

Supporting Information

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Impact of test conditions on the bacterial bioassay in the presence of TiO₂ nanoparticles

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Table S1: Chemical parameters analyzed in seawater samples, and related information about the procedure.

Parameter	Method	Instrument	Reference
SO ₄ ²⁻	Turbidimetric as barium sulfate (375.4): Sulfate ion is converted to a barium sulfate suspension under controlled conditions. The resulting turbidity is determined spectrophotometrically at 420 nm.	UV-VIS spectrometry (Biochrom Libra S70 spectrophotometer)	[1]
NO ₃ ⁻	Sulfanilamide/ethylenediamine with Cd reduction (353.3): The nitrite (that originally present plus reduced nitrate) is determined by diazotizing with sulfanilamide and coupling with N-(1-naphthyl)-ethylenediamine dihydrochloride to form a highly colored azo dye which is measured spectrophotometrically at 540 nm	UV-VIS spectrometry (Biochrom Libra S70 spectrophotometer)	[1]
NH ₄ ⁺	Nesslerization (APHA 4500): The sample is buffered at a pH of 9.5 with a borate in order to decrease hydrolysis of cyanates and organic nitrogen compounds and is then distilled into a solution of boric acid. The ammonia in the distillate is determined colorimetrically by Nesslerization at 425.0 nm by spectrometrically.	UV-VIS spectrometry (Biochrom Libra S70 spectrophotometer)	[1]
Cl ⁻	Chromatographic separations were performed at 30 °C with a Dionex IonPac AS20 analytical column (2 × 250 mm). In addition, guard column and cartridge using ultra-pure (UP) water obtained from Dionex. The gradient programme: 10 mM of KOH for 6 min; linear increase of the KOH concentration from 10 mM to 25 mM for 15 min; 25 mM of KOH for 4 min; linear increase of the KOH concentration from 25 mM to 40 mM for 5 min; 40 mM of KOH for 5 min; linear decrease of the KOH concentration from 40 mM to 10 mM for 2 min. A 75 µL-aliquot of the sample/standard solution was loaded into the eluent stream. Flow rate of 2.5 mL/min.	Ion chromatography (Dionex ICS-3000)	[2]
Na, K	Direct analysis of seawater samples according to the EPA 200.5	ICP-OES (Spectro, SpectroBlue)	[3]
PO ₄ ⁻	Ammonium molybdate solution acidified with H ₂ SO ₄ was added onto the extracted samples along with excess ascorbic acid. The formation of the green/blue color was observed after heating them in the water bath. Colorimetric measurements were taken both at 822 nm and 650 nm for the purpose of comparison.	UV-VIS spectrometry (Biochrom Libra S70 spectrophotometer)	[4]

Table S2: Chemical properties of seawater as a real environmental media (N:3, SW: seawater, ND: not detected).

Chemical Property	Results	
	1% SW	100% SW
pH	8.0±0.9	8.3±0.8
Na (mg/L)	69±3	6693±535
K (mg/L)	ND	231±9
NO ₃ (mg/L)	ND	0.26±0.02
NO ₂ (mg/L)	ND	ND
NH ₃ -N (mg/L)	ND	0.92±0.06
SO ₄ (mg/L)	24±2	2283±190
PO ₄ (mg/L)	ND	ND
Cl ⁻ (g/L)	ND	15.9±0.6

References

- [1] APHA. American Public Health Association (2017). Standard methods for the examination of water and waste water. 23rd Edition, American Public Health Association, American Water Works Association, Water Environment Federation.
- [2] A. Baysal, H. Baltaci, N. Ozbek, O. Destanoglu, G. S. Ustabasi and G. Gumus (2017) Chemical characterization of surface snow in Istanbul (NW Turkey) and their association with atmospheric circulations, *Environ. Monit. Assess.* **189(275)**, 1-20.
- [3] EPA Method 200.5, Determination of trace elements in drinking water by axially viewed inductively coupled plasma-atomic emission spectrometry
- [4] EPA Method 365.3: Phosphorous, all forms (colorimetric, ascorbic acid, two reagent)