

Table S1. Experimental factors and level with nitrogen addition combined with temperature regulation.

Level	Factor	
	Temperature (T)	Urea (g pot ⁻¹)
1	T1: 18/23 °C (night 10/day 14h)	N1: 1g
2	T2: 25/30 °C (night 10/day 14h)	N2: 2g
3	T3: 32/37 °C (night 10/day 14h)	N3: 3g

Table S2. Average height (cm plant⁻¹) of each of three shrubs, and their organ dry weight (roots, stem, and leaf; g pot⁻¹). Note: different lowercase letters indicate the significant difference ($p<0.05$) of the same plant parts under different fertilization and warming conditions.

Treatment	Average height	Root	Stem	Leaf	Total dry weight
	cm plant ⁻¹	g pot ⁻¹			
<i>A. fruticosa</i>					
N1T1	30.17±7.85d	4.74±1.49bc	2.66±1.14bc	2.43±0.83c	9.83±3.41bc
N2T1	42.83±1.74bcd	7.92±2.25ab	5.32±1.15ab	4.20±0.46abc	17.43±3.45ab
N3T1	41.83±4.51bcd	9.21±2.11a	4.98±1.07ab	3.73±0.26bc	17.91±3.30a
N1T2	34.10±3.88cd	1.76±0.57c	1.91±0.34c	2.44±0.44c	6.12±1.35c
N2T2	55.70±7.20ab	5.39±1.24abc	4.82±0.63ab	5.30±0.34ab	15.51±2.05ab
N3T2	46.07±6.26bcd	3.38±0.36c	4.49±0.62abc	4.58±0.84ab	12.44±1.67abc
N1T3	50.83±6.13bc	3.43±0.63c	3.34±1.06bc	3.55±0.69bc	10.31±2.37abc
N2T3	67.67±3.09a	3.38±0.44c	5.51±0.67ab	5.67±0.24a	14.55±0.79ab
N3T3	71.50±1.26a	3.31±0.11c	6.52±0.88a	5.87±0.36a	15.70±0.66ab
<i>P. sepium</i>					
N1T1	52.53±3.17a	2.85±0.15a	2.25±0.19a	2.13±0.13a	7.22±0.46a
N2T1	51.40±3.82a	2.33±0.52ab	2.16±0.19a	2.13±0.12a	6.62±0.71a
N3T1	55.20±4.16a	1.96±0.70abc	2.05±0.27a	1.85±0.15ab	5.85±1.08ab
N1T2	64.67±1.45a	1.58±0.27bc	1.86±0.09a	1.42±0.08ab	4.86±0.38ab
N2T2	54.64±10.01a	1.11±0.09c	1.65±0.38a	1.72±0.35ab	4.47±0.81ab
N3T2	54.87±13.09a	1.02±0.32c	1.94±0.84a	1.83±0.59ab	4.79±1.75ab
N1T3	58.63±10.78a	0.97±0.20c	1.21±0.50a	0.96±0.15b	3.14±0.82b
N2T3	61.00±9.97a	1.11±0.27c	2.12±0.57a	1.30±0.46ab	4.53±1.13ab
N3T3	64.67±1.90a	1.37±0.12bc	1.92±0.05a	1.98±0.28ab	5.27±0.37ab
<i>V. negundo</i>					
N1T1	17.70±1.37b	3.68±0.78ab	2.06±0.46b	2.88±0.44b	8.61±1.65ab
N2T1	19.26±0.37b	4.98±0.67a	2.62±0.32ab	3.54±0.43ab	11.14±1.33ab
N3T1	19.20±4.12b	1.80±0.97ab	1.29±0.73b	2.12±1.04b	5.21±2.73b
N1T2	25.82±0.99b	3.84±0.64ab	1.95±0.13b	4.17±0.40ab	9.96±1.16ab
N2T2	43.40±1.47a	4.73±1.44ab	5.33±1.74a	8.34±1.31a	18.40±4.49a
N3T2	22.53±6.83b	2.76±0.63ab	1.85±0.88b	4.06±1.75ab	8.67±3.25ab
N1T3	24.80±1.76b	4.11±1.11ab	2.99±1.48ab	6.19±2.13ab	13.29±4.71ab
N2T3	24.95±4.27b	3.28±1.60ab	3.04±1.34ab	6.67±2.81ab	12.99±5.73ab
N3T3	22.14±0.64b	1.50±0.33b	0.96±0.15b	3.26±0.33b	5.72±0.77b

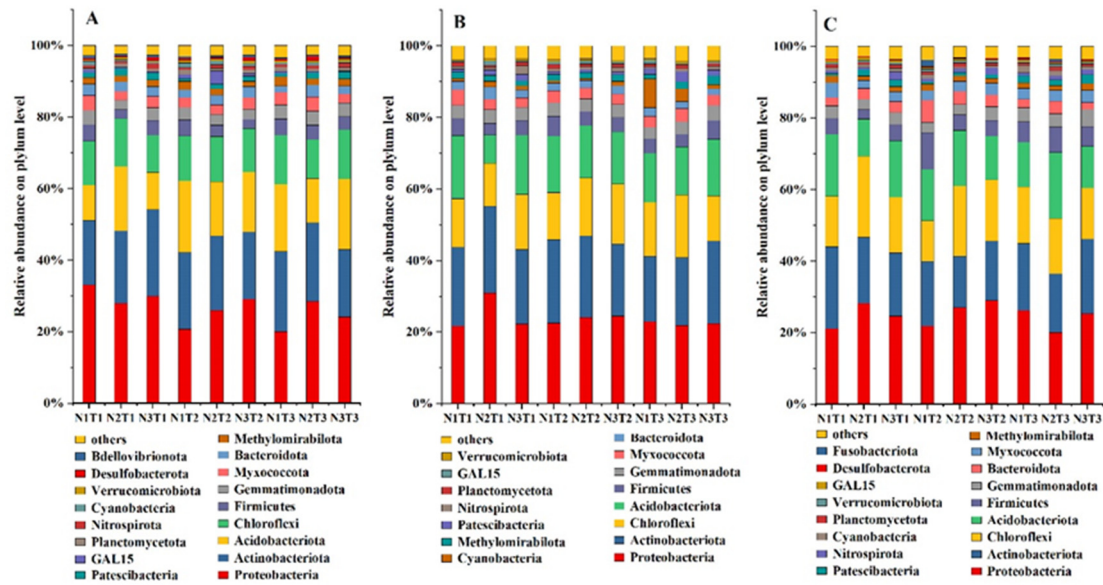


Figure S1. Bacterial abundance under combined nitrogen-temperature treatments at the phylum level (A: *A. fruticosa*; B: *P. sepium*; and C: *V. negundo*).

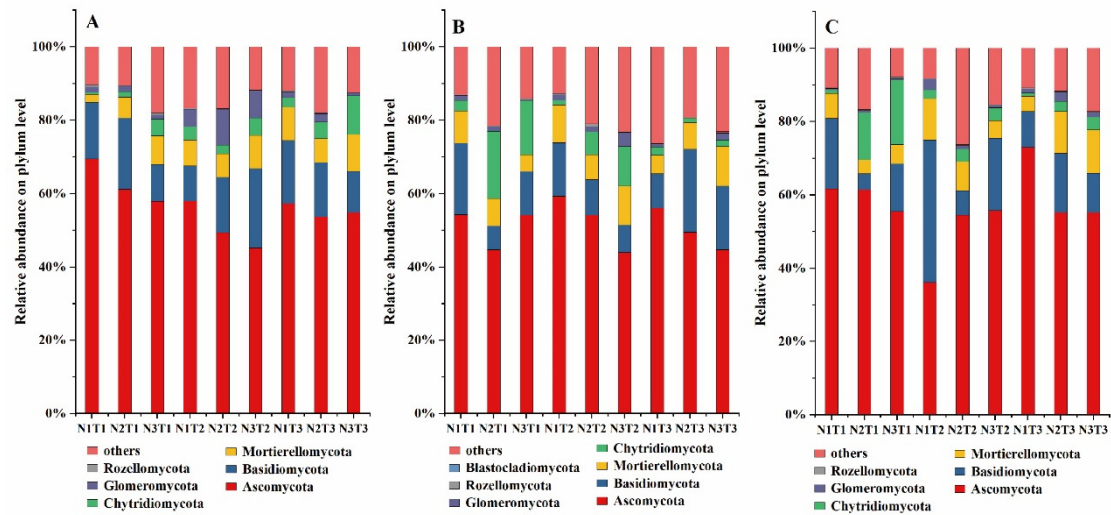


Figure S2. Fungal abundance of combined nitrogen-temperature treatments at the genus level (A: *A. fruticosa*; B: *P. sepium*; and C: *V. negundo*).

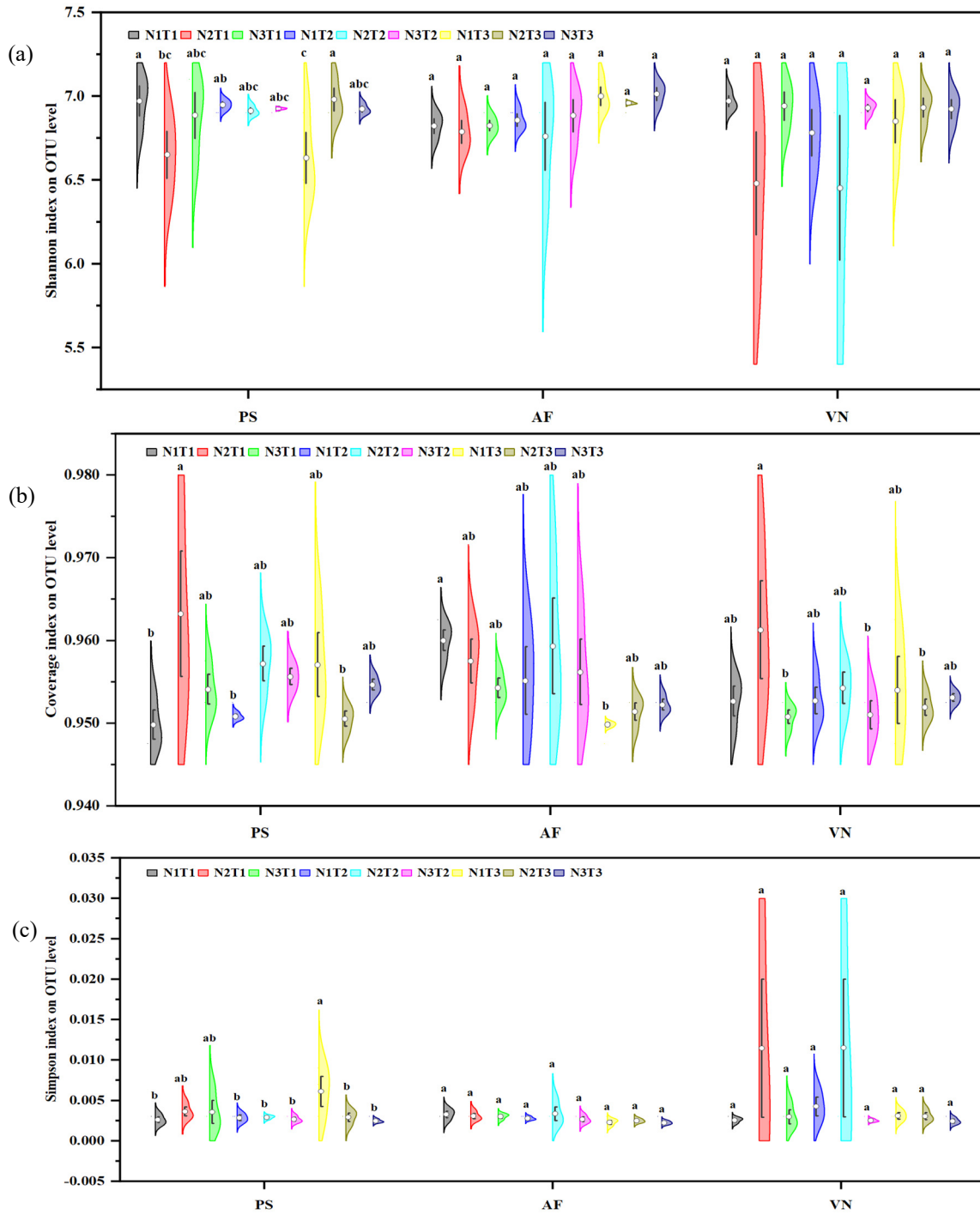


Figure S3. The α diversity of Shannon (a), Coverage (b), and Simpson (c) index of bacteria in the combined nitrogen-temperature treatments (*A. fruticosa*, AF; *P. sepium*, PS; and *V. negundo*, VN). Note: different lowercase letters indicated the significant difference ($p < 0.05$) of the same plant parts under different fertilization and warming conditions.

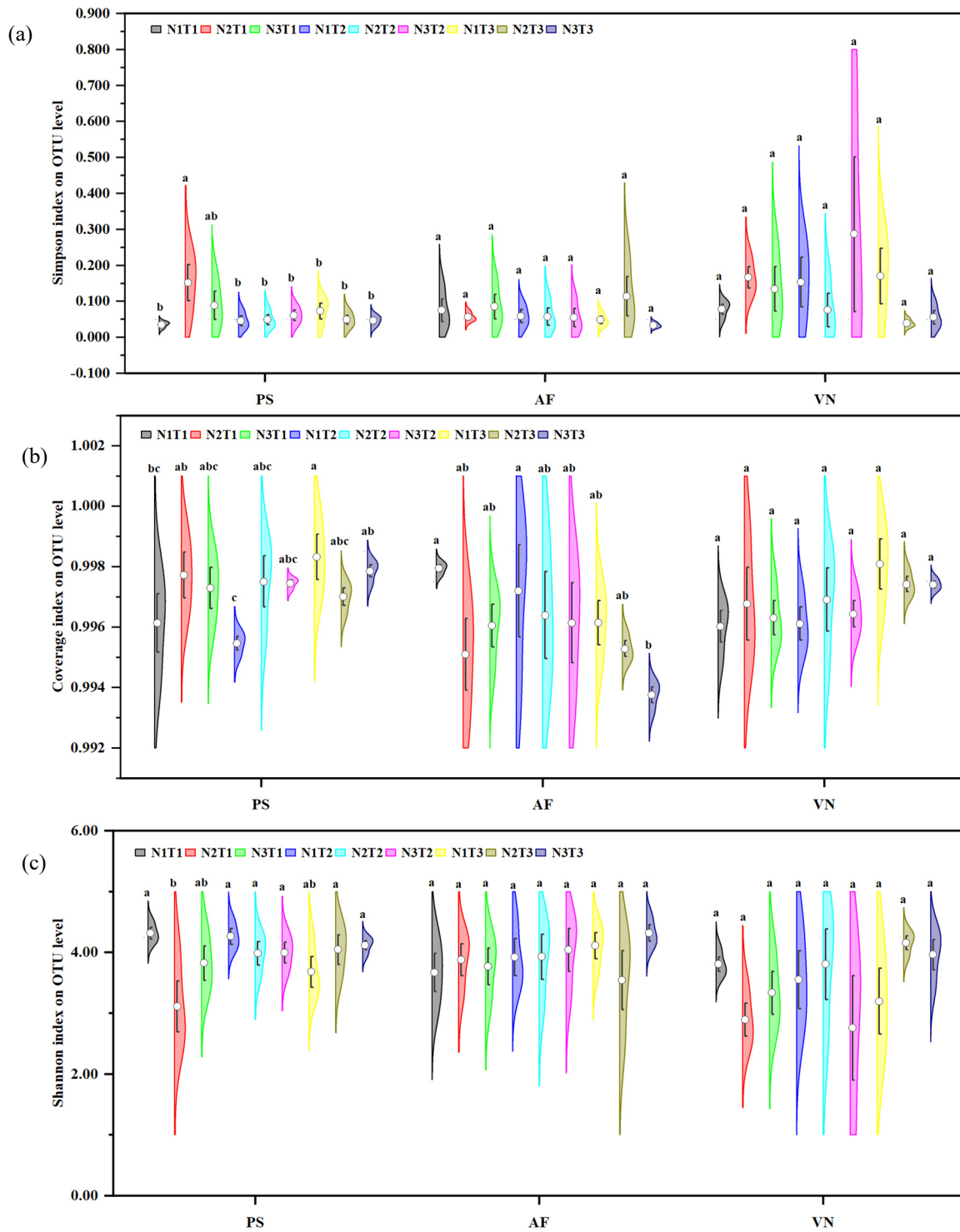


Figure S4. The α diversity of Shannon (a), Coverage (b), and Simpson (c) index of fungi in the combined nitrogen-temperature treatments (*A. fruticosa*, AF; *P. sepium*, PS; and *V. negundo*, VN). Note: different lowercase letters indicated the significant difference ($p < 0.05$) of the same plant parts under different fertilization and warming conditions.