SUPPLEMENTARY INFORMATION

Effects of Long-Term Nitrogen Fertilization on the Formation of Metabolites Related to Tea Quality in Subtropical China

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Table S1. The primers used for quantitative real time PCR (qRT-PCR) in the study.

Gene	Accession number	Forward primer 5'-3'	Reverse primer 5'-3'
CsEF1-α	KA280301.1	TTGGACAAGCTCAAGGCTGAACG	ATGGCCAGGAGCATCAATGACAGT
CsHEMA1	XM_028228202.1	TGCAGCTGACAGGTATACAAA	ATGGCAAGCTTTTCACGCATT
CsHEMA2	-	ATGGCAAGCTTTTCACGCATT	ATGGCAAGCTTTTCACGCATT
CsPOR1	XM_028215906.1	GGCTCCATAACAGGAAACACA	TTCAAGCCTCCTGCAAGTCC
CsPOR2	XM_028228181.1	AGGGAAAGCCTAGTGTTTCTTTGA	GCCATTGGTTTGATTCCTTCTTGA
CsPAO	XM_028208343.1	TCGCTCCTCTCTCTGAAGGT	AGGCCTGAGGGATTCGAGTA
CsTS1	TEA015198.1	GTTGATGTTTCTGGGCAGCA	CTCACCCACACCAGTCAGAT
CsGS1.1	MG778703	CAGCACCAAGTCTACGAGGA	AATCATGGAAGTAACCACA
CsGS1.2	MG778705	TGCAAACCGTGGTGCATCTG	GTTTCCACAGGATGGTGGTAG
CsGS1.3	MG778704	TGGCCGATTGGTTGGCCTG	ACAACTGATCTCCAGAACT
CsGS2	MG778706	CTGGAACGGTGCAGGATGC	GCCCCACGCGGATTGAACA
CsPDX2.1	MT726050	AAGGAAACTTGCTAGGGACTGC	CAACAATGCTGCTACTTGAGGC
CsPAL	D26596	ATTCCTTGCCAATCCTGTAA	ACTGCCTCGGCTGTCTTTCT
CsAAAT1	MH544095	CGCCGACGAACATCACAATC	TGGGTCTCCCATACCCAGAG
CsAAAT2	MH544096	CCAAGGGAACAAAGGGCTGA	CCGTTGAATTTGGCGGATCG
CsNES	KY033151	CAGCACAAACGAAATTTCCT	CATTCCATGACCCAAGAGAA
CsTSA	KX022968	ACCACACCTACTACTCCAACA	CTTACAGATACACGAGCACCAG
CsTSB2	KX022970	CCTTATCTCCACGCCCACTA	ACGACTATGCCGACTTGAAG
CsLOX1	EU195885	GCTGACTGGACAACCGATGA	CAACATATGCTTCTATGAAAATGC
CsMYC2a	KU892079	ATCCCGGTTTTCAGGTCCAC	ATTCGAATCATCGCGTCCCA
CsMYC2b	KU892080	TTGCCCTTTGGATACCCACC	TTCGCGTGAAAATGCTGCAA
CsMYC2c	KU892081	TGCAACAAGCCAAGTCACTG	AGCTCAGATTCGGCATTGGT

EF1-α, encoding elongation factor 1-α; HEMA, glutamyl-tRNA reductase; POR, protochlorophyllide oxidoreductase; PAO, pheophorbide a oxygenase; TS, L-theanine synthase; GS, L-glutamine synthase; PDX, pyridoxal 5′-phosphate synthase subunit; PAL, phenylalanine lyase; AAAT, aromatic amino acid aminotransferase; NES, (E)-nerolidol synthase; TSA, tryptophan synthase α-subunit; TSB, tryptophan synthase β-subunit; LOX, lipoxygenase; PPDC, phenylpyruvate decarboxylase; MYC, myelocytomatosis protein.

Table S2. Effects of nitrogen application on the contents of aroma compounds in fresh tea leaves collected in spring.

Aroma compound (nmol/g FW)	N0	N1	N2	N3
Benzyl alcohol	25.85±3.50a	22.71±4.27ab	18.24±3.23bc	16.11±2.99c
Phenylethanol	88.77±8.91a	80.60±19.99a	57.53±11.12b	55.15±5.97c
Methyl salicylate	25.16±4.53a	25.49±3.06a	20.13±2.52b	18.89±0.86b
Geraniol	502.25±61.82a	482.68±99.80a	347.12±59.92b	313.18±29.59b
1-Hexanol	1.23±0.17a	1.03±0.47a	0.91±0.15a	0.90±0.29a
Benzaldehyde	0.36±0.08a	0.35±0.047a	0.34±0.09a	0.37±0.11a
Phenylacetaldehyde	1.24±0.46a	1.13±0.27a	1.12±0.18a	1.70±0.50a
(*E*)-Nerolidol	0.90±0.17a	0.86±0.16a	1.12±0.30a	0.78±0.11a

Linalool	147.68±22.31a	140.97±34.72a	117.56±15.22a	110.89±16.45a
Linalool oxide I	24.33±4.95a	28.27±3.48a	23.67±1.02a	22.65±4.63a
Linalool oxide II	71.02±13.17a	84.86±9.41a	72.23±2.64a	70.75±12.71a
Hexanal	5.44±0.63a	5.78±1.35a	5.40±1.73a	5.26±0.96a
cis-3-Hexenyl acetate	3.18±0.50a	2.86±0.92a	2.83±1.22a	2.24±0.17a
Indole	0.22±0.12a	0.12±0.04a	0.11±0.08a	0.09±0.01a

Values followed by different letters (a–c) mean significant at the 5% level among different treatments.