Table 1 Suppl. The list of related genes and all primers of real time qPCR are shown below.

Proteins	Gene abbreviation	Forward (F) and reverse (R) primers (5'-3')
Chlorophyllide a oxygenase	*CAO*	F: TGGGTTCAGTGAAAGAGGGT R: GAAGAGTGGCTGTAGGAGGA
Chlorophyll synthase	*CHLG*	F: ACCCACTTCGCTCTTCACA R: TTCTTGCTTGGCTCCTTTG
Magnesium-protoporphyrin IX monomethyl ester [oxidative] cyclase	*CRD1*	F: CAATGACTGGAAGGCAAAG R: ATCAAGGACAGCAGGGAAA
Magnesium-chelatase subunit ChlI	*CHLI*	F: AGTCTGCTGCTTTATCCC R: GCAAGTTTCTGAGCCTGT
Protoporphyrinogen oxidase	*HEMG*	F: TATTCGTGATGAGCGTCTG R: TGTAGTTCAAGAGTAGCACCC
5-Aminolevulinate dehydratase	*HEMB*	F: GGGTTGACTGATGAGGAGTG R: CTGACGACCTACGATTACGG
Porphobilinogen deaminase	*HEMC*	F: GAGTTGGAACACGAGGAA R: GAGGCTGACTTAATATCTTATC
Phytoene synthase	*PSY*	F: GGCTACACAAACTGTTGAGAAC R: CCCAGGAGCTACTTTACCATATT
Lycopene β cyclase	*LYCB*	F: ATTGGTGGGAATTCAGGGATAG R: TTCAGCTAGTACTGGTGCTAAAG
Sedoheptulose-1,7-bisphosphatase	*SBPASE*	F: GCCACATTTGACAATCCTG R: CATCGCTGCTGTAACCTCC
Fructose-1,6-bisphosphatase	*FBPASE*	F: CATAGGTTGTCTCGTGGGT R: TTCGCTGATGTATCTGCTC
Photosystem I P700 apoprotein A1	*PSAA*	F: AAACCCATTCTTACCACAA R: TAGCCTGTTTCCAATACTCA
Photosystem II protein D2	*PSBD*	F: ACTCAAGCCGAAGAAACT R: GCTAGACCGACTACTCCA
Photosystem II cytochrome b559 β subunit	*PSBF*	F: ATGACTATAGATCGAACCTATCCAA R: GCATTGCTGATATTGATCCCAAA
Photosystem II phosphoprotein	*PSBH*	F: GGCTACACAAACTGTTGAGAAC R: CCCAGGAGCTACTTTACCATATT
Superoxide dismutase [Cu-Zn] 2	*Cu/Zn2-SOD*	F: TCATGCGGGTGATTTAGG R: CTGCGTTTCCAGTTGTCTTA
Superoxide dismutase [Fe]	*Fe-SOD*	F: GTCATGTCGAAGCCTAAA R: TAGCGTCAGTTCATCCAG
Cytosolic ascorbate peroxidase 2	*APX2*	F: GCTCCTATTATGCTTCGTCT R: AGGTCCTCCCGTAACTTCA
Catalase 1	*CAT1*	F: AGGGTAACTTTGATCTTGTT R: GTGTCTGTAATCCGTTGG

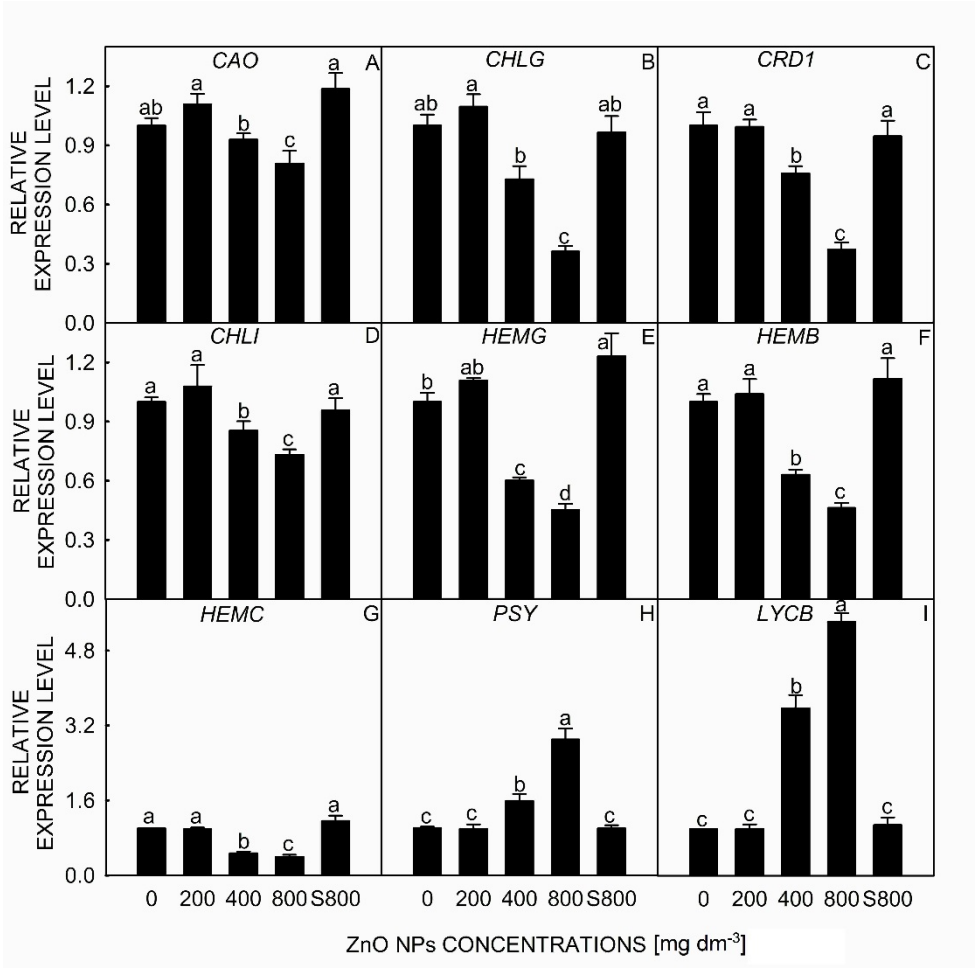

Fig. 1 Suppl. Effects of ZnO nanoparticles on the expression of genes connected with biosynthesis of photosynthetic pigments in tomato plants. RNA was isolated from leaves of plants treated with 0, 200, 400, and 800 mg dm^{-3} ZnO NPs, or supernatant from 800 mg dm^{-3} ZnO NP suspensions (S800). Real time qPCR was used to examine gene expressions; *ACT2* was used as a reference gene. The expressions of corresponding genes in tomato plants in the absence of ZnO NPs was set as 1. Means ± SDs, $n = 4$; means with different letters are significantly different at 5 % level.

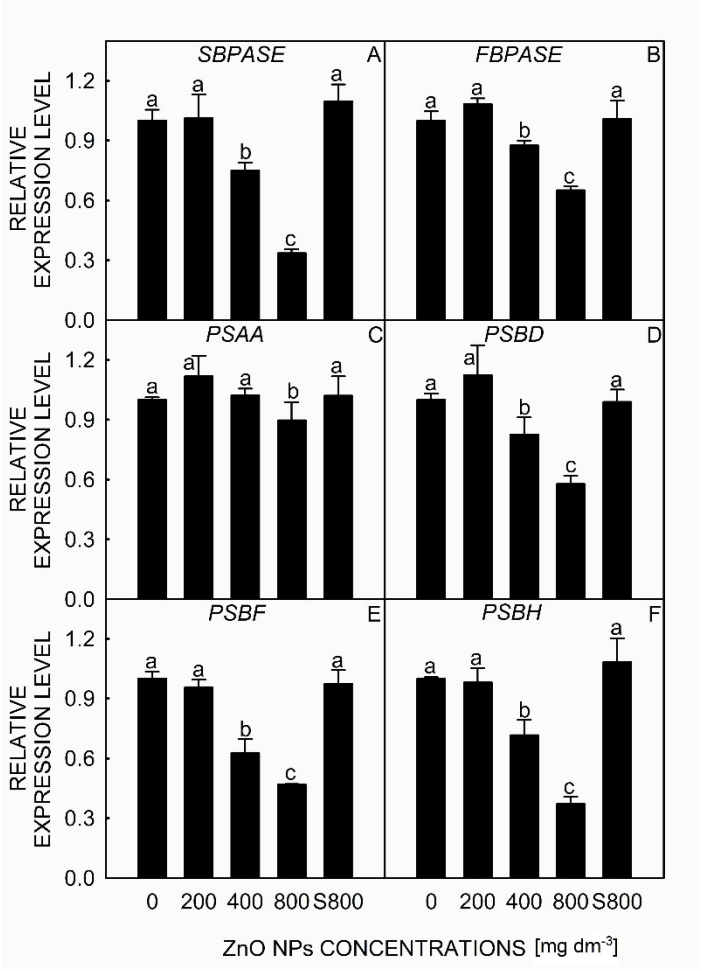

Fig. 2 Suppl. Effects of ZnO nanoparticles on the expression of genes connected with photosynthesis genes and photosystem structure in tomato plants. RNA was isolated from leaves of plants treated with 0, 200, 400, and 800 mg dm^{-3} ZnO NPs, or supernatant from 800 mg dm^{-3} ZnO NP suspensions (S800). Real time qPCR was used to examine the gene expressions; *ACT2* was used as a reference gene. The expressions of corresponding genes in the absence of ZnO NPs was set as 1. Means ± SDs, $n = 4$; means with different letters are significantly different at 5 % level.

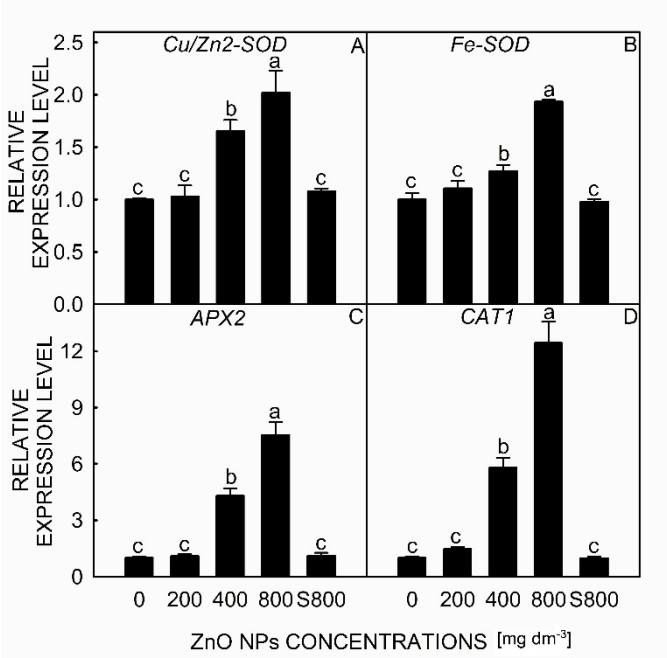

Fig. 3 Suppl. Effects of ZnO nanoparticles on the expression of genes encoding antioxidants in tomato plants. RNA was isolated from leaves of plants treated with 0, 200, 400, and 800 mg dm^{-3} ZnO NPs, or supernatant from 800 mg dm^{-3} ZnO NP suspensions (S800). Ral time qPCR was used to examine the gene expressions and *ACT2* was used as a reference gene. The expressions of corresponding genes in tomato plants in the absence of ZnO NPs was set as 1. Means ± SDs, $n = 4$; means with different letters are significantly different at 5 % level.