilization; O, organic N fertilization; I+O, integrated organic-inorganic N fertilization; CK, no fertilization.

Growing Season	Treatment	TC (g kg ⁻¹)	TN (g kg ⁻¹)
2016	I	11.43±0.41c	1.12±0.06a
	O	12.35±0.23b	1.13±0.08a
	I+O	13.33±0.21a	1.25±0.07a
	CK	9.24±0.12d	0.86±0.09b
2017	I	11.49±0.22c	1.14±0.06b
	O	12.60±0.33b	1.15±0.08b
	I+O	13.51±0.39a	1.34±0.08a
	CK	9.31±0.26d	0.85±0.09c