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Supplementary Information

Root system architecture, copper uptake and tissue distribution in soybean (*Glycine max* (L.) Merr.) grown in copper oxide nanoparticle (CuONP)-amended soil and implications for human nutrition

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Table S1. Physicochemical properties of the soil used in the experiment.

pH	EC (dS/m)	Organic carbon (g/kg)	Total N (g/kg)	Available P (mg/kg)	Available K (mg/kg)	Cu (mg/kg)	Zn (mg/kg)	Fe (mg/kg)	Mn (mg/kg)
7.44	0.47	9.24	0.88	11.7	405	0.538	0.892	5.12	6.85

Table S2. Statistical analysis (ANOVA) of copper (Cu) uptake in different tissues (root, stem, leaf, and seed) for soybean grown in soil-amended with different Cu compounds types and concentrations.

Source of variation		Cu concentration			
		Root	**Stem**	**Leaf**	**Seed**
Copper compounds types (Cu_{type})	MS	60.36	2.79	9.08	0.61
	df	3	3	3	3
	F	419	20.74	104	32.17
	P	<.0001	<.0001	<.0001	<.0001
Compounds concentration (C)	MS	414.73	17.66	61.94	12.53
	df	4	4	4	4
	F	2878	131.2	709.5	657.8
	p	<.0001	<.0001	<.0001	<.0001
Cu_{type} × C	MS	11.61	0.53	1.04	0.052
	df	12	12	12	12
	F	80.62	3.98	11.92	2.74
	p	<.0001	0.0005	<.0001	<0.01

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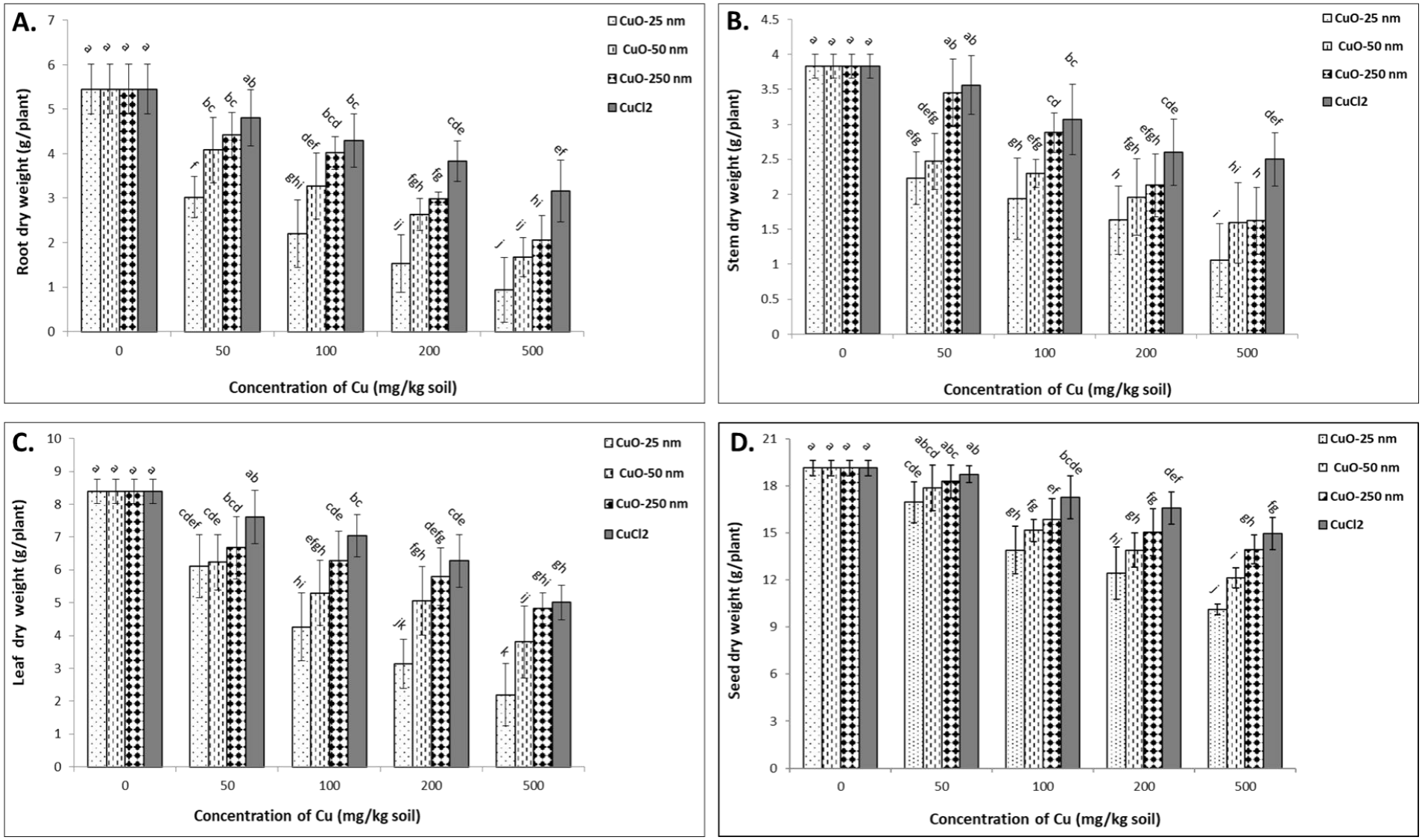

Fig. S1. Variation in root dry weight (A), stem dry weight (B), leaf dry weith (C) and seed dry weight (yield) in soybean exposed to different types of copper compounds (CuONP–25 nm, CuONP–50 nm, CuONP–250 nm, and Cu^{2+} ions) as a function of concentrations (0, 50, 100, 200, 500 mg/kg-soil). The biomass responses of different plant parts show a dependency on particle size and concentration of CuONPs and Cu^{2+} ions. Figure D is adopted from our companion paper (see Figure 2 in Ref. 47). Same letter above the bars indicates not significant difference between the treatments according to the Fisher's LSD test at $p \leq 0.05$.