

**Table S1.** Total flavonoid content in plants treated with SG NMs.

Table 1. Total flavonoid content in plants treated with Cu-NPs.									
	Leaves			Stem			Root		
	Rutin <sup>1</sup> (mg/g)	SD (±)	%	Rutin <sup>1</sup> (mg/g)	SD (±)	%	Rutin <sup>1</sup> (mg/g)	SD (±)	%
50 ppm									
Control	305.09 <sup>A</sup>	30.61	-	119.06 <sup>A</sup>	19.5	-	11.28 <sup>A</sup>	0.94	-
TiO <sub>2</sub>	313.27 <sup>A</sup>	90.92	2.68	128.35 <sup>A</sup>	11.91	7.80	16.06 <sup>A</sup>	0.82	42.37
Ag-TiO <sub>2</sub>	426.8 <sup>A</sup>	53.7	39.89	125.58 <sup>A</sup>	12.23	5.28	31.36 <sup>B</sup>	2.04	178.01
Fe-TiO <sub>2</sub>	424.2 <sup>A</sup>	49.75	39.04	160.25 <sup>A</sup>	22.78	34.59	20.16 <sup>B</sup>	0.85	78.74
Cu-TiO <sub>2</sub>	327.5 <sup>A</sup>	26.58	7.35	139.97 <sup>A</sup>	22.12	17.56	15.42 <sup>A</sup>	3.17	36.70
100 ppm									
Control	305.09 <sup>A</sup>	30.61	-	119.06 <sup>A</sup>	19.5	-	11.28 <sup>A</sup>	0.94	-
TiO <sub>2</sub>	355.37 <sup>A</sup>	105.50	16.47	174.9 <sup>A</sup>	48.0	46.20	21.04 <sup>B</sup>	0.52	86.52
Ag-TiO <sub>2</sub>	512.8 <sup>A</sup>	115.55	68.09	165.87 <sup>A</sup>	10.14	39.31	21.02 <sup>B</sup>	4.25	86.40
Fe-TiO <sub>2</sub>	384.5 <sup>A</sup>	16.06	26.02	142.6 <sup>A</sup>	31.59	19.77	21.59 <sup>B</sup>	2.24	91.40
Cu-TiO <sub>2</sub>	397.4 <sup>A</sup>	188.11	30.26	134.96 <sup>A</sup>	10.11	13.35	18.04 <sup>A</sup>	4.64	59.91
500 ppm									
Control	305.09 <sup>A</sup>	30.61	-	119.06 <sup>A</sup>	19.5	-	11.28 <sup>A</sup>	0.94	-
TiO <sub>2</sub>	345.83 <sup>A</sup>	78.13	13.35	146.46 <sup>A</sup>	13.67	23.01	21.09 <sup>B</sup>	3.39	86.86
Ag-TiO <sub>2</sub>	330.0 <sup>A</sup>	69.22	8.18	143.3 <sup>A</sup>	37.4	20.35	11.66 <sup>A</sup>	2.23	3.36
Fe-TiO <sub>2</sub>	393.5 <sup>A</sup>	55.83	28.99	165.44 <sup>A</sup>	27.8	38.95	19.78 <sup>B</sup>	2.17	75.35
Cu-TiO <sub>2</sub>	404.5 <sup>A</sup>	32.92	32.58	167.60 <sup>A</sup>	28.40	40.76	19.90 <sup>B</sup>	2.19	76.41

<sup>1</sup> mg RE/sample g (Rutine Equivalents/sample g). The average represents the value of 3 repetitions. Comparison between means (Dunnett  $p \leq 0.05$ ). Means with different letters in the same column are statistically different. The percentage columns (%) represent the increase (+) or decrease (-) of the quantified data concerning the control group.

**Table S2.** Total flavonoid content in plants treated with Mw-SG NMs.

	Leaves			Stem			Root		
	Rutin <sup>1</sup> (mg/g)	SD (±)	%	Rutin <sup>1</sup> (mg/g)	SD (±)	%	Rutin <sup>1</sup> (mg/g)	SD (±)	%
<b>50 ppm</b>									
<b>Control</b>	396.54 <sup>A</sup>	57.90	-	132.03 <sup>A</sup>	10.09	-	19.55 <sup>A</sup>	1.93	-
<b>TiO<sub>2</sub></b>	540.43 <sup>A</sup>	113.01	36.28	146.83 <sup>A</sup>	8.30	11.21	23.84 <sup>A</sup>	2.74	21.94
<b>Ag-TiO<sub>2</sub></b>	400.75 <sup>A</sup>	64.27	1.06	141.14 <sup>A</sup>	12.71	6.89	24.69 <sup>A</sup>	3.91	26.29
<b>Fe-TiO<sub>2</sub></b>	529.41 <sup>A</sup>	59.66	33.50	165.93 <sup>A</sup>	10.54	25.67	21.44 <sup>A</sup>	3.43	9.66
<b>Cu-TiO<sub>2</sub></b>	540.57 <sup>A</sup>	89.75	36.32	142.64 <sup>A</sup>	34.04	8.04	24.01 <sup>A</sup>	2.85	22.81
<b>100 ppm</b>									
<b>Control</b>	396.54 <sup>A</sup>	57.90	-	132.03 <sup>A</sup>	10.09	-	19.55 <sup>A</sup>	1.93	-
<b>TiO<sub>2</sub></b>	401.23 <sup>B</sup> <sup>A</sup>	24.29	21.35	162.61 <sup>A</sup>	9.59	23.16	24.20 <sup>A</sup>	4.15	23.78
<b>Ag-TiO<sub>2</sub></b>	504.95 <sup>A</sup>	93.32	27.33	176.70 <sup>B</sup>	19.17	33.83	25.83 <sup>A</sup>	4.16	32.12
<b>Fe-TiO<sub>2</sub></b>	574.86 <sup>B</sup>	82.32	44.96	227.5 <sup>B</sup>	40.93	72.30	26.09 <sup>A</sup>	2.11	33.45
<b>Cu-TiO<sub>2</sub></b>	534.76 <sup>A</sup>	58.56	34.85	164.16 <sup>A</sup>	19.06	24.33	24.4 <sup>A</sup>	4.82	24.80
<b>500 ppm</b>									
<b>Control</b>	396.54 <sup>A</sup>	57.90	-	132.03 <sup>A</sup>	10.09	-	19.55 <sup>A</sup>	1.93	-
<b>TiO<sub>2</sub></b>	408.19 <sup>A</sup>	42.08	2.93	136.10 <sup>A</sup>	11.50	3.08	25.48 <sup>A</sup>	4.38	30.33
<b>Ag-TiO<sub>2</sub></b>	442.14 <sup>A</sup>	24.20	11.49	172.88 <sup>B</sup>	10.87	30.94	21.27 <sup>A</sup>	1.49	8.79
<b>Fe-TiO<sub>2</sub></b>	688.59 <sup>B</sup>	185.01	73.65	176.21 <sup>B</sup>	18.55	33.46	22.33 <sup>A</sup>	1.59	14.21
<b>Cu-TiO<sub>2</sub></b>	504.01 <sup>A</sup>	42.06	27.10	174.86 <sup>B</sup>	16.76	32.44	27.76 <sup>B</sup>	3.07	41.99

<sup>1</sup>mg RE/sample g (Rutine Equivalents/sample g). The average represents the value of 3 repetitions. Comparison between means ((Dunnett  $p \leq 0.05$ ). Means with different letters in the same column are statistically different. The percentage columns (%) represent the increase (+) or decrease (-) of the quantified data concerning the control group.

**Table S3.** Tukey multiple comparisons for the first appearing stem size.

Tukey's multiple comparisons tests	Mean Diff.	Summary	Adjusted P Value
<b>SG NMs</b>			
Control vs. Ti	0.2975	****	<0.0001
Control vs. Ag	0.236	****	<0.0001
Control vs. Cu	0.1629	*	0.0173
Control vs. Fe	0.2535	****	<0.0001
Ti vs. Ag	-0.0615	ns	0.6689
Ti vs. Cu	-0.1346	*	0.0314
Ti vs. Fe	-0.04408	ns	0.8394
Ag vs. Cu	-0.07313	ns	0.4328
Ag vs. Fe	0.01743	ns	0.9917
Cu vs. Fe	0.09056	ns	0.1445
<b>SG-MW NMs</b>			
Control vs. Ti	0.1448	*	0.0283
Control vs. Ag	0.1549	*	0.0159
Control vs. Cu	0.1895	**	0.0013
Control vs. Fe	0.2399	****	<0.0001
Ti vs. Ag	0.01009	ns	0.9985
Ti vs. Cu	0.04466	ns	0.7054
Ti vs. Fe	0.09511	*	0.0493
Ag vs. Cu	0.03457	ns	0.8644
Ag vs. Fe	0.08502	ns	0.1093
Cu vs. Fe	0.05045	ns	0.596

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S4.** Two-way ANOVA test for the second appearing stem length.

Attribute	ANOVA	SS	DF	MS	F	P value
<b>Synthesis-Dopant (Control)</b>	Synthesis:dopant	0.6259	4	0.1565	3.037	0.0175*
	Synthesis	2.306	1	2.306	44.75	0.0001***
	Dopant	2.698	4	0.6744	13.09	0.0001***
	Residual	18.96	368	0.05153		
Attribute	ANOVA table	SS	DF	MS	F	P value
<b>Synthesis-Dopant (No control)</b>	Synthesis:dopant	0.2785	3	0.09284	1.771	0.1524 <sup>ns</sup>
	Synthesis	3.642	1	3.642	69.48	0.0001***
	Dopante	0.3451	3	0.1150	2.195	0.0885 <sup>ns</sup>
	Residual	17.56	335	0.05241		

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S5.** Two-way ANOVA test for the leaf length.

Tukey's multiple comparisons tests	Mean Diff.	Summary	Adjusted P Value
<b>SG NMs</b>			
Control vs. Ti	0.424	****	<0.0001
Control vs. Ag	0.3339	****	<0.0001
Control vs. Cu	0.3158	****	<0.0001
Control vs. Fe	0.4288	****	<0.0001
Ti vs. Ag	-0.09014	ns	0.5305
Ti vs. Cu	-0.1082	ns	0.3608
Ti vs. Fe	0.004854	ns	>0.9999
Ag vs. Cu	-0.01811	ns	0.9975
Ag vs. Fe	0.09499	ns	0.3285
Cu vs. Fe	0.1131	ns	0.1884
<b>SG-MW NMs</b>			
Control vs. Ti	0.117	ns	0.3353
Control vs. Ag	0.185	*	0.0272
Control vs. Cu	0.1473	ns	0.1285
Control vs. Fe	0.2053	**	0.0089
Ti vs. Ag	0.06802	ns	0.574
Ti vs. Cu	0.03031	ns	0.9639
Ti vs. Fe	0.08824	ns	0.2871
Ag vs. Cu	-0.03771	ns	0.9223
Ag vs. Fe	0.02022	ns	0.9915
Cu vs. Fe	0.05793	ns	0.6948

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S6.** Tukey multiple comparisons for the total gallic acid content in leaves.

Tukey's multiple comparisons tests	Mean Diff.	Summary	Adjusted P Value
SG NMs			
Control vs. Ti	-0.4179	**	0.0085
Control vs. Ag	-0.1947	ns	0.5139
Control vs. Cu	-0.1922	ns	0.5268
Control vs. Fe	-0.1584	ns	0.7008
Ti vs. Ag	0.2232	ns	0.0853
Ti vs. Cu	0.2256	ns	0.0797
Ti vs. Fe	0.2594	*	0.0291
Ag vs. Cu	0.002487	ns	>0.9999
Ag vs. Fe	0.03626	ns	0.9936
Cu vs. Fe	0.03377	ns	0.9952
Mw-SG NMs			
Control vs. Ti	-0.4414	****	<0.0001
Control vs. Ag	-0.3213	**	0.0033
Control vs. Cu	-0.41	****	<0.0001
Control vs. Fe	-0.4545	****	<0.0001
Ti vs. Ag	0.1202	ns	0.2981
Ti vs. Cu	0.03143	ns	0.9862
Ti vs. Fe	-0.0131	ns	0.9995
Ag vs. Cu	-0.08872	ns	0.6038
Ag vs. Fe	-0.1333	ns	0.2023
Cu vs. Fe	-0.04453	ns	0.9509

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S7.** Two-way ANOVA test for the total gallic acid content in the stem.

Attribute	ANOVA	SS	DF	MS	F	P value
<b>Synthesis-Dopant (Control)</b>	Synthesis:dopant	0.6121	4	0.1530	1.189	0.3197 <sup>ns</sup>
	Synthesis	0.09561	1	0.09561	0.7431	0.3906 <sup>ns</sup>
	Dopant	2.678	4	0.6695	5.204	0.0007***
	Residual	13.77	107	0.1287		
Attribute	ANOVA table	SS	DF	MS	F	P value
<b>Synthesis-Dopant (No control)</b>	Synthesis:dopant	0.5992	3	0.1997	1.473	0.2264 <sup>ns</sup>
	Synthesis	0.1673	1	0.1673	1.234	0.2693 <sup>ns</sup>
	Dopante	0.6971	3	0.2324	1.714	0.1690 <sup>ns</sup>
	Residual	13.56	100	0.1356		

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S8.** Tukey multiple comparisons for the total gallic acid content in the stem.

Tukey's multiple comparisons tests	Mean Diff.	Summary	Adjusted P Value
<b>SG NMs</b>			
Control vs. Ti	-0.5443	ns	0.1608
Control vs. Ag	-0.4613	ns	0.3085
Control vs. Cu	-0.5371	ns	0.171
Control vs. Fe	-0.3621	ns	0.5556
Ti vs. Ag	0.08297	ns	0.9881
Ti vs. Cu	0.007151	ns	>0.9999
Ti vs. Fe	0.1821	ns	0.8179
Ag vs. Cu	-0.07581	ns	0.9915
Ag vs. Fe	0.09917	ns	0.9768
Cu vs. Fe	0.175	ns	0.8386
<b>SG-MW NMs</b>			
Control vs. Ti	-0.5203	*	0.0219
Control vs. Ag	-0.3456	ns	0.2525
Control vs. Cu	-0.7453	***	0.0002
Control vs. Fe	-0.6275	**	0.003
Ti vs. Ag	0.1747	ns	0.5899
Ti vs. Cu	-0.225	ns	0.3332
Ti vs. Fe	-0.1072	ns	0.8975
Ag vs. Cu	-0.3997	**	0.0099
Ag vs. Fe	-0.2819	ns	0.1352
Cu vs. Fe	0.1178	ns	0.8614

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S9.** Two-way ANOVA test for the total gallic acid content in roots.

Attribute	ANOVA	SS	DF	MS	F	P value
<b>Synthesis-Dopant (Control)</b>	Synthesis:dopant	1.044	4	0.2611	3.501	0.0100*
	Synthesis	0.2663	1	0.2663	3.570	0.0615 <sup>ns</sup>
	Dopant	2.710	4	0.6776	9.084	0.0001***
	Residual	7.981	107	0.07459		
Attribute	ANOVA table	SS	DF	MS	F	P value
<b>Synthesis-Dopant (No control)</b>	Synthesis:dopant	1.009	3	0.3362	4.625	0.0045**
	Synthesis	0.4660	1	0.4660	6.409	0.0129*
	Dopante	1.933	3	0.6444	8.864	0.0001***
	Residual	7.270	100	0.07270		

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S10.** Tukey multiple comparisons for the total gallic acid content in roots.

Tukey's multiple comparisons tests	Mean Diff.	Summary	Adjusted P Value
SG NMs			
Control vs. Ti	-0.6085	**	0.0099
Control vs. Ag	-0.3178	ns	0.4108
Control vs. Cu	-0.4339	ns	0.1279
Control vs. Fe	-0.2158	ns	0.7598
Ti vs. Ag	0.2907	ns	0.1669
Ti vs. Cu	0.1746	ns	0.6568
Ti vs. Fe	0.3927	*	0.0236
Ag vs. Cu	-0.1161	ns	0.8956
Ag vs. Fe	0.102	ns	0.9323
Cu vs. Fe	0.2181	ns	0.4418
SG-MW NMs			
Control vs. Ti	-0.1903	ns	0.5789
Control vs. Ag	-0.1545	ns	0.7516
Control vs. Cu	-0.5941	***	0.0001
Control vs. Fe	-0.07989	ns	0.9715
Ti vs. Ag	0.03585	ns	0.9948
Ti vs. Cu	-0.4038	***	0.0002
Ti vs. Fe	0.1104	ns	0.744
Ag vs. Cu	-0.4397	****	<0.0001
Ag vs. Fe	0.07456	ns	0.9243
Cu vs. Fe	0.5143	****	<0.0001

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .



**Table S11.** Tukey multiple comparisons for the inhibition % of DPPH in leaves.

Tukey's multiple comparisons tests	Mean Diff.	Summary	Adjusted P Value
SG NMs			
Control vs. Ti	-0.4192	***	0.0001
Control vs. Ag	-0.355	**	0.0019
Control vs. Cu	-0.2077	ns	0.1576
Control vs. Fe	-0.2423	ns	0.066
Ti vs. Ag	0.0642	ns	0.8684
Ti vs. Cu	0.2114	*	0.0116
Ti vs. Fe	0.1769	ns	0.053
Ag vs. Cu	0.1472	ns	0.1793
Ag vs. Fe	0.1127	ns	0.4377
Cu vs. Fe	-0.03457	ns	0.9832
SG-MW NMs			
Control vs. Ti	-0.474	****	<0.0001
Control vs. Ag	-0.4818	****	<0.0001
Control vs. Cu	-0.5309	****	<0.0001
Control vs. Fe	-0.3252	****	<0.0001
Ti vs. Ag	-0.007806	ns	0.9998
Ti vs. Cu	-0.05692	ns	0.7205
Ti vs. Fe	0.1488	*	0.0122
Ag vs. Cu	-0.04912	ns	0.816
Ag vs. Fe	0.1566	**	0.0071
Cu vs. Fe	0.2058	***	0.0002

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S12.** Two-way ANOVA test for the inhibition % of DPPH in the stem.

Attribute	ANOVA	SS	DF	MS	F	P value
<b>Synthesis-Dopant (Control)</b>	Synthesis:dopant	1.896	4	0.4740	15.23	0.0001***
	Synthesis	2.267	1	2.267	72.84	0.0001***
	Dopant	2.411	4	0.6026	19.36	0.0001***
	Residual	3.299	106	0.03112		
Attribute	ANOVA table	SS	DF	MS	F	P value
<b>Synthesis-Dopant (No control)</b>	Synthesis:dopant	1.574	3	0.5248	16.12	0.0001***
	Synthesis	3.933	1	3.933	120.8	0.0001***
	Dopante	0.2951	3	0.09836	3.022	0.0333**
	Residual	3.223	99	0.03255		

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S13.** Tukey multiple comparisons for the inhibition % of DPPH in the stem.

Tukey's multiple comparisons tests	Mean Diff.	Summary	Adjusted P Value
SG NMs			
Control vs. Ti	-0.5877	****	<0.0001
Control vs. Ag	-0.3739	*	0.0162
Control vs. Cu	-0.1977	ns	0.4499
Control vs. Fe	-0.1679	ns	0.6116
Ti vs. Ag	0.2138	ns	0.0997
Ti vs. Cu	0.39	***	0.0001
Ti vs. Fe	0.4199	****	<0.0001
Ag vs. Cu	0.1762	ns	0.2198
Ag vs. Fe	0.2061	ns	0.1035
Cu vs. Fe	0.02986	ns	0.9964
SG-MW NMs			
Control vs. Ti	-0.5536	****	<0.0001
Control vs. Ag	-0.8442	****	<0.0001
Control vs. Cu	-0.7488	****	<0.0001
Control vs. Fe	-0.8166	****	<0.0001
Ti vs. Ag	-0.2906	****	<0.0001
Ti vs. Cu	-0.1952	*	0.0106
Ti vs. Fe	-0.263	***	0.0002
Ag vs. Cu	0.09533	ns	0.4873
Ag vs. Fe	0.02757	ns	0.99
Cu vs. Fe	-0.06777	ns	0.7781

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S14.** Two-way ANOVA test for the inhibition % of DPPH in roots.

Attribute	ANOVA	SS	DF	MS	F	P value
Synthesis-Dopant (Control)	Synthesis:dopant	1.229	4	0.3073	4.623	0.0018**
	Synthesis	0.7015	1	0.7015	10.55	0.0016**
	Dopant	6.473	4	1.618	24.34	0.0001***
	Residual	7.047	106	0.06648		
Attribute	ANOVA table	SS	DF	MS	F	P value
Synthesis-Dopant (No control)	Synthesis:dopant	1.134	3	0.3781	5.347	0.0019**
	Synthesis	1.225	1	1.225	17.32	0.0001***
	Dopante	2.006	3	0.6688	9.458	0.0001***
	Residual	7.001	99	0.07071		

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$

**Table S15.** Tukey multiple comparisons for the inhibition % of DPPH in roots.

Tukey's multiple comparisons tests	Mean Diff.	Summary	Adjusted P Value
SG NMs			
<b>Control vs. Ti</b>	-0.6724	**	0.0015
<b>Control vs. Ag</b>	-0.576	**	0.0096
<b>Control vs. Cu</b>	-0.4471	ns	0.0774
<b>Control vs. Fe</b>	-0.9599	****	<0.0001
<b>Ti vs. Ag</b>	0.09639	ns	0.9321
<b>Ti vs. Cu</b>	0.2253	ns	0.3486
<b>Ti vs. Fe</b>	-0.2875	ns	0.1331
<b>Ag vs. Cu</b>	0.1289	ns	0.826
<b>Ag vs. Fe</b>	-0.3839	*	0.0173
<b>Cu vs. Fe</b>	-0.5128	***	0.0005
SG-MW NMs			
<b>Control vs. Ti</b>	-1.157	****	<0.0001
<b>Control vs. Ag</b>	-0.6774	****	<0.0001
<b>Control vs. Cu</b>	-0.8287	****	<0.0001
<b>Control vs. Fe</b>	-0.8983	****	<0.0001
<b>Ti vs. Ag</b>	0.4796	****	<0.0001
<b>Ti vs. Cu</b>	0.3284	**	0.0021
<b>Ti vs. Fe</b>	0.2588	*	0.0264
<b>Ag vs. Cu</b>	-0.1512	ns	0.4178
<b>Ag vs. Fe</b>	-0.2208	ns	0.0912
<b>Cu vs. Fe</b>	-0.0696	ns	0.9271

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S16.** Tukey multiple comparisons for chlorophyll index.

Tukey's multiple comparisons tests	Mean Diff.	Summary	Adjusted P Value
SG NMs			
Control vs. Ti	0.3131	****	<0.0001
Control vs. Ag	0.1596	ns	0.1446
Control vs. Cu	0.1283	ns	0.3434
Control vs. Fe	0.2202	*	0.0135
Ti vs. Ag	-0.1536	**	0.0084
Ti vs. Cu	-0.1848	***	0.0007
Ti vs. Fe	-0.09292	ns	0.2606
Ag vs. Cu	-0.03126	ns	0.9611
Ag vs. Fe	0.06064	ns	0.682
Cu vs. Fe	0.0919	ns	0.2712
SG-MW NMs			
Control vs. Ti	0.1139	ns	0.2823
Control vs. Ag	0.05555	ns	0.8703
Control vs. Cu	0.2083	**	0.0031
Control vs. Fe	0.2034	**	0.0041
Ti vs. Ag	-0.05833	ns	0.6146
Ti vs. Cu	0.09438	ns	0.1507
Ti vs. Fe	0.08955	ns	0.1889
Ag vs. Cu	0.1527	**	0.002
Ag vs. Fe	0.1479	**	0.0029
Cu vs. Fe	-0.004828	ns	>0.9999

ns = not significant; \* = significant at  $p \leq 0.05$ , \*\* = significant at  $p \leq 0.01$ , \*\*\* = significant at  $p \leq 0.001$ , \*\*\*\* = significant at  $p \leq 0.0001$ .

**Table S17.** Atmospheric conditions during plant development

SG NMs	may-18	jun-18	jul-18	ago-18
Temperature (°C)	27.69	24.69	25.2	24.65
Humidity (%)	30.22	44.59	41.8	43.5
Heat index (°C)	26.52	24.124	24.73	24.26
Solar radiation (W/m <sup>2</sup> )	923.9	726.62	839.77	855.73
UV index	7.42	6.28	7.66	8.08
Mw-SG NMs	may-19	jun-19	jul-19	ago-19
Temperature	26.79	26.18	25.88	26.93
Humidity	35.23	49.3	41.64	36.51
Indice de calor	25.58	25.4	25.38	26.27
Radiación solar	878.6	1014	855.48	724.48
Indice UV	5.66	7.6	7.49	6.21