Electronic Supplementary Material (ESI) for Environmental Science: Nano.

Supplementary Information

Metabolomics-based analysis in *Daphnia magna* after exposure to low environmental concentrations of polystyrene nanoparticles

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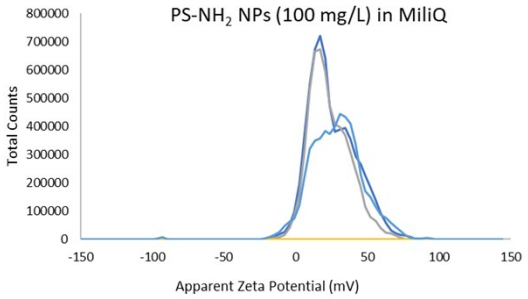

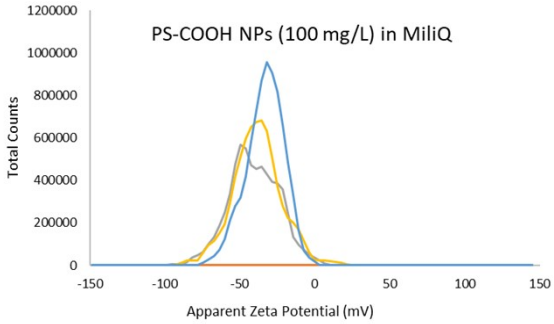

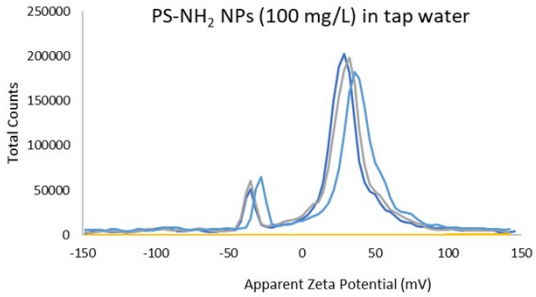

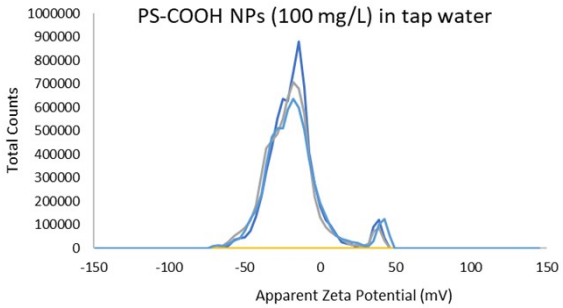

Supplementary Fig. 1. Zeta potential measurements for PS NPs used in the study. PS NPs were measured either in MiliQ water or in tap water at concentrations of 100 mg/L,

Table S1. MANOVA comparisons of effect of presence, concentration, and type of nanoparticles. P values for comparisons of scores from principal component analysis (PCA) to test effect of presence, concentration, and type of NPs at different daphnid ages using MANOVA. Conc = effect of concentration for all NPs, Conc NH_2 = effect of concentration for PS-NH_2 NPs, Conc COOH = effect of concentration for PS-COOH NPs, Nanotype = effect of nanoparticle type, Nano = effect of nanoparticles, Nano 3.2 µg/L = effect of nanoparticles at 3.2 µg/L, Nano 32 µg/L = effect of nanoparticles at 32 µg/L, Nano 320 µg/L = effect of nanoparticles at 320 µg/L.

Age (days)	**2**	**9**	**16**	**23**	**30**	**37**	**median**
Conc	3.2×10^{-2}	2.6×10^{-2}	8.2×10^{-1}	2.8×10^{-1}	6.6×10^{-1}	5.8×10^{-3}	1.6×10^{-1}
Conc NH_2	8.8×10^{-2}	1.5×10^{-2}	1.7×10^{-1}	2.0×10^{-4}	3.8×10^{-5}	2.5×10^{-1}	5.2×10^{-2}
Conc COOH	4.0×10^{-1}	2.1×10^{-3}	1.4×10^{-5}	3.1×10^{-2}	1.0×10^{-1}	6.0×10^{-7}	1.6×10^{-2}
Nanotype	1.4×10^{-3}	2.6×10^{-1}	4.4×10^{-1}	1.7×10^{-1}	4.9×10^{-4}	1.5×10^{-1}	1.6×10^{-1}
Nano	1.1×10^{-8}	2.1×10^{-4}	6.8×10^{-3}	3.6×10^{-6}	5.3×10^{-8}	1.3×10^{-7}	1.9×10^{-6}
Nano 3.2 µg/L	6.5×10^{-9}	1.3×10^{-2}	1.2×10^{-1}	7.3×10^{-4}	2.1×10^{-5}	1.1×10^{-7}	3.8×10^{-4}
Nano 32 µg/L	3.7×10^{-5}	2.3×10^{-5}	9.0×10^{-3}	3.8×10^{-6}	4.8×10^{-2}	7.2×10^{-3}	3.6×10^{-3}
Nano 320 µg/L	5.5×10^{-2}	1.6×10^{-9}	4.7×10^{-7}	1.1×10^{-5}	6.2×10^{-7}	6.4×10^{-9}	5.5×10^{-7}