Electronic Supplementary Information

Polystyrene (nano)microplastics cause size-dependent neurotoxicity, oxidative damages and other adverse effects in Caenorhabditis elegans

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Fig. S1. Survival percentages of *C. elegans* after exposed to 1.0 μm polystyrene particles. Data were expressed as means ± SE. Nematodes were exposed to a series of concentrations of 1, 5, 10 and 20 mg L⁻¹ for 3 days. *p<0.05, when compared to the control.
Fig. S2. Accumulation of red fluorescence labeled polystyrene (nano)microparticles with different sizes in *C. elegans*. (a) Control worm. (b-f) Nematodes were exposed to 1.0 mg L\(^{-1}\) (nano)microplastics with diameter sizes of 0.1 μm (b), 0.5 μm (c), 1.0 μm (d), 2.0 μm (e) and 5.0 μm (f) for 3 days. Blue arrows show plastic particles in body of nematodes. (g) Fluorescence intensity of polystyrene (nano)microplastics after exposure to different-size N/MPs. Data were expressed as means ± SE. *** p<0.001, when compared to the control. Bar = 200 μm.
**Fig. S3.** Effects of (nano)microplastics exposure on the GFP expression pattern in dopaminergic neurons of the transgenic *C. elegans* strain BZ555. (a) The diagrammatic figure of dopaminergic neurons in *C. elegans*, which include four cephalic neurons (CEP), two anterior deirid neurons (ADE) and two posterior deirid neurons (PDE). (b) In the control nematodes, dopaminergic neurons are visualized by the translational expression of GFP driven by the promoter of the dopamine transporter (*dat-1::GFP*). (c-g) Fluorescence images show dopaminergic neurons in worms after respectively exposed to different-size (nano)microplastics. (h) Fluorescence intensity of the GFP expression pattern in dopaminergic neurons after exposure to different-size (nano)microplastics. Data were expressed as means ± SE. Nematodes were exposed to 1.0 mg L⁻¹ (nano)microplastics for 3 days. Bar = 200 μm.
**Fig. S4.** Protective effects of oxytetracycline (OTC) on exposure of polystyrene microplastics in *C. elegans*. (a-f) Fluorescence images show expression of *gst-4::*GFP in control (a), experimental worms of single exposure to 1.0-μm microplastics (b) and its joint exposure to 50μM (c), 200μM (d), 500μM (e) and 1000 μM (f) OTC. (g) Fluorescence intensity of the GFP expression pattern after 1.0 μm polystyrene MPs exposure and its joint exposure to OTC. Data were expressed as means ± SE. Nematodes were exposed to 1.0 mg L⁻¹ 1.0-μm polystyrene microplastics for 3 days. ***p<0.001, when compared between different groups. Bar = 200 μm