Supplementary information

Distinct effects of soluble and bound exopolymeric substances on algal bioaccumulation and toxicity of anatase and rutile TiO_2 nanoparticles

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Table S1. Selected physicochemical properties of A-HR3 and R-DJ3.

TiO_2-NPs	Purity (%)	Surface area (m^2/g)	Size (nm)	Zeta potential (mV)	Hydrodynamic size (nm)	Crystal structure
A-HR3	98.0	324	12.0±3.5	-2.20±1.26	526±100	anatase
R-DJ3	89.5	167	47.6±7.6	-34.2±1.45	283±3.15	rutile

Table S2. The difference (ΔP) between co- and additive settling curves of TiO_2-NPs and algae with or without B-EPS.

	A-HR3&cell with B-EPS	A-HR3&cell without B-EPS	R-DJ3&cell with B-EPS	R-DJ3&cell without B-EPS
ΔP	0.219	0.122	-0.178	-0.207

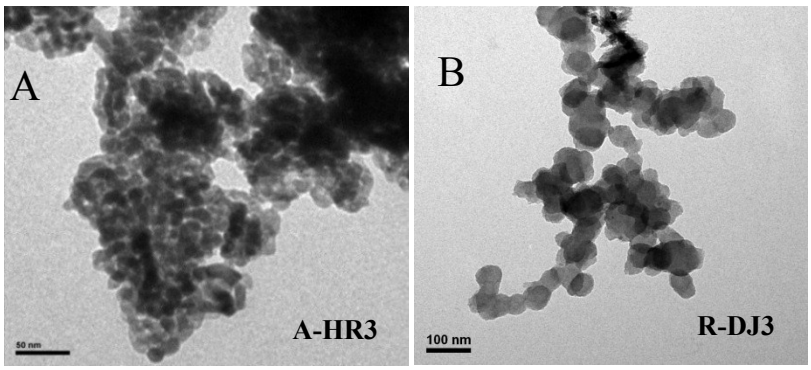

Fig. S1 Transmission electron microscope images of A-HR3 (A) and R-DJ3 (B). (Adapted from our previous paper "Ma, S., Zhou, K.J., Yang, K. and Lin, D.H., ENVIRON SCI TECHNOL, 2015, 49, 932-939")

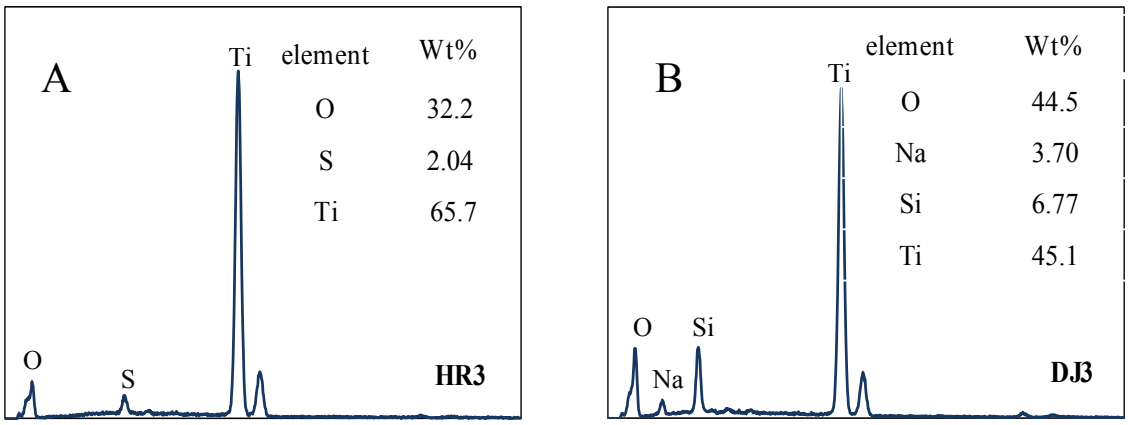

Fig. S2 X-ray energy dispersion spectroscope (EDS) analyses of A-HR3 (A) and R-DJ3 (B). (Adapted from our previous paper "Ma, S., Zhou, K.J., Yang, K. and Lin, D.H., ENVIRON SCI TECHNOL, 2015, 49, 932-939")

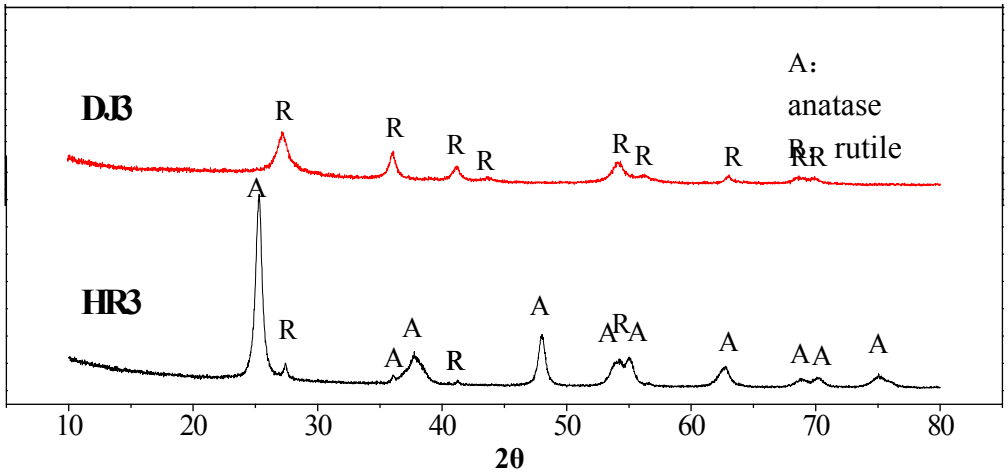

Fig. S3 X-ray diffraction patterns of A-HR3 and R-DJ3. (Adapted from our previous paper "Ma, S., Zhou, K.J., Yang, K. and Lin, D.H., ENVIRON SCI TECHNOL, 2015, 49, 932-939")

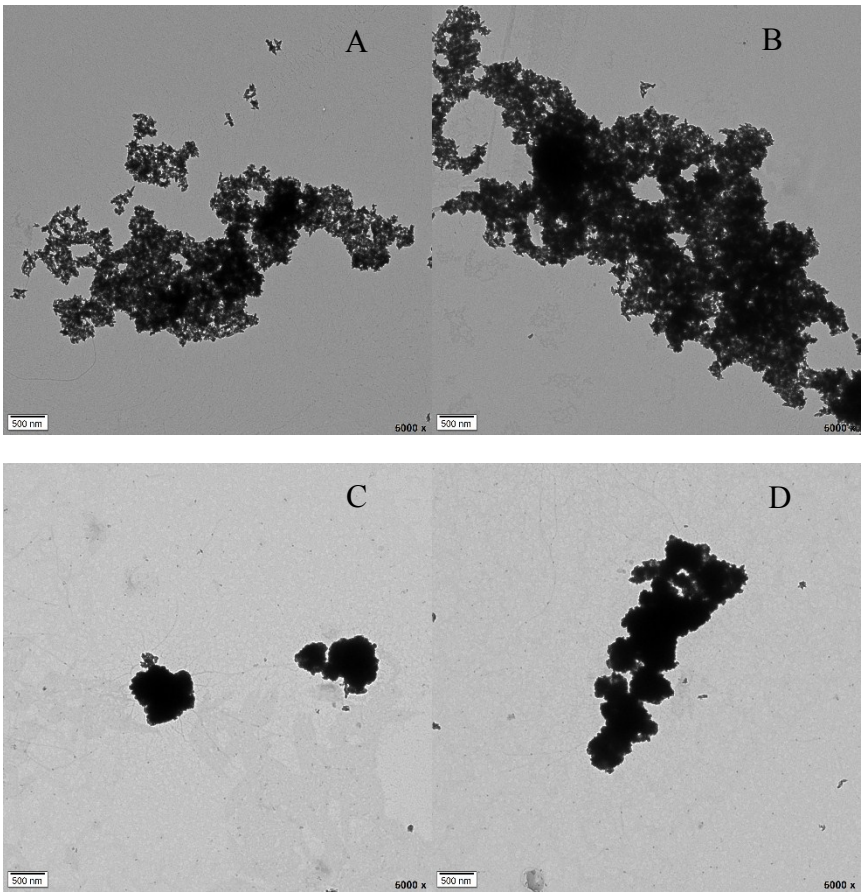

Fig. S4 TEM images of A-HR3 (A and B) and R-DJ3 (C and D) in the OECD medium with 25 mg C/L B-EPS (A and C) and S-EPS (B and D).

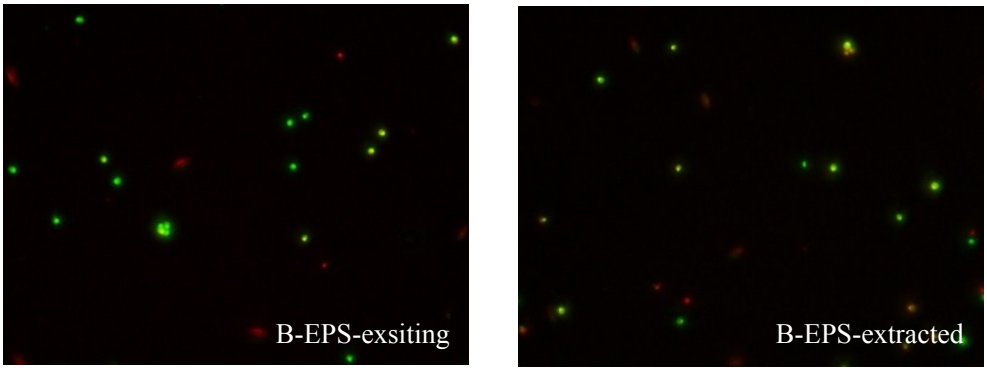

Fig. S5 Fluorescence electron microscope images of the algal cells with or without B-EPS, with the live cells dyed by the green-fluorescent nucleic acid stain (SYTO 9) and the dead cells dyed by the red-fluorescent nucleic acid stain (propidium iodide, PI). (Adapted from our previous paper "Zhou, K.J, Hu, Y., Zhang, L.Q., Yang, K. and Lin, D.H., SCI REP-UK, 2016, 6")

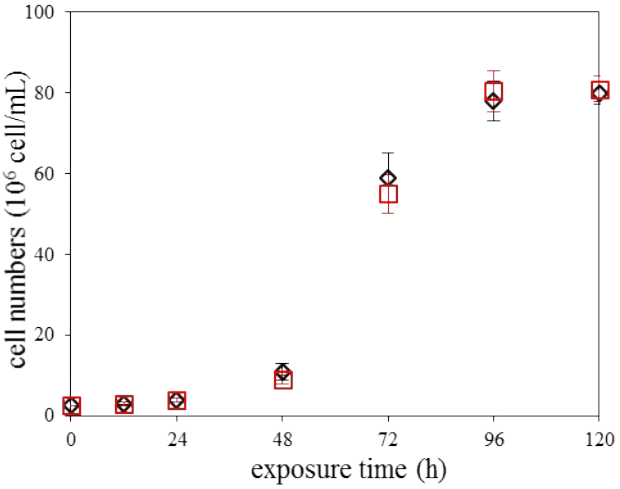

Fig. S6 Growth curves of algae with and without B-EPS. (Adapted from our previous paper "Zhou, K.J, Hu, Y., Zhang, L.Q., Yang, K. and Lin, D.H., SCI REP-UK, 2016, 6")