

Table 1S Treatments are shown in the completely randomized design.

Treatment No.	Description
T0	Control (No Cobalt + Melatonin + ZnO NPS applied)
T1	MT 50 μ M (No Co applied)
T2	ZnO NPs 25 μ M (No Co applied)
T3	MT 50 μ M + ZnO NPs 25 μ M (No Co applied)
T4	300 μ M Co (alone)
T5	ZnO NPs 25 μ M + Co 300 μ M
T6	MT 50 μ M + ZnO NPs 25 μ M + Co 300 μ M

Table S2. Primer sequences and data used for RT-PCR analysis.

Gene ID	Gene Name	Forward	Reverse
SOD	Super oxide dismutase(SOD)	ACGGTGTGACCACTGTGACT	GCACCGTGTGTTTACCATC
CAT	Catalase	TCGCCATGCTGAGAAGTATC	TCTCCAGGCTCCTTGAAGTT
APX	Ascorbate peroxidases	ATGAGGTTTGACGGTGAGC	CAGCATGGGAGATGGTAGG
PAL	phenylalanine ammonia-lyase	GGGTTGTCGTTGACGGAGTT	CATTATGGAGCACATCTTGG
PPO	Polyphenol Oxidase	GAATCTTGGGCTCTTTA	TTCCATTACGGTGACTT
CAD	Cinnamyl Alcohol Dehydrogenase	ATGATGTCTACACCGACGGA	ACGTGTGGAGCAAGAAACAC
PsbA	Photosystem II protein D1	GTATTTATTATCGCCTTCATCG	AGGACGCATACCCAAACG
PsbB	Photosystem II CP47 protein	TAGGCGTAACGGTGGA	AACATCTCGGAACAAGG
PsbC	Photosystem II CP43 protein	TAATACGGCTTATCCGAGTGAGT TT	TAATACGGCTTATCCGAGTGAGTTT
PsbD	Photosystem II D2 protein	GCCCTTGGTAGAGTTCCTAAAG	CGAAATAAGCGCAAGGAAAGAG
PsbO	oxygen-evolving enhancer protein 1	AGAGAGGCTCGGTGAAATAGA	CCAATCCCAGGGAACAGTAAAG