SUPPORTING INFORMATION

Cerium-bismuth oxides/oxynitrates with low toxicity
for removal and degradation of organophosphates
and bisphenols

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Sample synthesis. In a typical synthesis, aqueous solutions of cerium (III) nitrate hexahydrate and bismuth (III) nitrate pentahydrate were mixed in a desired molar ratio (for 1:1, 100 mL of 0.1 M solutions were used) and 8 mL of ammonium hydroxide solution (25%) was added slowly under constant stirring thereby obtaining grey-yellowish gelatinous mass which was washed by decantation. Then, 80 mL of hydrogen peroxide (30%) was added to the mixture while cooling in an ice bath, and the resulting orange-brown suspension was allowed to stand for 2 hours. The suspension was then transferred to a round bottom flask and refluxed at 100 °C for 40 hours to give a pale yellow, intense yellow, or brownish precipitate (final color depends on Ce:Bi molar ratio) that was washed by decantation, filtered and dried in an oven at 105 °C.

Characterization methods. X-ray diffraction patterns were collected on a PANalytical X’pert PRO spectrometer with CuKα radiation (〈λ〉 = 1.5418 Å). Rietveld refinement was used for
semiquantitative phase analysis and calculation of grain size and lattice constant. X-ray fluorescence (XRF) measurements were performed on a Rigaku Primus IV WDXRF spectrometer using SQX software with a standardless method of fundamental parameters. The surface chemical composition was inspected by X-ray photoelectron spectroscopy (XPS) using a Phoibos 100 spectrometer operating in FAT mode (SPECS) with Al X-ray tube (Kα line with energy 1486.6 eV) and 10 eV pass energy to obtain high-resolution spectra; CasaXPS software with a Shirley background profile and a built-in RSF was used for data processing and elemental quantification. Raman spectra were recorded using a DXR Raman confocal microscope with a 532 nm excitation laser, while a Thermo Nicolet NEXUS 670 FTIR spectrometer equipped with an MCT detector was used to collect DRIFTS spectra (obtained by accumulating 128 scans with a resolution of 4 cm\(^{-1}\)). Pyridine adsorption was carried out in a gas-tight DRIFT Praying Mantis™ high temperature reaction chamber (Harrick) at room temperature (30 °C) by passing nitrogen gas (100 mL/min) through a saturator filled with liquid pyridine connected to the DRIFT chamber; dosing of pyridine was performed for 10 min followed by purging the cell with pure nitrogen for 15 min and then the spectrum was acquired. The Cintra 2020 UV-Vis spectrometer with integration sphere (and internal BaSO\(_4\) standard) was used to study the optical
properties of powder samples, which were measured in the reflectance mode. The FEI Nova NanoSEM 450 (Thermo Fisher Scientific) scanning electron microscope (SEM) and the FEI Talos F200X (Thermo Fisher Scientific) transmission electron microscope (TEM) with EDS elemental mapping were used to study the morphology, structure, and elemental composition; the samples were drop-casted from an aqueous suspension on a Si substrate (for SEM) or a holey-carbon film-coated copper grid (for TEM). The Micromeritics ASAP 2010 sorption analyzer was used to obtain specific surface area and porosity of the powder samples, which were evacuated at 150 °C for 6 hours before measurement. Acid-base potentiometric titrations for quantification of surface hydroxyl groups were performed on a PC-controlled automatic titrator (794 Basic Titrino, Metrohm, Switzerland) with potentiometric endpoint determination; the detailed measurement procedure was given elsewhere¹. Zeta potential measurements as a function of pH was performed on a Zetasizer Nano (Malvern Panalytical) equipped with a helium-neon laser (633 nm); the scattering angle was 173° and the sample concentration in distilled water was between 0.5-1 mg/mL.

**Detailed procedure for pollutants degradation.** All tests were performed in a home-built photoreactor comprising a benchtop box with three air-cooled UV lamps (PL-S 230V/11W, 365
nm wavelength maximum) illuminating from the top the glass Pyrex evaporating dish (100 mL) containing the reaction suspension. In a typical experiment, 50 mg of powder sample was dispersed in 100 mL of distilled water containing 50 mg/L of the selected pollutant (MP, BPA, or BPS) or 100 mg/L in the case of BNPP under constant stirring in the dark for 60 min and then the illumination was started. During the dark and illuminated phases of the experiment, a 1 mL aliquots of the reaction mixture were sampled at predefined time intervals, centrifuged (150 s, 18000 rpm) and analyzed immediately using HPLC to determine the residual concentration of pollutant (or product formed) in the solution. Blank tests (with UV illumination without photocatalyst) were performed for all pollutant solutions. Loss by photolysis was below 5% for all model compounds.

**Detailed procedure for bacterial growth test.** Bacterial genera *Escherichia coli* (Proteobacteria), *Staphylococcus aureus* (Firmicutes), and *Rhodococcus erythropolis* (Actinobacteria) were purchased from Czech Collection of Microorganisms (https://ccm.sci.muni.cz/en). *E. coli* and *R. erythropolis* were cultivated on meat-peptone medium (meat-peptone 5 g/L, caseine-peptone 10 g/L, NaCl 10 g/L), *S. auteurs* was cultivated on soya-peptone medium (15 g/L caseine-peptone, 5 g/L soya-peptone, 5 g/L NaCl) to a stationary growth phase (OD₆0₀>4).
Stock suspension of tested material (125 mg/L) was prepared by weighting 0.0125 g of the material into 100 mL volumetric flask. From this stock other concentrations were prepared by 5-times dilution. The suspensions were vigorously mixed before pipetting to achieve as much precise concentration as possible.

The growth test was carried out in a microplate reader (Spectramax 190) which enables simultaneous cultivation (25°C) and absorbance determination (600 nm). Total volume in each well was 250 µL, out of that 25 µL of bacterial inoculum (OD\textsubscript{600} = 0.5 to gain starting OD\textsubscript{600} = 0.1), 25 µL of fresh LB medium and 200 µL of the sample suspension. Measurement interval was set to 10 minutes and prior to each data point and in between the measurement the mixing step (5 s) was carried out to provide homogeneity and aeration of the bacterial suspension. Control wells with water only and with toxicant suspension without bacteria were included. For each concentration three replicate wells were used for statistical purposes.

Toxicity was evaluated from the exponential phase of the growth curve. From determined absorbances the absorbance of the suspension without bacteria was subtracted. The specific growth rate was calculated from the beginning and end of the growth phase according to the following formula:
\[
\mu = \frac{\log (OD_e) - \log (OD_b)}{t_e - t_b}
\]

where \(OD_e\) and \(OD_b\) present the optical density (\(\lambda=600\) nm) in the end and beginning of the exponential phase respectively, \(t_e\) and \(t_b\) present the corresponding times. The inhibition was calculated as:

\[
I = 1 - \frac{\mu_t}{\mu_c}
\]

where \(\mu\) and \(\mu\) present specific growth rates of the bacterial cultures affected by toxicant and control respectively.

**In vitro rMSC PrestoBlue cytotoxicity assay.** Mesenchymal stem cells from rat bone marrow (\textit{Rattus norvegicus}, Sigma-Aldrich Inc.) were cultured in Dulbecco’s Modified Eagle’s Medium (DMEM) supplemented with 10\% (v/v) fetal bovine serum and 0.1\% (w/v) penicillin, 0.1\% (w/v) streptomycin and 0.25\% amphotericin (w/v). The rMSC cells were maintained in culture flasks (Falcon) at 37 °C and 5\% CO\(_2\) in a humid atmosphere (incubator ESCO) and harvested every 2-3 days after obtaining 80–90\% confluence. The number of viable cells was determined by trypan blue exclusion on a haemocytometer. Then rMSC cells were seeded on flat bottom 96-well plates with a cell density of \(5 \times 10^3\) per well and incubated overnight to allow adherence of the cells. The cytotoxicity assay was performed using 6 concentrations (0.001, 0.01, 0.1, 1, 10,
100 μM) of the 1Ce0Bi and 1Ce1Bi samples and controls (positive control: 5% hydrogen peroxide; negative control: sample free media). Cytotoxic effects were determined 96 h later by PrestoBlue (ThermoFisher Scientific, A13261) assay. PrestoBlue (10x) solution was added to the cell culture (10 μL per well) and incubated for 20 min. at 37 °C. Then fluorescence with excitation of 525 nm and emission of 580-640 nm was measured by microplate reader (GloMax, Promega).

**In vitro cytotoxicity data evaluation.** Each experimental variant was conducted in three independent runs (replicates). The data were displayed as mean value ± standard deviation (error bars, S.D.) Data were normalized to the viability of the negative control. The graphs and all statistical analyses were performed using GraphPad Prism 8 (San Diego, California USA).

**Fish embryo test.** The 96-well culturing plates were saturated by a 24-hour incubation with corresponding concentrations or controls. Prior to loading the zebrafish embryos into the well plates, all solutions used were exchanged for fresh, 24-hour aerated solutions with test concentrations and controls. After pre-exposure and zebrafish egg loading (for details see ref²), the eggs were individually transferred to pre-treated 96-well plates (1 embryo per well, per 200
μl). All solutions were exchanged after 48 hours of exposure to maintain stable concentration and oxygen levels.

**Fish embryo test data evaluation.** All 96-well plates were observed at 4 timepoints (24, 48, 72, 96 hours) and evaluated for survival, morphological effects and hatching using an Olympus IX71 inverted microscope. The morphological endpoints used to determine the lethality were: (1) coagulation; (2) lack of somite formation; (3) lack of detachment of the tail bud from the yolk sac; (4) lack of heartbeat or heart defects (oedema); (5) malformations of body parts (head and tail region) and (6) growth retardation. A concentration dose–response curve was calculated for the timepoints 24, 48, 72 and 96 hours post incubation, and the LD50 values including the 95% confidence intervals were calculated using Probit Analysis (AAT Bioquest). The graphs were generated using GraphPad Prism 8.

**References**

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4 AAT Bioquest, Inc. (2022, April 7). Quest Graph™ EC50 Calculator. AAT Bioquest., https://www.aatbio.com/tools/ec50-calculator.

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**Fig. S1.** SEM and TEM/EDS analysis of the sample 9Ce1Bi
Fig. S2. SEM and TEM/EDS analysis of the sample 7Ce3Bi

Fig. S3. SEM and TEM/EDS analysis of the sample 1Ce9Bi
Fig. S4. XPS spectra of selected Ce/Bi oxides

Fig. S5. Tauc plots derived from diffuse reflectance spectra for determination of direct and indirect band gap of the prepared Ce/Bi oxides.
Fig. S6. Zeta potential (left) and particle hydrodynamic diameter (right) of the prepared Ce/Bi oxides as a function of pH.

Fig. S7. Adsorption and photo-induced degradation of \( p \)-nitrophenol on selected Ce/Bi oxides in comparison with P25 benchmark photocatalyst.
Fig. S8. The degradation efficiency in presence of different ROS scavengers
Fig. S9. Diffractograms of the sample 1Ce1Bi before (a) and after (b) MPO degradation.
Fig. S10. XPS spectra of the sample 1Ce1Bi before and after (1Ce1Bi-R) MPO degradation. (a) Survey spectra, (b) Bi4f, (c) Ce3d, and (d) O1s region.
Concentration-response curves from ecotoxicity assays

Fig. S11. Concentration-response curve of the 1Ce1Bi sample with algae *Desmodesmus quadricauda*. 
**Fig. S12.** Concentration-response curve of the 1Ce0Bi sample with algae *Desmodesmus quadricauda.*

**Fig. S13.** Concentration-response curve of the 1Ce1Bi sample with brines shrimp *Artemia salina.*
Fig. S14. Concentration-response curve of the 1Ce0Bi sample with brines shrimp *Artemia salina*.

Fig. S15. Concentration-response curve of the 1Ce1Bi sample with tested bacteria.
**Fig. S16.** Concentration-response curve of the 1Ce0Bi sample with tested bacteria.

**Fig. S17.** Representative micrographs of lethal endpoints of toxicity in zebrafish embryos recorded at 48 hours post exposure. a) and d) Untreated control; b) Embryo showing growth retardation; c) Embryo coagulation; e) Yolk oedema and head malformation; f) Yolk and
pericardial oedema; Black arrows = head region; White arrows = yolk oedema; Green arrow = heart oedema; Scale bar = 200 μm.

Table S1. Semiquantitative phase composition, crystallite size (D) and lattice constant (a) of nanoceria obtained from XRD data; specific surface area (SSA), pore volume (V_pore) and mean pore diameter (MPD) obtained from nitrogen physisorption.

| Sample | CeO$_2$, % | BiON, % | D, nm | a, Å | SSA, m$^2$/g | V_pore, cm$^3$/g | MPD, nm |
|--------|------------|---------|-------|------|-------------|----------------|--------|
| 1Ce0Bi | 100        | -       | 3.2   | 5.420| 189         | 0.131         | 2.78   |
| Sample   | Bi, at.% | C, at.% | Ce, at.% | O, at.% | N, at.% | Ce/Bi |
|----------|----------|---------|----------|---------|---------|-------|
| 1Ce0Bi   | -        | 5.2     | 34.9 (33.3) | 59.9   | -       | -     |
| 9Ce1Bi   | 3.6 (3.6) | 10.2    | 34.7 (30.3) | 51.4   | -       | 9.64 (8.42) |
| 7Ce3Bi   | 13.3 (13.1) | 8.0    | 24.3 (22.4) | 54.3  | -       | 1.83 (1.71) |
| 1Ce1Bi   | 22.8 (20.3) | 11.3   | 23.2 (16.4) | 42.7  | -       | 1.02 (0.81) |
| 3Ce7Bi   | 26.2 (27.3) | 9.5    | 16.9 (10.6) | 47.4  | -       | 0.65 (0.39) |
| 1Ce9Bi   | 41.9 (35.5) | 7.3    | 6.2 (3.8) | 43.1 | 1.6     | 0.15 (0.11) |
| 0Ce1Bi   | 44.2 (40.0) | 6.5    | -        | 46.2  | 3.0     | -     |

**Table S2.** Elemental composition obtained from TEM/EDS and XRF (in parentheses)

**Table S3.** Surface elemental composition obtained from XPS
| Sample | Bi | Ce | Ce^{4+} | O/ | O_{OH} | Ce/Bi |
|--------|----|----|---------|----|--------|--------|
|        | at.% | at.% | % | % | at.% | % |
| 1Ce0Bi | -  | 23.9 | 17 | 83 | 76.1 | 16 |
| 9Ce1Bi | 3.8 | 19.0 | 18 | 82 | 77.1 | 16 | 4.94 (9.00)* |
| 7Ce3Bi | 13.7 | 13.6 | 18 | 82 | 72.8 | 22 | 0.99 (2.33) |
| 1Ce1Bi | 22.7 | 10.2 | 10 | 90 | 67.1 | 37 | 0.45 (1.00) |
| 3Ce7Bi | 27.3 | 7.6 | 7  | 93 | 65.1 | 23 | 0.28 (0.43) |
| 1Ce9Bi | 34  | 3.3 | 17 | 83 | 62.8 | 29 | 0.10 (0.11) |
| 0Ce1Bi | 39  | -   | -  | -  | 60.5 | 34 | - |

* Theoretical Ce/Bi ratio in parentheses

**Table S4.** Isoelectric point (pH_{iep}) obtained from measurement of zeta potential as a function of pH by electrophoretic light scattering; The number of surface hydroxyl groups per weight (q_{OH}) and surface hydroxyl site density (\alpha_{OH}) obtained from acid-base titrations.

| Sample | pH_{iep} | q_{OH}, mmol/g | \alpha_{OH}, \mu mol/m^2 |
|--------|----------|----------------|--------------------------|
| 1Ce0Bi | 9.3      | 0.351          | 1.86                     |
| Sample   | Reactive Ads (60 min) | PID (180 min)          |                      |
|----------|-----------------------|------------------------|----------------------|
|          | k±SE, min⁻¹ MPO rem, % | r²                     | k±SE, min⁻¹ T₁/₂, min | r² | TRR, % |
| 1Ce0Bi   | 0.029±0.001 80.6     | 0.996                  | 0.006±0.001 124.6    | 0.995 | 98.7   |
| 9Ce1Bi   | 0.023±0.005 58.4     | 0.996                  | 0.013±0.007 50.9     | 0.998 | 96.5   |
| 7Ce3Bi   | 0.020±0.004 51.0     | 0.996                  | 0.008±0.001 91.6     | 0.982 | 87.5   |
| 1Ce1Bi   | 0.019±0.003 67.6     | 0.997                  | 0.014±0.004 49.7     | 0.994 | 97.9   |
| 3Ce7Bi   | 0.009±0.001 28.2     | 0.992                  | 0.005±0.001 135.5    | 0.994 | 53.7   |

Table S5. Pseudo-first order kinetic model fitting parameters for methyl paraoxon (MPO) degradation by reactive adsorption and photo-induced decomposition (PID) on Ce/Bi oxides and P25. Rate constant (k) with standard errors (SE), MPO removed in the dark (MPO rem), degradation half-time for PID (T₁/₂) and total removal rate (TRR) at time = 240 min.
Table S6. Pseudo-first order kinetic model fitting parameters for $p$-nitrophenol ($p$-NP) formation by reactive adsorption and photo-induced decomposition (PID) of MPO on Ce/Bi oxides and P25. Rate constant ($k$) with standard errors (SE) and $p$-NP formed ($NP_{\text{form}}$) proportionally to PO removed in the dark and by PID.

| Sample | Reactive Ads (60 min) | PID (180 min) |
|--------|-----------------------|----------------|
| 1Ce9Bi | 0.011±0.001           | 33.4           |
|        | 0.975                 | 0.004±0.001    |
|        | 144.2                 | 0.982          |
|        | 52.2                  |                |
| 0Ce1Bi | 0.010±0.001           | 22.9           |
|        | 0.997                 | 0.004±0.001    |
|        | 158.3                 | 0.980          |
|        | 38.4                  |                |
| P25    | 0.013±0.007           | 45.2           |
|        | 0.988                 | 0.024±0.004    |
|        | 29.6                  | 0.996          |
|        | 91.4                  |                |
| Sample   | k±SE, min⁻¹ | r²  | k±SE, min⁻¹ | r²  | p- NP form, % | p- NP form, % |
|----------|-------------|-----|-------------|-----|---------------|---------------|
| 1Ce0Bi   | 0.027±0.004 | 76.2| 0.006±0.001 | 0.972| 76.2          | 97.7          |
| 9Ce1Bi   | 0.025±0.003 | 54.7| 0.014±0.004 | 0.998| 54.7          | 96.1          |
| 7Ce3Bi   | 0.018±0.002 | 32.9| 0.007±0.002 | 0.987| 32.9          | 73.4          |
| 1Ce1Bi   | 0.019±0.002 | 65.6| 0.013±0.007 | 0.990| 65.6          | 97.7          |
| 3Ce7Bi   | 0.010±0.0001| 28.1| 0.005±0.001 | 0.979| 28.1          | 53.2          |
| 1Ce9Bi   | 0.011±0.0008| 31.5| 0.005±0.0002| 0.988| 31.5          | 50.4          |
| 0Ce1Bi   | 0.008±0.0003| 11.7| 0.001±0.0001| 0.995| 11.7          | 8.5           |
| P25      | <0.001±0.0001| 3.0 | 0.001±0.0001| 0.825| 3.0           | 0.0           |
Table S7. Pseudo-first order kinetic model fitting parameters for Bis(\(\rho\)-nitrophenyl)phosphate (BNPP) degradation by reactive adsorption and photo-induced decomposition (PID) on Ce/Bi oxides and P25. Rate constants (\(k\)) with standard errors (SE), BNPP removed in the dark (BNPP\(_{\text{rem}}\)), and total removal rate (TRR) at time = 240 min.

| Sample  | Removal of Bis(\(\rho\)-nitrophenyl)phosphate (BNPP) | Reactive Ads (60 min) | PID (180 min) |
|---------|--------------------------------------------------|------------------------|---------------|
|         |                                                  | \(k\pm SE\), min\(^{-1}\) | BNPP\(_{\text{rem}}\), % | \(r^2\) | \(k\pm SE\), min\(^{-1}\) | \(r^2\) | TRR, % |
| 1Ce0Bi  |                                                  | 0.159±0.005            | 97.3          | 0.999 | 0.001±0.0001 | 0.995 | 100    |
| 1Ce1Bi  |                                                  | 0.153±0.003            | 98.4          | 0.966 | <0.001±0.0001 | 0.976 | 100    |
| P25     |                                                  | 0.002±0.0002           | 8.2           | 0.987 | 0.003±0.0001 | 0.997 | 31.0   |

Table S8. Pseudo-first order kinetic model fitting parameters for \(\rho\)-nitrophenol (\(\rho\)-NP) formation by reactive adsorption and photo-induced decomposition (PID) of BNPP on selected Ce/Bi samples and P25. Rate constant (\(k\)) with standard errors (SE) and \(\rho\)-NP formed (\(\rho\)-NP\(_{\text{form}}\)) proportionally to PO removed in the dark and by PID.
| Sample     | Production of p-nitrophenol (p-NP) |
|------------|------------------------------------|
|            | Reactive Ads (60 min) | PID (180 min) |
|            | k±SE, min⁻¹ | p-NPₜ₉₀, % | r² | k±SE, min⁻¹ | p-NPₜ₉₀, % | r² |
| 1Ce0Bi     | 0.151±0.004 | 94.4 | 0.995 | 0.001±0.0001* | 0.976 | 99.8 |
| 1Ce1Bi     | 0.102±0.003 | 72.7 | 0.998 | 0.013±0.0001# | 0.976 | 30.4 |
| P25        | 0.001±0.0004 | 9.5 | 0.999 | 0.003±0.0001* | 0.962 | 21.6 |

* Rate constant for p-NP formation; # Rate constant for p-NP removal

Table S9. Pseudo-first order kinetic model fitting parameters for bisphenol A and S degradation on selected Ce/Bi samples and compared with P25 as a benchmark photocatalyst. Rate constant (k), adsorption capacity in the dark (Adsₓ) and total removal rate (TRR) at time=240 min.

| Sample     | Bisphenol A | Bisphenol S |
|------------|-------------|-------------|
|            | k±SE, min⁻¹ | Ads D, % | TRR, % | r² | k±SE, min⁻¹ | Ads D, % | TRR, % | r² |
| 1Ce0Bi     | 0.0090±0.0002 | 11.9 | 59.0 | 0.9967 | 0.0109±0.0050 | 41.5 | 75.7 | 0.9830 |
| 1Ce1Bi     | 0.0129±0.0002 | 17.0 | 69.3 | 0.9984 | 0.0034±0.0002 | 22.1 | 65.2 (85.1)ᵃ | 0.9843 |

ᵃ Rate constant for p-NP removal
| Sample   | P25    | 0.0081±0.0002 | 4.7 | 52.2 | 0.9871 | 0.0142±0.0013 | 6.0 | 79.2          | 0.9969 |
|----------|--------|---------------|-----|------|--------|----------------|-----|---------------|--------|
|          |        |                |     |      |        |                |     | (87.8)        |        |

Table S10. Elemental composition of the sample 1Ce1Bi before and after (1Ce1Bi-R) MPO degradation.

| Sample   | Atomic and relative concentration |
|----------|-----------------------------------|
|          | Bi   | Ce/ | Ce<sup>4+</sup> | Ce<sup>4+</sup> | O/ | O<sub>OH</sub> | Ce/Bi |
|          | at.% | at.% | % | % | at.% | [%] |
| 1Ce1Bi   | 20.6 | 10.6 | 9 | 91 | 68.7 | 44 | 0.51 (1.00) |
| 1Ce1Bi-R | 23.1 | 9.9  | 13 | 87 | 67.1 | 18 | 0.43 (1.00) |

<sup>a</sup>prolonged experiment (390 min)
**Table S11.** The toxicity of tested materials to aquatic organisms, bacteria and mammalian cells.

EC50 could not be precisely calculated, therefore maximal achieved inhibition is given.

| Organism                                      | 1Ce0Bi          | 1Ce1Bi          |
|-----------------------------------------------|-----------------|-----------------|
| *Desmodesmus quadricauda* (algae)             | EC₅₀ >100 mg/L (0.43)* | EC₅₀ >100 mg/L (0.43)* |
| *Artemia salina* (invertebrata)               | EC₅₀ >100 mg/L (0.04)* | EC₅₀ >100 mg/L (0.23)* |
| *Escherichia coli* (Proteobacteria)           | EC₅₀ >100 mg/L (0.13)* | EC₅₀ >100 mg/L (-0.08)* |
| *Staphylococcus aureus* (Firmicutes)          | EC₅₀ >100 mg/L (0.00)* | EC₅₀ >100 mg/L (0.02)* |
| *Rhodococcus erythropolis* (Actinobacteria)   | EC₅₀ >100 mg/L (-0.16)* | EC₅₀ >100 mg/L (0.42)* |
| *Rattus norvegicus* rMSC cells *in vitro* (Mammalia) | EC₅₀ >100 mg/L | EC₅₀ >100 mg/L |

*Inhibition at the highest tested concentration (100 mg/L)
