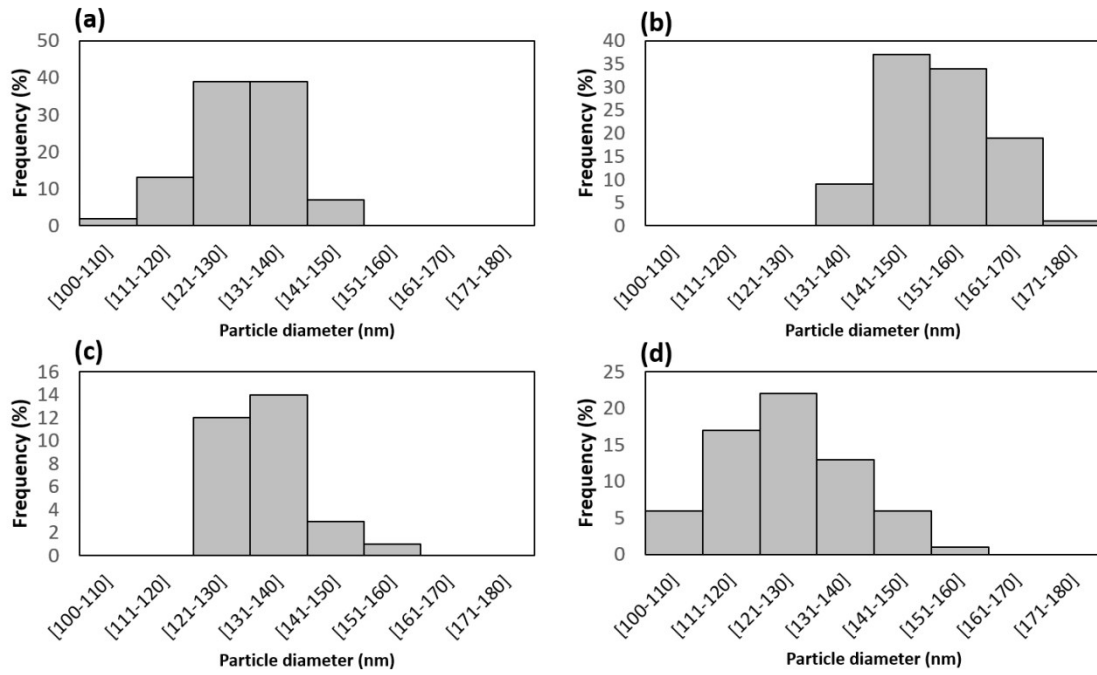


Test species		<i>Vibrio fischeri</i>	<i>Isochrysis galbana</i>	<i>Nannochloropsis gaditana</i>	<i>Phaeodactylum tricornutum</i>	<i>Brachionus plicatilis</i>	<i>Mytilus galloprovincialis</i>	<i>Cerastoderma edule</i>	<i>Hediste diversicolor</i>	<i>Artemia salina</i>	<i>Palaemon varians</i>	<i>Paracentrotus lividus</i>
Tested chemicals		Exposure concentrations range										
SiNC	mg SiNC/L	0.320 – 81.9	0.333 – 27	0.333 – 27	0.010 – 100	0.500 – 8.00	0.010 – 100	0.100 – 100	1.00 – 81	1 – 100	0.1 – 100	0.01 – 100
DCOIT	mg DCOIT/L	0.003 – 0.819	0.001 – 0.081	0.001 – 0.081	0.001 – 0.081	0.040 – 0.640	0.010 – 2.43	0.010 – 10	0.25 – 4.00	0.063 – 1	0.1 – 10	0.01 – 10
AgNO₃	mg Ag ⁺ /L	0.204 – 52.0	0.019 – 1.54	0.001 – 0.050	0.006 – 0.463	0.318 – 5.09	0.006 – 63.5	0.006 – 63.5	0.064 – 63.5	0.040 – 0.640	0.064 – 63.5	0.006 – 63.5
SiNC-DCOIT	mg DCOIT/L	0.003 – 0.646	0.333 – 9.00	0.003 – 0.243	0.001 – 0.081	0.500 – 8.00	0.010 – 100	0.001 – 10	0.500 – 8.00	0.063 – 2	0.1 – 10	0.01 – 10
SiNC-Ag	mg Ag ⁺ /L	0.003 – 0.600	0.012 – 0.980	0.067 – 1.07	0.001 – 13.4	0.067 – 1.07	0.001 – 13.4	0.001 – 13.4	0.013 – 13.4	0.211 – 13.4	0.013 – 13.4	0.001 – 13.4
SiNC-DCOIT-Ag	mg DCOIT/L	0.003 – 0.646	0.259 – 7.10	0.001 – 0.064	0.001 – 0.064	0.395 – 6.32	0.008 – 78.9	0.008 – 7.89	0.788 – 12.6	0.050 – 0.789	0.079 – 7.89	0.008 – 7.89
	mg Ag ⁺ /L	0.003 – 0.600	0.243 – 6.58	0.001 – 0.059	0.001 – 0.059	0.366 – 5.86	0.007 – 73.1	0.007 – 7.32	0.732 – 11.7	0.050 – 0.730	0.073 – 7.32	0.007 – 7.32
Dilution factor		2	3	3 (apart from SA=2)	3 (apart from SiNC; SA=10)	2	10 (apart from DCOIT=3)	10	2 (apart from SiNC=3; Ag; SA=10)	2 (apart from SiNC; SA=10)	10	10
number of treatments		9	5 (apart from SD; SDA=4)	5	5	5	5 (apart from DCOIT=6)	4 (apart from Ag; SA=5)	5 (apart from Ag; SA=4)	5 (apart from Ag and SD=6; SDA=7)	4 (apart from DCOIT; SD; SDA=3)	5 (apart from DCOIT; SD; SDA=4)
n		1	4	4	4	3	12	5	5	3	5	4
internal replicates		-	-	-	-	5	1	1	1	10	3	~ 100
type of vessel		-	24-well microplate	24-well microplate	24-well microplate	24-well microplate	6-well microplate	200 mL glass flask	200 mL glass flask	24-well microplate	200 mL glass flask	24-well microplate
tested volume		-	2000 µL (1980 µL microalgae + 20 µL treatment)			300 µL	10 mL	150 mL	150 mL	1 mL	150 mL	2000 µL (20 µL eggs suspension)

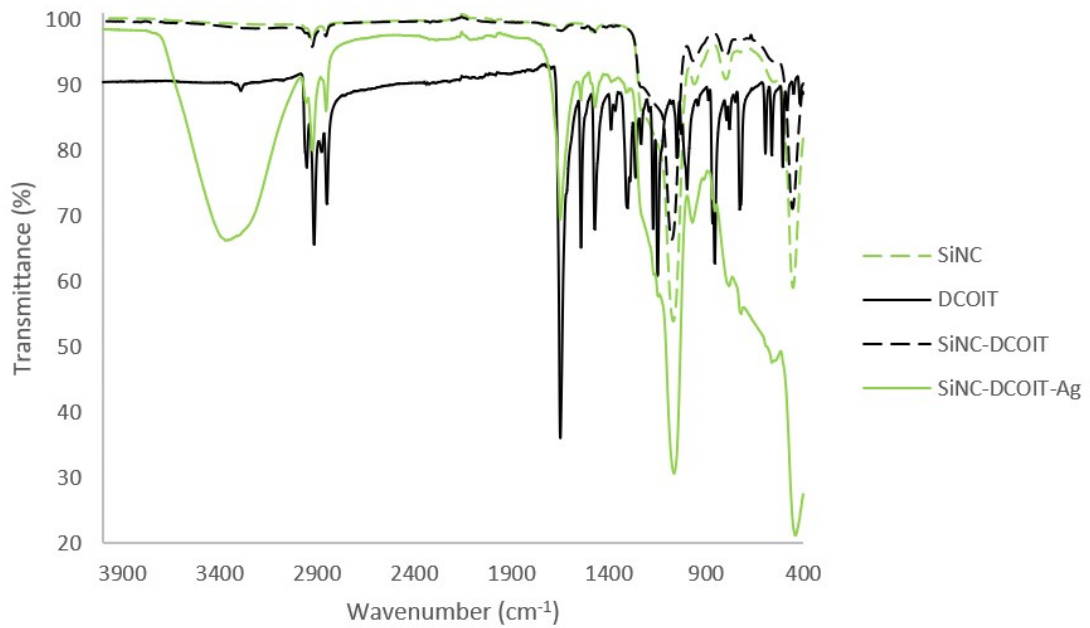
Supplementary table 1 – Exposure concentration ranges and experimental design details for all chemical substances and all test species. SD: SiNC-DCOIT; SA: SiNC-Ag; SDA: SiNC-DCOIT-Ag.

Nanomaterial	Concentration (mg/L)	Time (h)	pH	Low ionic strength media				High ionic strength media	
				ζ P (mV)		Size (nm)		Size (nm)	
				Mean	SD	Mean	SD	Mean	SD
SiNC	0.001	0	6.43	-17.4	0.681	438	46.8	517	105
		24	6.68	-19.0	1.08	534	278	472	62.1
		48	7.09	-20.1	0.624	496	120	514	71.2
	0.1	0	6.53	-13.6	0.557	418	122	708	132
		24	6.75	-18.5	3.20	698	158	628	181
		48	7.00	-19.6	0.702	569	88.8	549	96.3
	10	0	6.49	-11.8	1.33	180	51.0	467	191
		24	6.63	-12.4	1.07	252	86.7	652	175
		48	7.07	-11.2	0.872	251	80.9	704	114
SiNC-DCOIT	0.001	0	6.26	-9.90	1.45	229	118	202	130
		24	6.36	-9.40	0.460	234	100	531	53.7
		48	6.66	-11.5	1.44	473	164	541	41.7
	0.1	0	5.99	-9.40	3.40	443	31.3	482	284
		24	6.03	-6.80	2.43	444	40.9	514	24.0
		48	6.31	-11.1	4.20	592	15.4	547	12.7
	10	0	6.15	-4.30	0.32	423	19.8	259	195
		24	6.19	-6.10	1.42	328	44.1	509	31.0
		48	6.41	-6.36	1.07	367	74.8	542	46.1
SiNC-Ag	0.001	0	6.26	-9.90	1.45	229	118	149	16.3
		24	5.90	-3.57	0.364	340	50.7	107	16.3
		48	5.75	-4.83	0.601	280	26.7	111	16.7
	0.1	0	6.12	-3.80	0.356	324	86.3	350	27.8
		24	5.88	-3.21	0.686	360	24.9	81.4	4.02
		48	5.81	-4.04	0.450	404	57.2	144	14.4
	10	0	6.14	-3.84	0.511	232	39.3	573	24.1
		24	5.90	-3.16	0.188	249	24.6	128	20.6
		48	5.81	-3.71	0.474	234	32.8	235	36.8
SiNC-DCOIT-Ag	0.001	0	5.84	-8.36	246	22.4	246	309	20.3
		24	6.32	-7.34	320	60.5	320	363	7.53
		48	6.56	-7.02	490	12.9	490	251	22.5
	0.1	0	5.81	-6.83	282	4.32	282	501	71.6
		24	6.16	-8.55	380	45.0	380	445	10.2
		48	6.05	-8.04	416	71.3	416	286	15.0
	10	0	5.78	-6.76	272	13.7	272	285	35.2
		24	6.05	-8.47	248	17.0	248	444	38.7
		48	6.13	-7.63	338	7.85	338	325	33.6

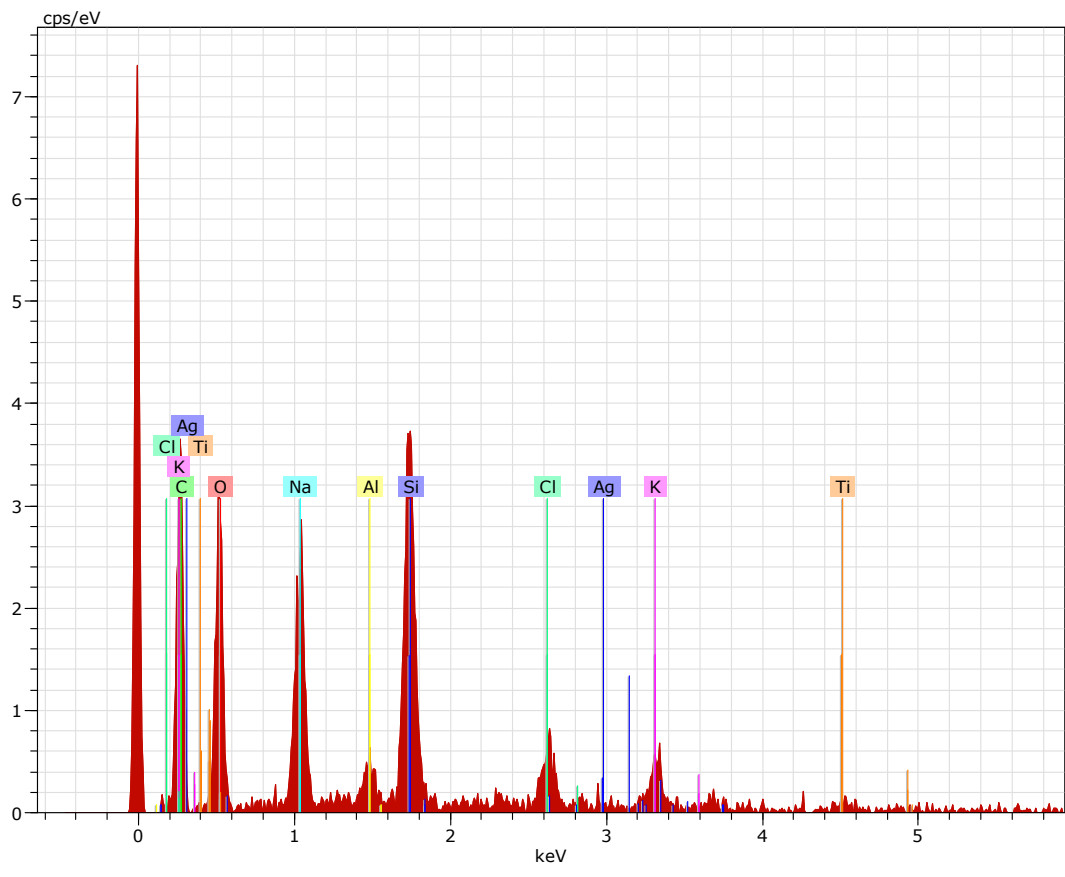
Supplementary table 2 – Average hydrodynamic particle size (n =3), presented as intensity distribution, of each nanomaterial tested (SiNC, SiNC-DCOIT, SiNC-Ag and SiNC-DCOIT-Ag) dispersed in low and high ionic strength media (ultra-pure water and artificial saltwater, respectively) in time (0, 24 and 48 h). Zeta potential values values (ζ P, mV) are also provided for UP water. SD – standard deviation.



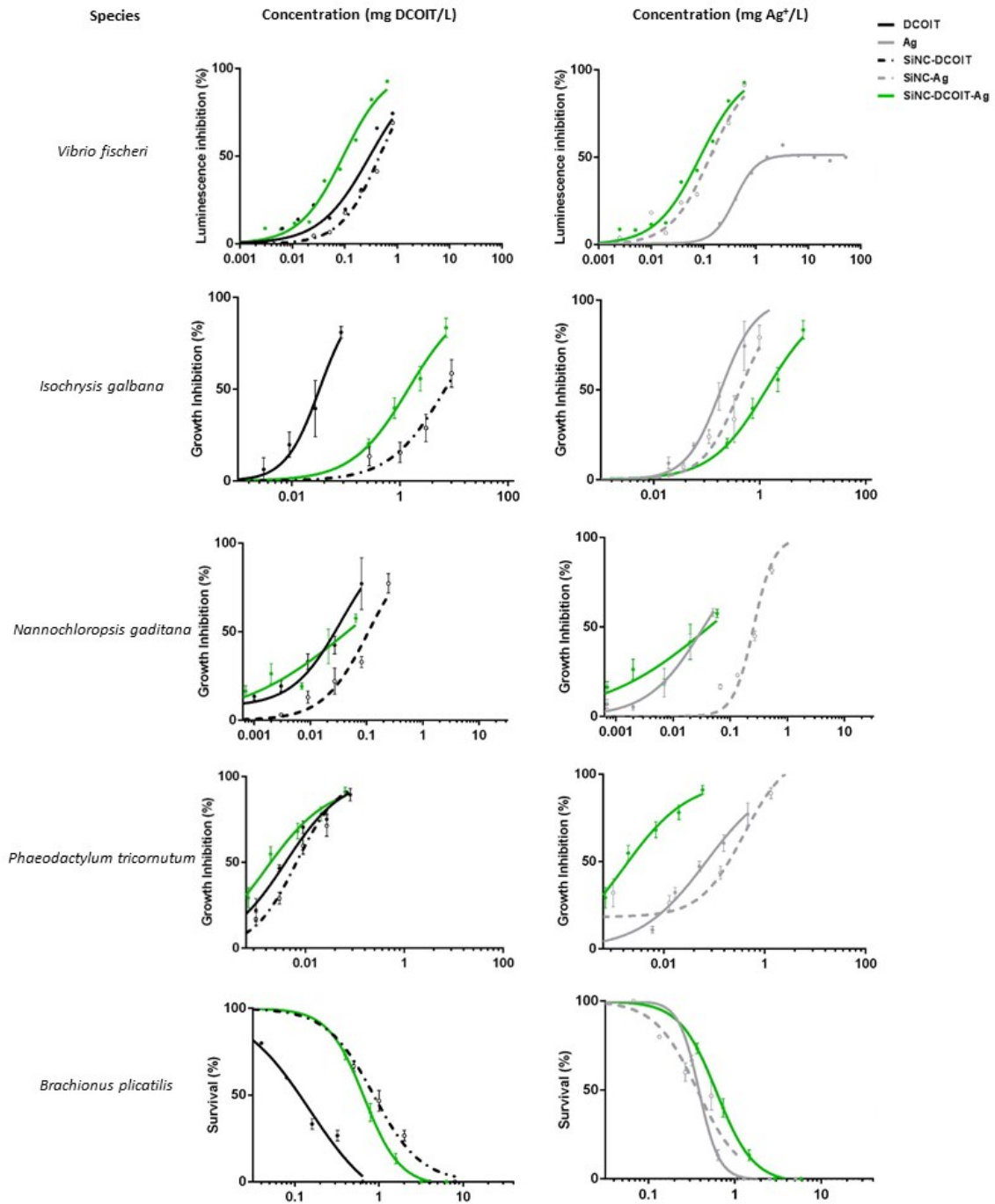
Supplementary figure 1 – Nanoparticles size frequency histograms based on SEM measurements of (a) empty SiNC, (b) SiNC with DCOIT encapsulated, (c) SiNC coated with silver and (d) SiNC with DCOIT encapsulated and coated with silver.



Supplementary figure 2 – FTIR spectrum of SiNC, DCOIT, SiNC-DCOIT, and SiNC-DCOIT-Ag.



Supplementary figure 3 – Energy Dispersive X-Ray Spectroscopy (EDS) of SiNC-DCOIT-Ag, showing the presence of Si and O (present in the SiNC), Ag (regarding the coating with silver) and Cl (representative of DCOIT).



Supplementary figure 4 – Dose-response curves of the bacteria *Vibrio fischeri* luminescence inhibition, growth inhibition of three photosynthetic species and rotifer *Brachionus plicatilis* survival exposed to: (left) – DCOIT, SiNC-DCOIT and SiNC-DCOIT-Ag (both expressed as mg of DCOIT content/L); (right) Ag, SiNC-Ag and SiNC-DCOIT-Ag (both expressed as mg of Ag content/L). Data are presented as mean percentage values \pm standard error.

