Table S1. Experimental data on *D. magna*. Mean water parameters (pH, DO) and standard deviations. Monitored pH (units) and DO (percentages) during tests are reported as average value during the whole exposure time compared to controls both under fasting and feeding conditions. Reported data are referred to tested doses under confirmation tests.

Feeding conditions	**pH**	**Standard dev.**	**DO**	**Standard dev.**
Control	7.6	0.3	75	3
ZnO	8.1	0.2	74	2
TiO_2	8.0	0.3	88	3
S (Triton X100)	8.2	0.3	65	2
ZnO + S	8.3	0.2	72	4
TiO_2 + S	8.3	0.2	80	3

Fasting conditions	**pH**	**Standard dev.**	**DO**	**Standard dev.**
Control	7.8	0.2	74	2
ZnO	7.9	0.1	78	3
TiO_2	7.8	0.3	92	5
S (Triton X100)	8.3	0.2	68	5
ZnO + S	8.2	0.1	77	2
TiO_2 + S	8.2	0.2	79	4

Gas bubble formation during pre-tests: general comments and explanations

Exposure to high doses tested during the first phase of our experiments led to the gas-bubble formation. To the best of our knowledge, this occurrence was not yet documented by the scientific literature on Cladocerans and this study reported this occurrence after the exposure to nanoparticles for the first time. Nevertheless, bubble formation was known in invertebrates as crustaceans (Lightner et al., 1974), and in the brown shrimp (*Penaeus aztecus*). It is a documented occurrence in fish species that is associated to oxygen oversaturation of water (Màchovà et al., 2017). Gas-bubble disease, also, occurs in other aquatic species exposed to supersaturated water. Tsai et al. (2017) reported, at 6h after the end of accidental exposure to supersaturated water, 90% of morbidity and 3.5% of mortality in adult frog females (n=450) of *Xenopus laevis*. Animals showed clinical sign of gas-bubbles diseases (buoyancy problems, micro- and macroscopic bubbles in the foot webbing, hyperaemia in foot webbing and leg skin, and loss of the mucous slime coat, mesenteric infarction). In our study, during pre-test exposure, dissolution of n-ZnO in water could be theorized as the principal cause associated to bubble-gas production. We supposed a significant change of water chemism as consequence of n-ZnO dissolution in Zn^{2+} and O^{-}. In fact, even if the bulk fraction of ZnO is quite insoluble, recent researches supported dissolution for the nano forms. David et al (2012) observed the enhanced solubility of the n-ZnO with decreasing primary radius and estimated that the surface energy of 0.32 J/m^2 modulating dissolution in water. Li et al. (2013) provided evidences that dissolution plays an important role in ecotoxicity of n-ZnO changing water chemistry such as pH, ionic components, DOM, and affecting bacteria (i.e. *E. coli*). The occurrence of photooxidation when ultrafine n-TiO_2 particles are exposed to UVA radiation was reported (Thompson and Yates, 2006). Photoactivation in water promotes the generation of reactive oxygen species (ROS) and, consequently, a strong ecotoxicity (Adams et al., 2006). Nevertheless, it was reported by the literature that ultrafine nano-TiO_2 particles (10–20 nm) could induce oxidative damages (lipid peroxidation, micronuclei formation, increasing of hydrogen peroxide and nitric oxide production) in human bronchial epithelial cell lines, also, in the absence of photoactivation (Gurr et al., 2005). These data support the observed hyperoxygenation of tested media under high doses exposure under dark conditions reported in this study and associated to gas bubble formation in exposed Cladocerans.