Supporting Information

Zinc oxide nanoparticles and 24-epibrassinolide mitigate coexisting lead and cadmium toxicity in rice under elevated CO_2: Roles of metal transporters, antioxidant defense, and nutrient homeostasis

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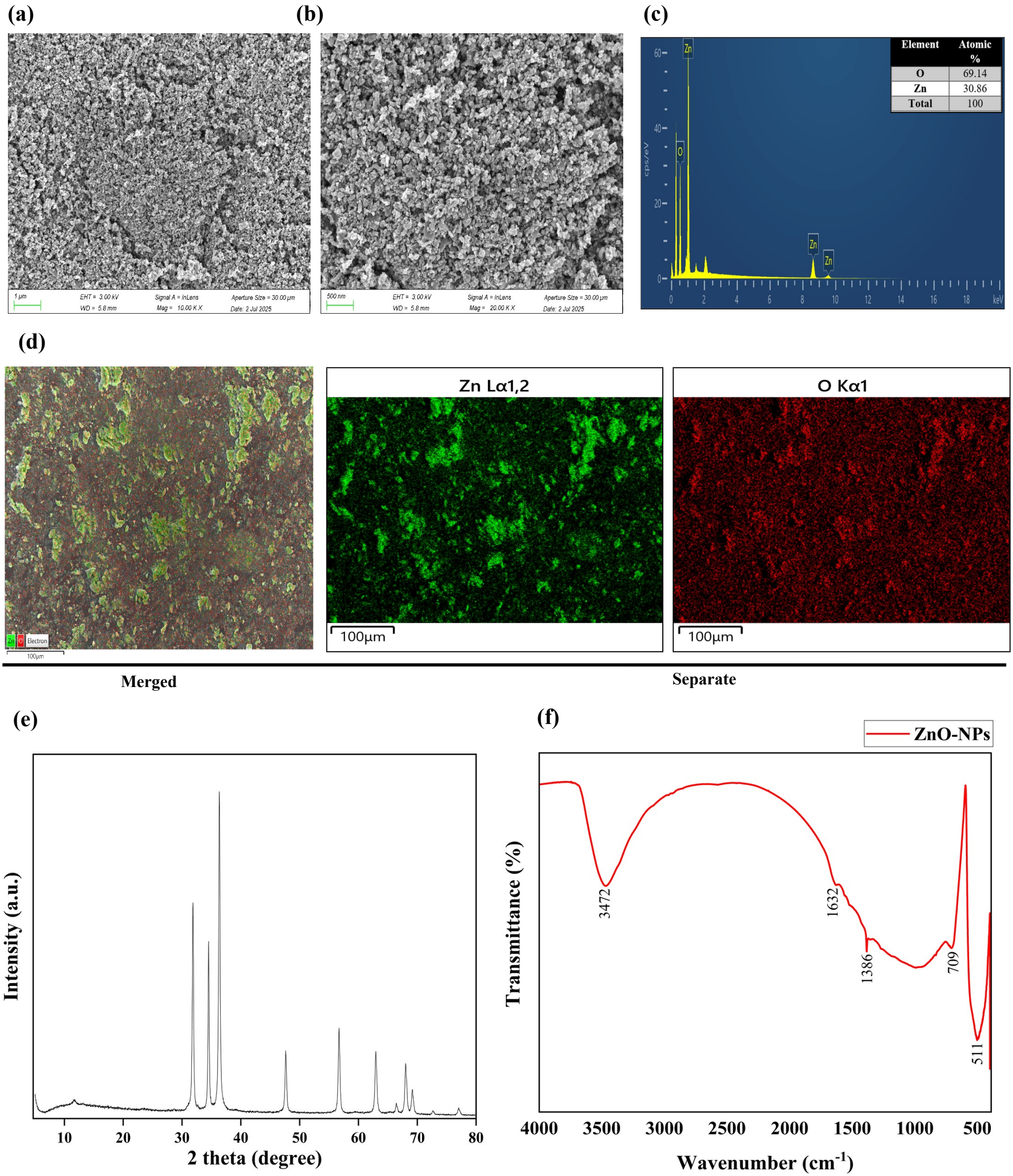

Figure S1. Characterization of ZnO nanoparticles **(a)** Scanning electron microscopy (SEM) micrograph scales (1µm and 500nm), **(b)** Energy-dispersive X-ray (EDX) spectrum, **(c)** Elemental mapping, **(d)** X-ray diffraction (XRD) pattern and **(e)** Fourier transform infrared (FTIR) spectra of ZnO-NPs.

Table S1.

The soil physiochemical properties used in this study.

Parameters	Units	Values
pH	--	7.31 ± 0.05
CEC	($cmol_c\ kg^{-1}$)	23. 68 ± 0.64
SOM	($g\ kg^{-1}$)	45.61 ± 5.98
Total K	($mg\ kg^{-1}$)	218.27 ± 51.21
Total Mg	($g\ kg^{-1}$)	259.73 ± 50.65
Total Zn	($mg\ kg^{-1}$)	5.47 ± 2.41
Total Fe	($g\ kg^{-1}$)	658.97 ± 106.21
Total Cu	($mg\ kg^{-1}$)	1.55 ± 0.53
Total Ca	($mg\ kg^{-1}$)	494.02 ± 101.03
Total Mn	($mg\ kg^{-1}$)	27.65 ± 5.09
AP	($mg\ kg^{-1}$)	17.45 ± 0.93
Total Pb	($mg\ kg^{-1}$)	240.30 ± 52.91
Total Cd	($mg\ kg^{-1}$)	6.14 ± 2.45

Data are average values of three replicates ±standard deviation.

Table S2.

The treatment plan used in this study.

Environment	Treatments
Ambient	Ck (Cd-Pb)
	ZnO-NPs
	EBR
	EBR+ ZnO
Elevated	Ck (Cd-Pb)
	ZnO-NPs
	EBR
	EBR+ ZnO

Table S3.

List of primer sequences used for qRT-PCR used in the present study

OsHMA6-F	AGCAGTTGCAAAGGAGGTTGGC
OsHMA6-R	AACCATTGCAACGACACTCCCATC
OsNramp5-F	TCTGGCTGAGATCTGCAAGAGTG
OsNramp5-R	AGCAAAGGCCGTCCCTATAACTTC
OsIRT1-F	CACCTACTACAACCGCAGCA
OsIRT1-R	GCCTATCTCGAGGACCTGAA
OsHMA2-F	TCCATCCAACCAAACCCGGAAA
OsHMA2-R	TGCCAATGTCCTTCTGTTCCCA
OsActin-F	GAATCCATGAGACCACCTAC
OsActin-R	AATCCAGACACTGTACTTCC