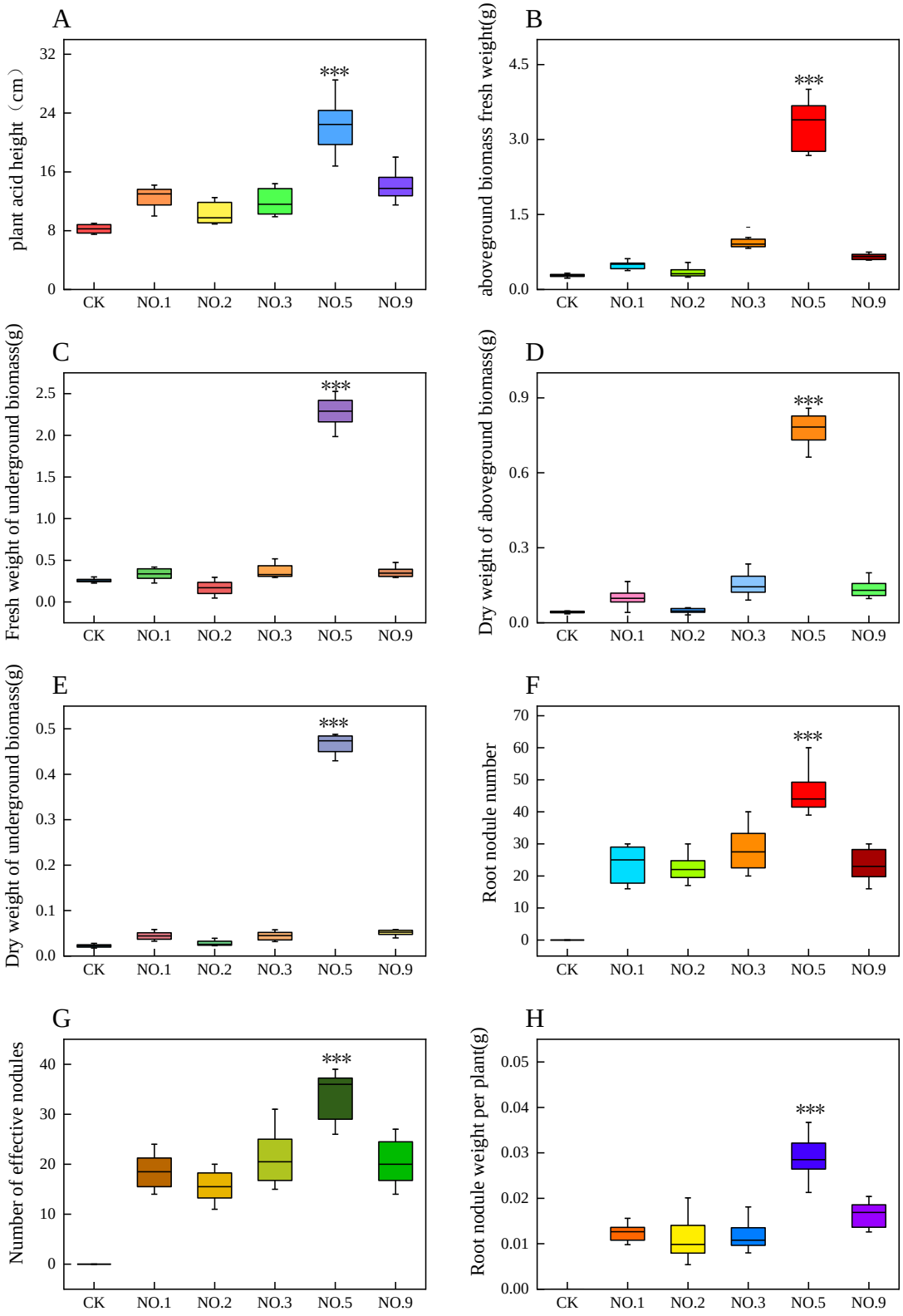
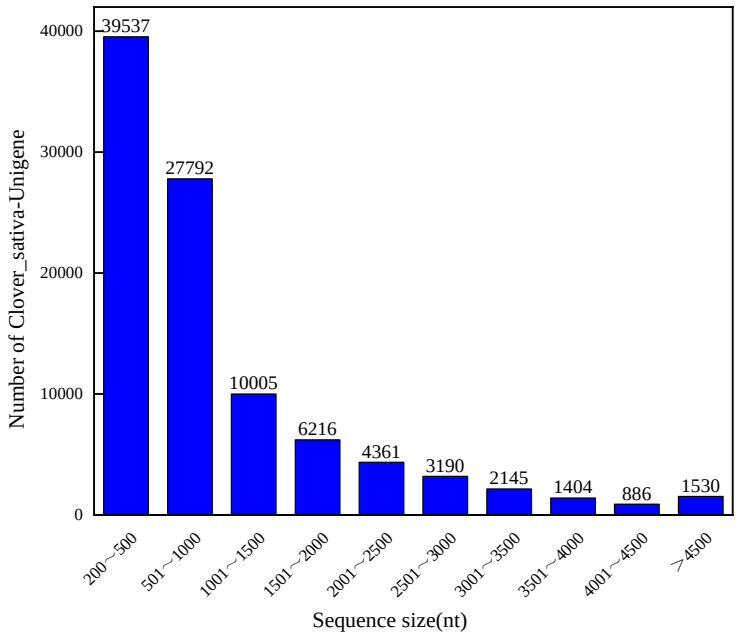
1.1 Supplementary Figures

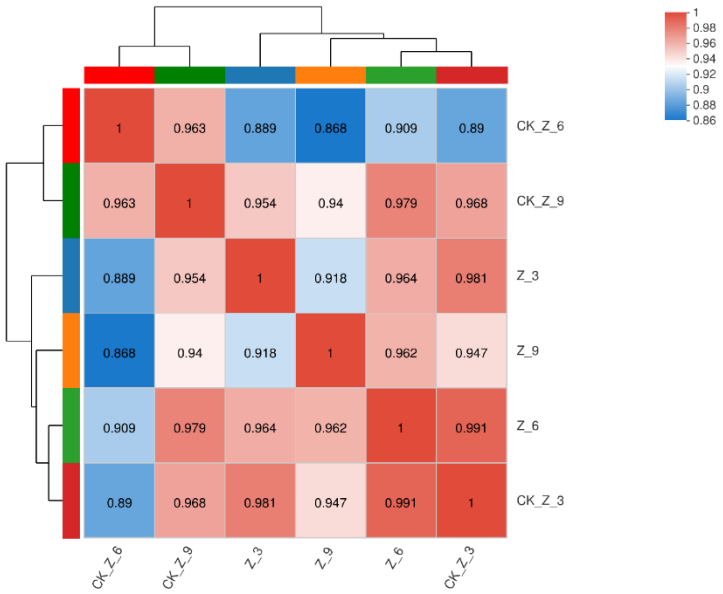


Supplementary Figure 1. Effect of five rhizobia strains (NO.1, NO.2, NO.3, NO.5, NO.9) on the phenotype of clover seedlings. (A) Effect of five rhizobia strains on the height of clover seedlings.

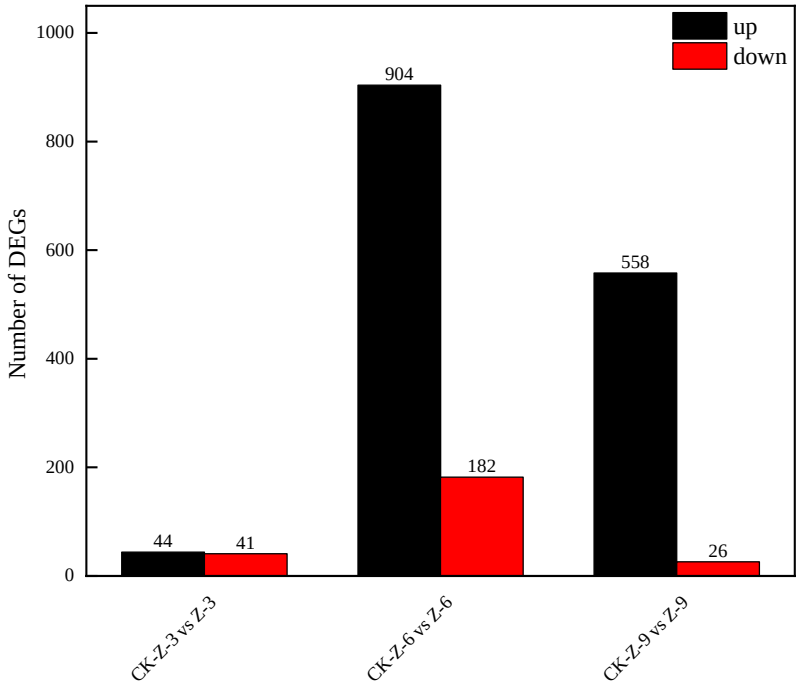
(B) Effect of five rhizobia strains on the fresh weight of above-ground biomass of clover seedlings. (C) Effect of five rhizobia strains on the fresh weight of below-ground biomass of clover seedlings. (D) Effect of five rhizobia strains on the above-ground biomass dry weight of clover seedlings. (E) Effects of five rhizobia strain on the dry weight of below-ground biomass of clover seedlings. (F) Effect of five rhizobia strains on the rhizome number of Clover seedlings. (G) Effect of five rhizobia strains on the effective rhizome number of clover seedlings. (H) Effect of five rhizobia strains on the rhizome weight of a single plant of Clover seedlings.



Supplementary Figure 2. The size distribution of Clover unigenes. The abscissa is the length of the assembled unigenes from 200 nt to > 4500 nt, and the ordinate is the number of unigenes of the corresponding length.



Supplementary Figure 3. Heat map of correlation between samples of each treatment group



Supplementary Figure 4. Number of differentially expressed genes upregulated and downregulated in each comparison combination

Supplementary Table 2. Fluorescent quantitative primer sequences

Contrast Portfolio	Gene ID	Forward Primer	Reverse Primer
CK-Z-3 vs Z-3	TRINITY_DN19057_c0_g1	GAGCAAGAATATCAGCACAAGACA	AGGTGGAAACATAACACTAAGCGA
	TRINITY_DN1679_c0_g1	CATTAGAAGTGTTGTGAAAGCCG	AATCGTACATTCCATGATGGTCC
	TRINITY_DN58919_c0_g1	AAAGCACCCCCTAAAAGTAAACA	ACAAAAGTGTAACCATGATCCATCT
	TRINITY_DN102817_c0_g1	ATTGGCGGCATTGATGTATG	CATGAGTGTCGGAGTAAGCTGTATT
	TRINITY_DN114355_c0_g1	GGCGTTGGAGGGAGTAAAAA	ACGGAACTGGAAGCGACATT
	TRINITY_DN33914_c0_g1	TATTCAAACACGACAACAAGCG	CCGTTGTTAGTAGCATTCAAAAGAG
	TRINITY_DN67752_c0_g5	GTTCGCAATCTTCTTAATGCTCTT	ATTCAAAGGAGAGACCAAGACTTTT
	TRINITY_DN10637_c0_g1	CAAGGGAGAAAAAGGACTCAAGA	TACTGGTGAAGGGATTTACAAGTTG
	TRINITY_DN21086_c0_g2	TAAAAGCTCAGCCACCCTCAA	ACCAAAACAACACCCCATCAC

	TRINITY_DN3870_c2_g1	TCCCCTATGTGATCTTGCTTTG	GGGACTCTTGGATACTTAGCATTGT
	TRINITY_DN11202_c0_g1	GGGGGTGTTTAAATTGGATAGAGA	TCTGATCAGAGATGGTCGATTGATA
	TRINITY_DN11813_c0_g1	TTCTGATCTTCGCTTTGGTCG	TCCGATATTACTAGGTCTGTTGGTG
	TRINITY_DN44924_c0_g1	AATGCCAAGAAAATCCCCAA	ACAACAGTTTGGATAACTTGGTTGA
	TRINITY_DN1432_c0_g1	TCCACCACCATTTTTCAACTTC	TGAAGTAGTCCCCTTTTGTACAACA
	TRINITY_DN23432_c0_g1	GACCATCTTTCCGTTGCTTTTC	GTGTCTATTTTATGAGTGGTCGTGG
	TRINITY_DN28483_c0_g2	GATTGGTTACCTGGTTGTGTTGG	GTGCTGGTGCTTTTGGTCTTTAG
	TRINITY_DN3693_c0_g1	CACACAACACTCACAAAGTTCCTC	ATTTATTGATCCTGCATCTCCCTC
	TRINITY_DN28483_c0_g2	TTGGTTACCTGGTTGTGTTGGA	TGCTGGTGCTTTTGGTCTTTAG
	TRINITY_DN22779_c0_g1	CGACCTTCCTTATTTTTAGCAGG	AATGGACAATGTGAGAAACCCTG
	TRINITY_DN38937_c0_g2	ACCAACAACCAACACTGCTACAA	GCATTATCTTAATCTCCCTCCTCAC
	TRINITY_DN23331_c0_g1	TATAACCAACCCTTAGCCACTCTT	ATCTTCTCCTCTACCTTTACATCCG
	TRINITY_DN84228_c0_g3	ACTAGGTTTGATTCAGTGATGAGGG	GGAAGGATTAGAAAAGGTGATAGGA
CK-Z-6 vs Z-6	TRINITY_DN18420_c1_g1	TGATGAATACACGGCGAACATA	TGATGAGGATAAGGACAAGAAGAAG
	TRINITY_DN42614_c0_g1	GGGTGAATCGGAGCAAGAGA	CATGGATGGCGAAGAACGTC
	TRINITY_DN9936_c0_g1	TTGTACCCATCTTCTGACCTCCT	CCTACTCAAACTAAGCCTGAATCTG
	TRINITY_DN5986_c0_g2	GTTGATGAATGGCTGGAAGAGTTA	TTCAGTCGACAAAGTGAGAGGTCTA
	TRINITY_DN7353_c0_g2	TGTATTGTAGGGAGGTTTAAGGGTT	CTTGAAAACTTCTTCTTCCACCTCT
	TRINITY_DN6070_c6_g1	CTACCCATAAAAAAGTCTTCAGCC	GTTTTGCTCTACCCATGGTCAATAT
	TRINITY_DN16882_c1_g1	TATCCAAAACTGCCCTTCCC	CATGTCCAACATCTCCTACAGGTAC
	TRINITY_DN6070_c2_g1	TTCTTCTATACCACAACGCCGA	CATGAAGCTAGTTGACAATGGACTG
	TRINITY_DN32198_c0_g2	CTAATCCGTACCTCGCCTATGC	CAACCACTCGATCTCCTCCTTC
	TRINITY_DN3030_c0_g1	GTAAAAGGATTCAACGGCGG	CTGGACCCACTCAAAGTAGCTAACT
CK-Z-9 vs Z-9	TRINITY_DN6681_c0_g1	CTGAACTGAACGGAAAAAACCA	ATCATCACTCCAATTGTGTAACACC
	TRINITY_DN8042_c0_g1	TATCCACGCTTCATAGCTTGTCTT	ATGTTCATCAAGATTCTAACCCCTC

TRINITY_DN13278_c0_g1	TATCAATGGCATCAAGGGTAGG	TAATTGTAGAGACGGGTCACAAAGT
TRINITY_DN44175_c0_g1	TGCTGGCTTACTTCGTCTTCAT	AGACGATTCTTCCACACTGTTTCTC
TRINITY_DN16811_c0_g1	TAGCACAAAACTCCCCTCAAGA	GTTACCTTGTGGTTAAGGAGGCTAC
TRINITY_DN8945_c1_g2	AATTTGGGAATGTAATGCGGTC	GAGGAGCTGGAGACACTAATAATGA
TRINITY_DN192_c0_g1	ATAACAACAAGGGTCCGTGAAA	ACTGAGGTGTCGTAAAAATGTGTGT
TRINITY_DN20571_c0_g1	AAACACACACACACACACACAA	ACGATGTCCACAAGTTATAGCTCAA
TRINITY_DN835_c0_g2	TTAAAGGAATAGGAGCACGGGA	ACCGGTCGTGAGTCTTAGTCTTAAA
TRINITY_DN14888_c0_g1	GTGCGGGCTATTATAAAAGCTTC	CTATTTCTTGCCATTACCAGTCAGA
TRINITY_DN16351_c0_g2	ACATAGTCAAAGGTTCAAGTGCGT	TCAGGAGATAACAAAACCCAACATG
TRINITY_DN5292_c0_g1	CACCTTCTTCACCACCATTTTCT	GGCATGTTCGAGACTAAATTGACTA
TRINITY_DN1530_c0_g2	TGATTTCTTGCGTACCTGCTTC	AAGAAGCTCGTGAGAGAGAGAAAGA

Supplementary Table 2. GSEA analysis details table

gene id	rank in gene set	rank metric score	running ES	core enrichment
TRINITY_DN7551_c0_g1	21	0.889302	0.0689335	Yes
TRINITY_DN39424_c0_g1	74	0.759621	0.11566288	Yes
TRINITY_DN31381_c0_g1	83	0.740121	0.17641391	Yes
TRINITY_DN8817_c0_g2	153	0.684118	0.21058969	Yes
TRINITY_DN1432_c0_g1	289	0.617927	0.21553089	Yes
TRINITY_DN1679_c0_g1	332	0.603666	0.25242522	Yes
TRINITY_DN3470_c0_g1	379	0.588347	0.286576	Yes
TRINITY_DN13278_c0_g1	465	0.563741	0.3046986	Yes
TRINITY_DN1908_c0_g1	560	0.537507	0.31735578	Yes
TRINITY_DN33758_c0_g1	786	0.495116	0.27963427	Yes
TRINITY_DN44175_c0_g1	900	0.479254	0.2805068	Yes

TRINITY_DN8042_c0_g1	949	0.469356	0.30371815	Yes
TRINITY_DN4914_c0_g1	997	0.457275	0.32624802	Yes
TRINITY_DN21607_c0_g1	1077	0.431877	0.33517885	Yes
TRINITY_DN10832_c0_g1	1101	0.421707	0.36321434	Yes
TRINITY_DN11983_c0_g1	1188	0.375097	0.36476833	Yes