Electronic Supplementary Material (ESI) for Environmental Science: Nano.

Table S1. Concentration of phenolic compounds (μg g^{-1} FW) in lettuce seedlings exposed to metal/metalloid oxides nanoparticles, control plants were sprayed with deionized water.

Phenolic compounds	Treatment			
	CeO_2	Fe_2O_3	SiO_2	Control
3,4-diOH-benzaldehyde	1508.9 ± 1191.4	2029.2 ± 116.5 *	1078.1 ± 303.4 *	3384.6 ± 282.2
caffeic acid	260.0 ± 201.5	387.6 ± 33.9	413.5 ± 47.9	281.5 ± 77.1
chlorogenic acid	540.4 ± 231.4	474.1 ± 60.9	588.9 ± 112.0	462.2 ± 42.8
cryptochlorogenic acid	375.3 ± 2.5	375.6 ± 3.4	377.5 ± 4.8	379.0 ± 1.4
ferulic acid	252.9 ± 40.2	239.2 ± 4.2 *	230.9 ± 1.9 *	264.7 ± 8.0
gallic acid	366.0 ± 167.2	494.1 ± 54.8 *	381.8 ± 44.6	323.0 ± 42.7
neochlorogenic acid	171.7 ± 4.0	165.4 ± 3.3 a	163.3 ± 9.9	170.0 ± 7.2
p-coumaric acid	6.096 ± 2.342	4.367 ± 1.091 *	6.324 ± 0.358	11.897 ± 3.539
p-OH-benzaldehyde	308.2 ± 249.7	479.5 ± 99.1	342.1 ± 42.0	470.7 ± 77.2
p-OH-benzoic acid	892.4 ± 80.8	1081.9 ± 194.2	931.9 ± 51.3	608.5 ± 335.6
protocatechuic acid	5122.1 ± 4133.2	9805.4 ± 622.8	4311.8 ± 1105.1	7871.8 ± 2218.9
salicylic acid	133.22 ± 97.99	104.68 ± 20.24	70.96 ± 23.65 *	148.40 ± 22.30
vanillic acid	453.6 ± 371.9	804.9 ± 55.1 *	343.1 ± 188.9	648.0 ± 67.1
vanillin	70.02 ± 52.47	91.45 ± 7.89 *	46.12 ± 13.41 *	124.27 ± 6.94
cinnamic acid	407.3 ± 146.2	1419.9 ± 374.6	618.6 ± 347.2	1744.0 ± 1352.4
sinapinic acid	14.56 ± 10.44	21.42 ± 10.09	18.47 ± 6.56	30.05 ± 14.61

syringic acid	149.71 ± 126.52	168.81 ± 28.70	46.27 ± 20.88	113.11 ± 66.00

*Denotes significant differences ($p < 0.05$) from the unexposed control with comparisons performed by a paired samples *t* test. Each value represents the mean ± standard deviation

Table S2. Concentration of phenolic compounds (μg g^{-1} FW) in sweet pepper seedlings exposed to metal/metalloid oxides nanoparticles, control plants were sprayed with deionized water.

Phenolic compounds	Treatment			
	CeO_2	Fe_2O_3	SiO_2	Control
3,4-diOH-benzaldehyde	208.4 ± 73.0	296.6 ± 124.0	213.8 ± 79.2	207.2 ± 11.7
caffeic acid	326.09 ± 449.66	114.09 ± 61.93	76.58 ± 39.57	154.48 ± 110.40
chlorogenic acid	74.1 ± 29.8	1769.6 ± 506.9 *	945.3 ± 181.9 *	141.0 ± 36.8
cryptochlorogenic acid	407.5 ± 58.7	386.3 ± 12.8	384.4 ± 2.3	386.7 ± 15.5
ferulic acid	244.5 ± 12.1	244.6 ± 7.0 *	244.5 ± 10.0	231.0 ± 1.9
gallic acid	192.1 ± 7.1	208.2 ± 10.7	221.2 ± 38.0	190.0 ± 6.6
neochlorogenic acid	168.6 ± 8.0	212.9 ± 20.6 *	190.3 ± 14.6 *	156.8 ± 5.5
p-coumaric acid	3.56 ± 1.89	13.83 ± 10.76	7.69 ± 3.14	25.63 ± 23.27
p-OH-benzaldehyde	50.19 ± 8.12	116.13 ± 96.96	68.37 ± 58.41	43.27 ± 1.29
p-OH-benzoic acid	2375.7 ± 528.9	1791.6 ± 1517.0	2621.3 ± 65.3	2120.9 ± 647.2
protocatechuic acid	195.4 ± 33.2 *	467.9 ± 444.8	319.7 ± 283.4	45.74 ± 39.57
salicylic acid	248.0 ± 41.9	196.2 ± 68.3	156.1 ± 121.2	177.1 ± 36.5
vanillic acid	126.4 ± 17.8	125.1 ± 80.4	140.7 ± 21.7	105.3 ± 18.7
vanillin	17.03 ± 7.01	28.54 ± 13.87	19.69 ± 8.35	21.24 ± 3.05
cinnamic acid	28.97 ± 24.51	24.64 ± 18.83	29.04 ± 24.95	14.20 ± 11.68
sinapinic acid	136.12 ± 166.25	44.82 ± 58.93	17.78 ± 16.87	74.31 ± 50.79

syringic acid	73.26 ± 19.70	51.16 ± 43.31	67.50 ± 10.06	73.76 ± 5.00

*Denotes significant differences ($p < 0.05$) from the unexposed control with comparisons performed by a paired samples *t* test. Each value represents the mean ± standard deviation

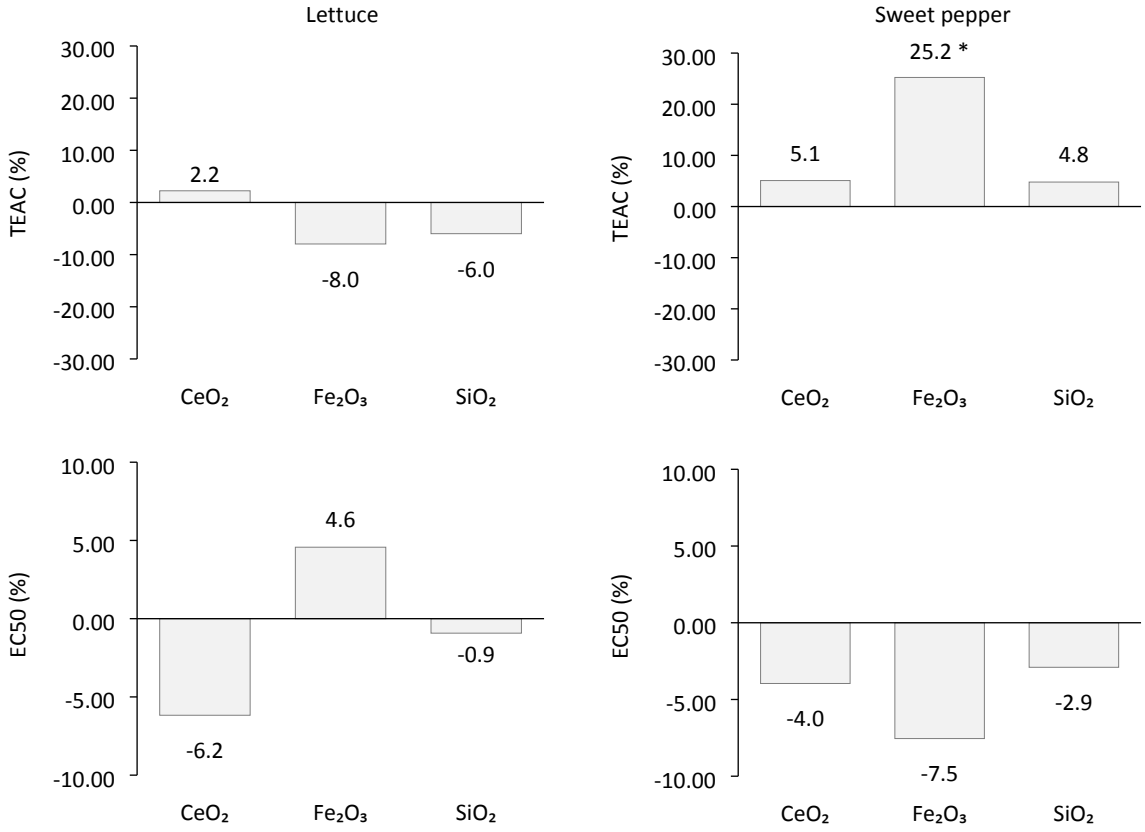

Figure S1. Percentage changes compared to controls in butterhead lettuce and sweet pepper seedlings in TEAC and EC_{50} after treatment with metal oxide / metalloid nanoparticles, control plants were sprayed with deionized water; if inserted, (*) indicates significant difference at $p < 0.05$ between particular NPs treatment and the control group.

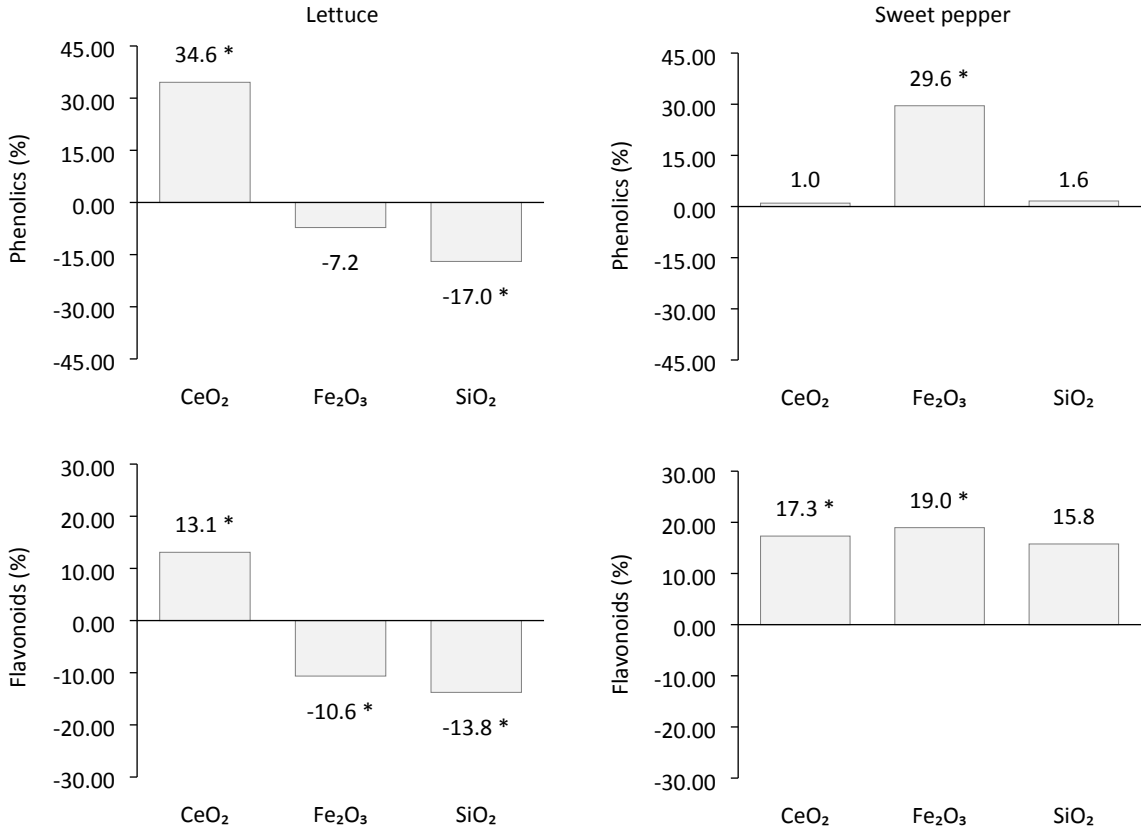

Figure S2. Percentage changes compared to controls in butterhead lettuce and sweet pepper seedlings in phenolics and flavonoids content after treatment with metal oxide / metalloid nanoparticles, control plants were sprayed with deionized water; if inserted, (*) indicates significant difference at $p < 0.05$ between particular NPs treatment and the control group.

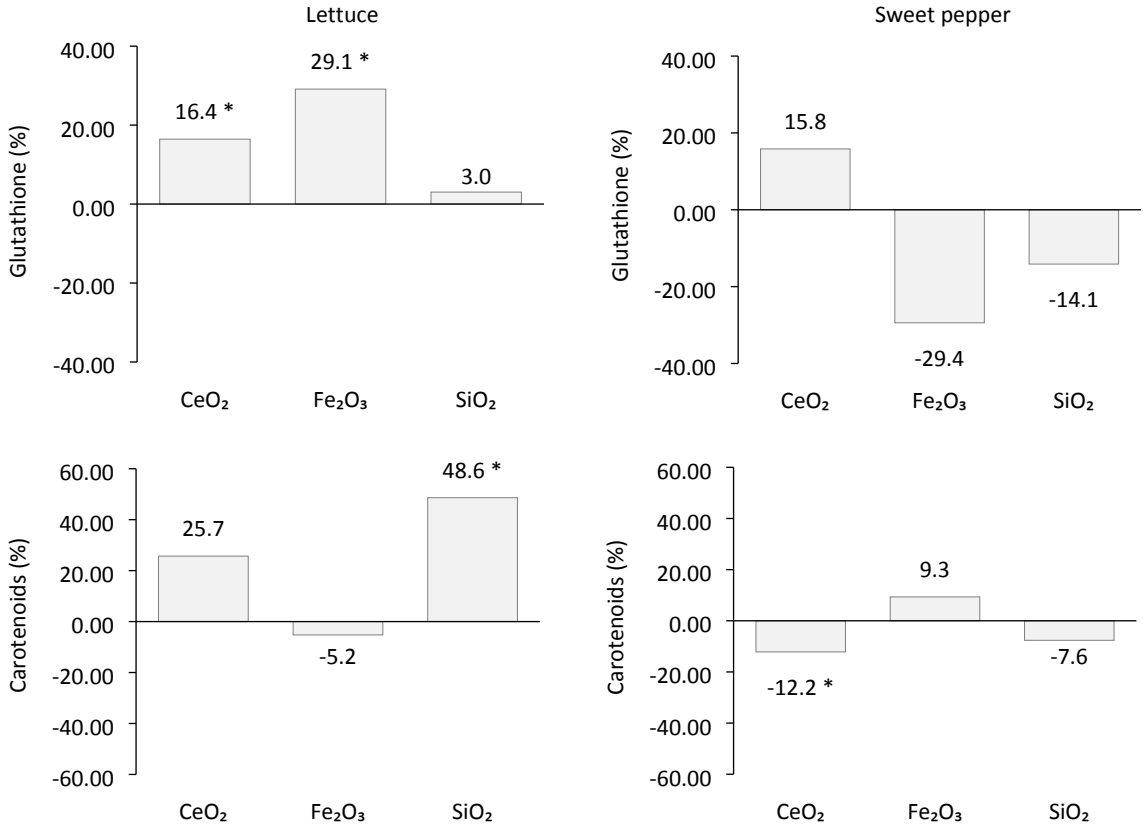

Figure S3. Percentage changes compared to controls in butterhead lettuce and sweet pepper seedlings in glutathione (GSH) and carotenoids content after treatment with metal oxide / metalloid nanoparticles, control plants were sprayed with deionized water; if inserted, (*) indicates significant difference at $p < 0.05$ between particular NPs treatment and the control group.

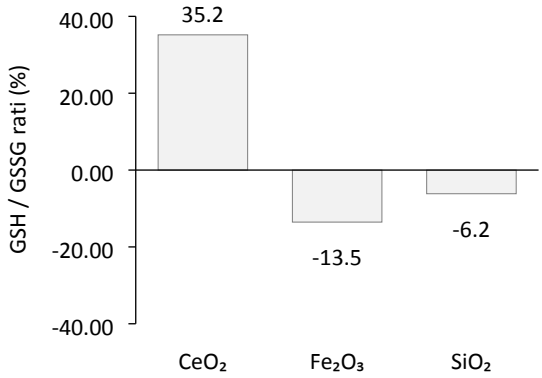

Figure S4. Percentage changes compared to controls in sweet pepper seedlings in GSH / GSSG ratio after treatment with metal oxide / metalloid nanoparticles, control plants were sprayed with deionized water; if inserted, (*) indicates significant difference at $p < 0.05$ between particular NPs treatment and the control group.

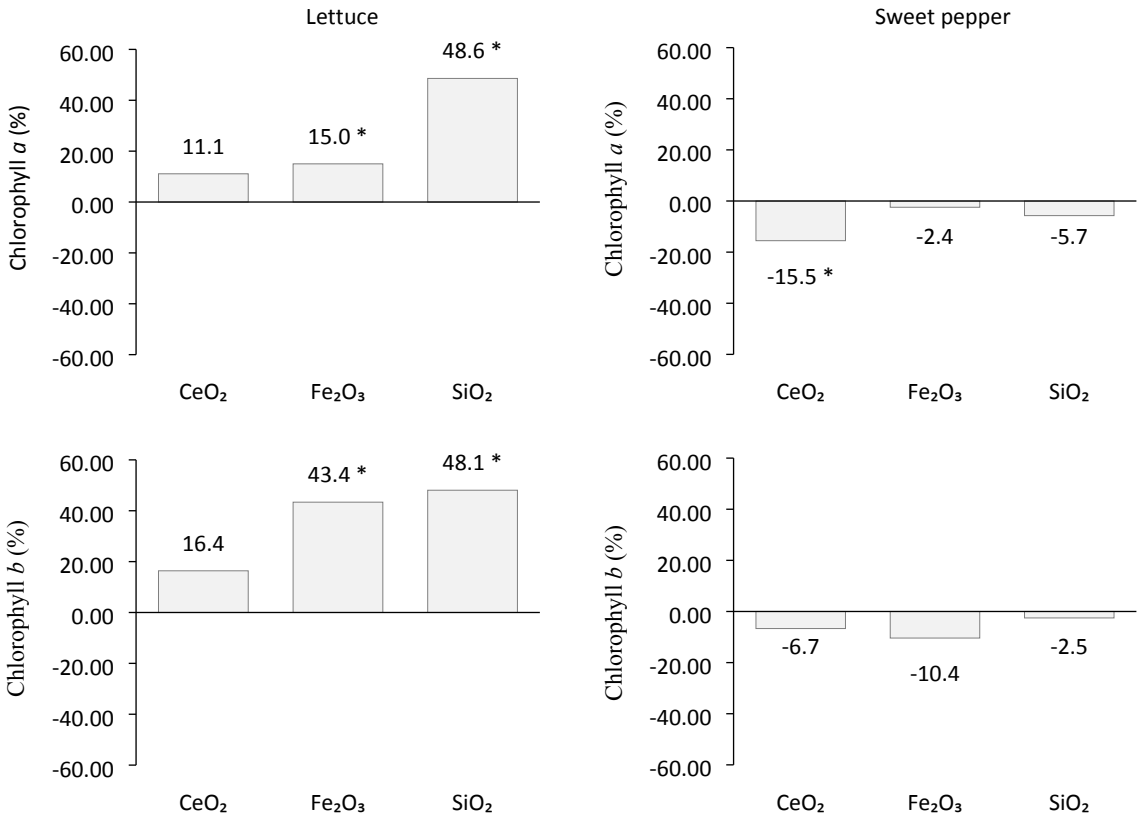

Figure S5. Percentage changes compared to controls in butterhead lettuce and sweet pepper seedlings in chlorophyll *a* and chlorophyll *b* content after treatment with metal oxide / metalloid nanoparticles, control plants were sprayed with deionized water; if inserted, (*) indicates significant difference at $p < 0.05$ between particular NPs treatment and the control group.

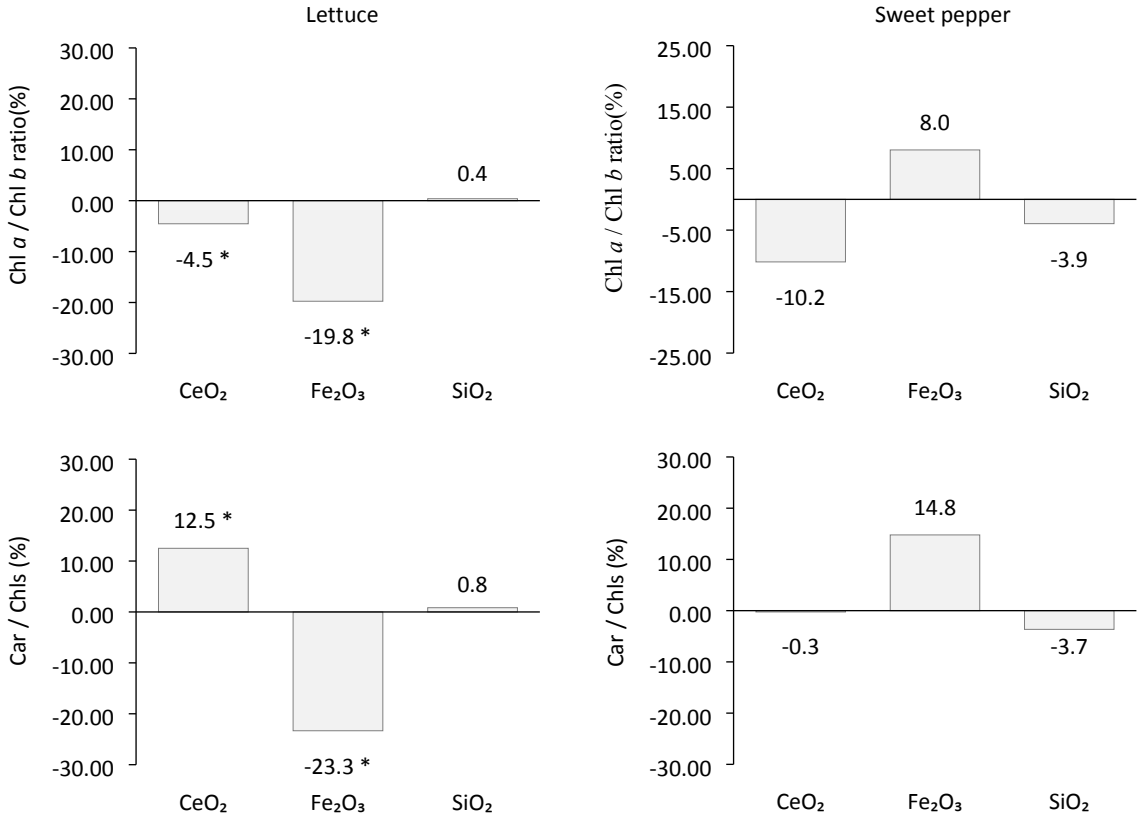

Figure S6. Percentage changes compared to controls in butterhead lettuce and sweet pepper seedlings in Chl *a* / Chl *b* ratio and Car / Chls ratio after treatment with metal oxide / metalloid nanoparticles, control plants were sprayed with deionized water; if inserted, (*) indicates significant difference at $p < 0.05$ between particular NPs treatment and the control group.