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Electronic Supplementary Information

Quantifying Nanoplastic-Bound Chemicals Accumulated in *Daphnia Magna* with a Passive Dosing Method

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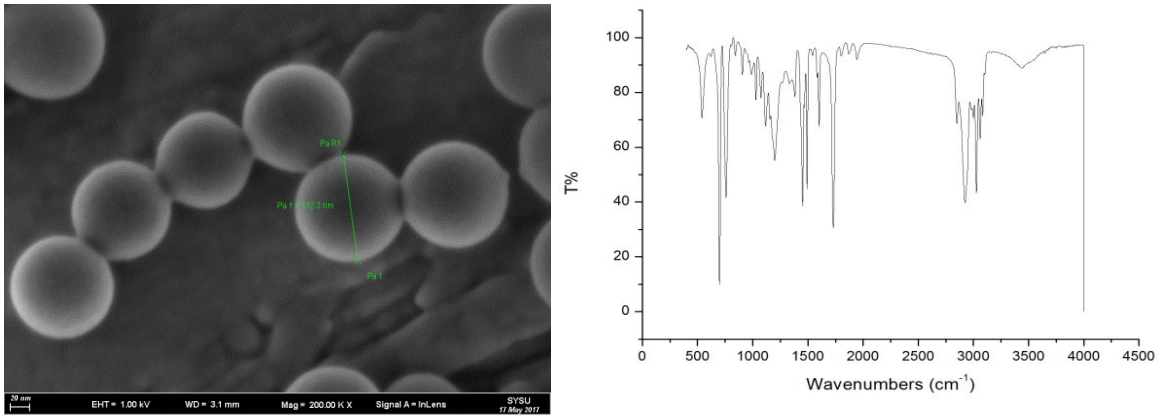
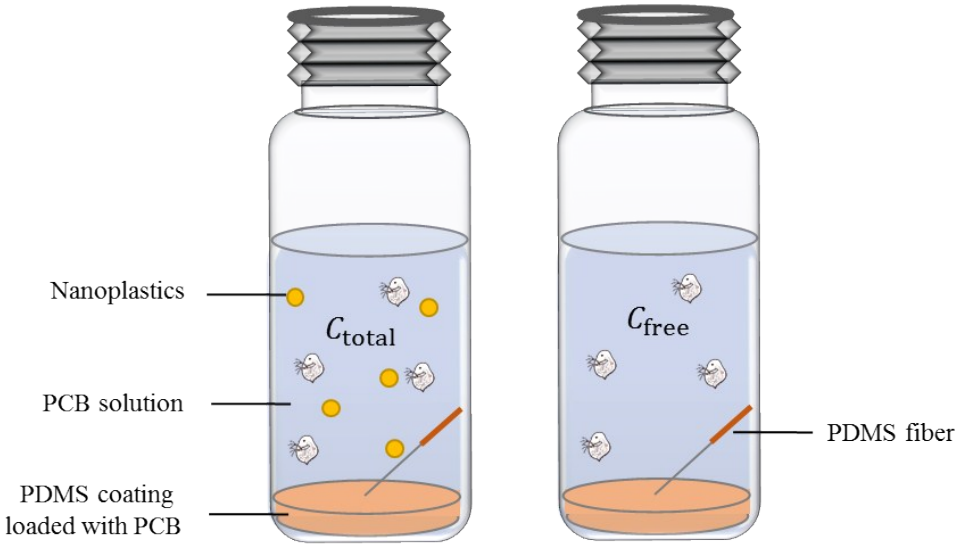


Figure S1. Scanning electron microscopy and FTIR spectra of the 100 nm PS.



In Solution: $$C_{NP-PCB} = \frac{C_{total} - C_{free}}{C_i}$$

In Daphnia: $$C_{NP-PCB} = \frac{n_{dap,i} - n_{dap,0}}{m_{NP}}$$

Figure S2. Schematic showing a typical passive dosing vial and exposure system. The left vial shows the exposure suspension with NP and the right one without NP. Two equations show how to calculate the concentration of PCBs on the NP in solution and *Daphnia magna*.

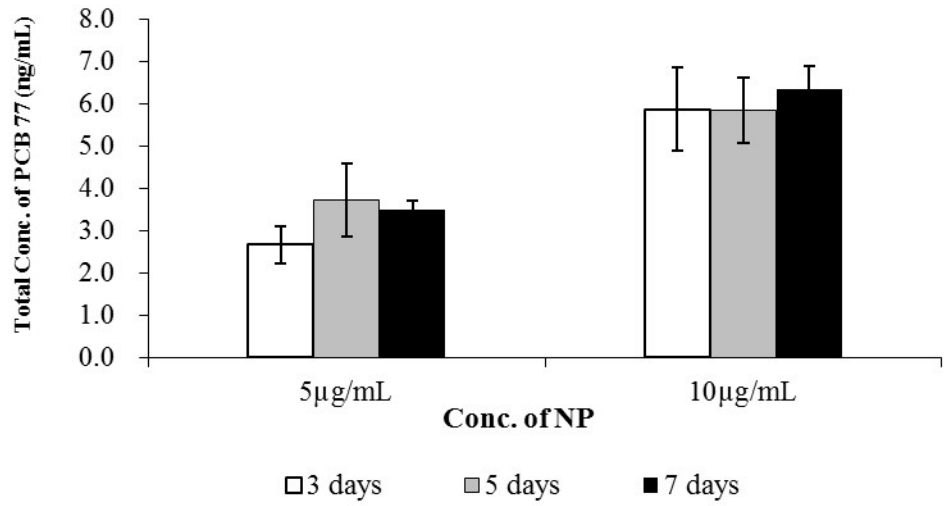


Figure S3. Comparison of the total concentration of PCB 77 in the exposure suspensions with NP concentration of 5 and 10 µg/mL after 3, 5 and 7 days exposure.

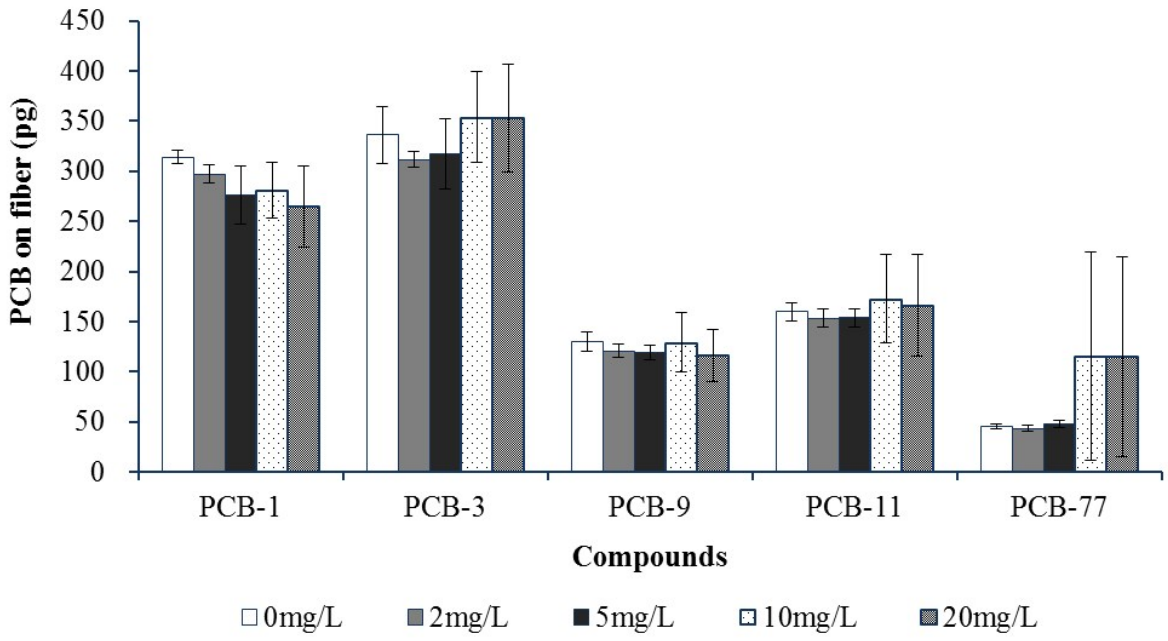


Figure S4. Accumulation of PCBs on PDMS fiber after 24 h exposure. One-way ANOVA test showed $p>0.05$ for all compounds.

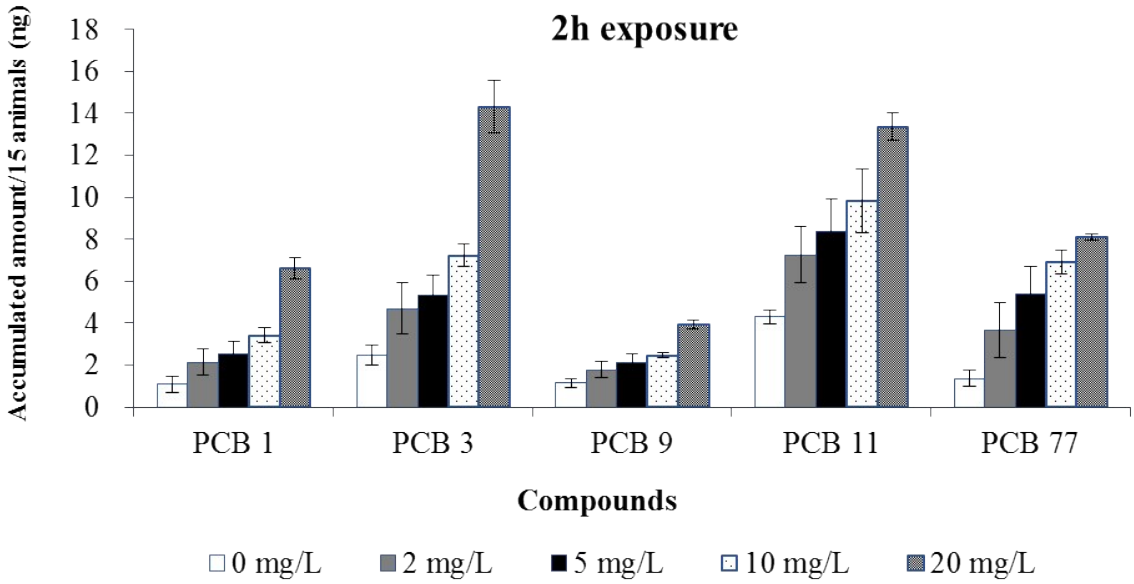


Figure S5. Accumulation of individual PCBs in daphnids with different concentrations of NP after 2 h exposure.

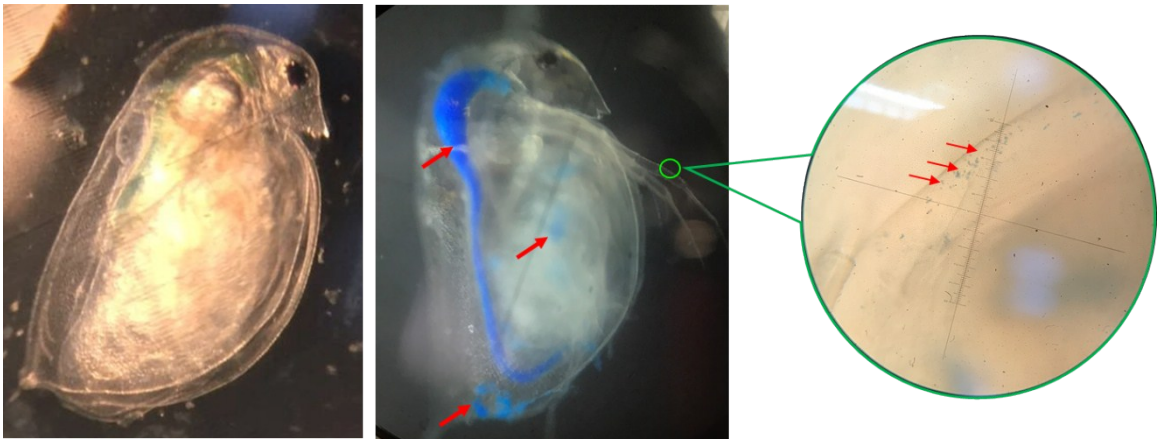


Figure S6. Comparison of the uptake of PS on *D.magna* in exposure group and control group.

Table S1. Hydrodynamic diameter of 100 nm PS in different exposure conditions.

Hydrodynamic diameter(nm)	Freshly spiked	Spiked for 5 days	After Daphnia exposure
100 nmNP	205±7	193±4	196±4
100 nmNP with PCBs	202±5	195±8	Not test

Table S2. Ingested amount of NP at different exposure conditions.

Ingested NP	2-h				24-h			
(ng)	2 mg/L	5 mg/L	10 mg/L	20 mg/L	2 mg/L	5 mg/L	10 mg/L	20 mg/L
PCB-1	63	78	108	247	115	131	119	106
PCB-3	71	80	116	261	69	128	132	113
PCB-9	78	103	119	270	81	133	140	123
PCB-11	66	87	112	222	105	99	102	132
PCB-77	97	164	184	296	60	77	89	70
Average (ng)	75	102	128	259	86	114	116	109
RSD%	18	35	25	11	27	22	18	22