Supplementary Information

A novel upconversion nanoprobe-based approach for microalgae concentration determination

Hong Wang[a], Limin Wei[a], Fangyun Xin[a], Sicheng Xia[a], Xiumei Yin[b], Xixian Luo[a,b], Ying Tian[a,*]

[a] School of Science, Dalian Maritime University, Dalian 116026, China

[b] School of Physics and Materials Engineering, Dalian Minzu University, Dalian 116600, China

Email: tianying@dlmu.edu.cn (Tian Y.)

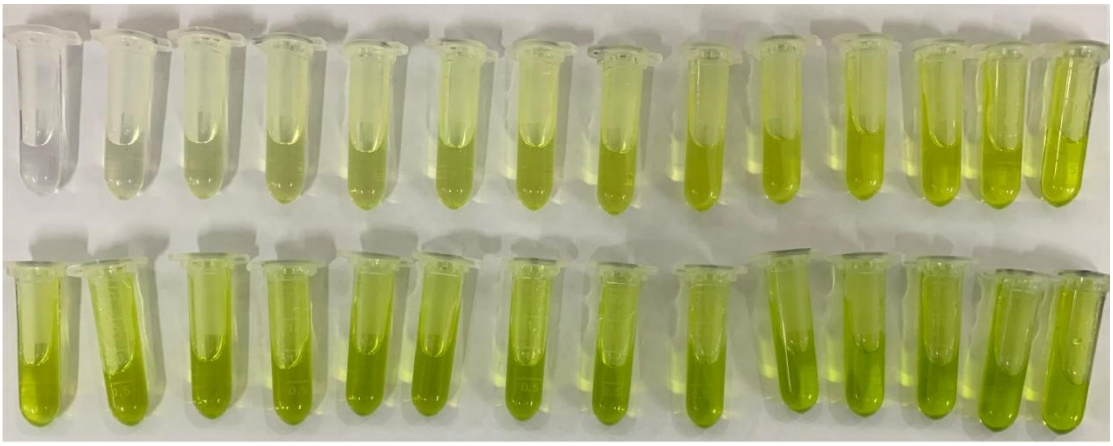

Fig. S1 The digital photos of $NaYF_4:Er^{3+},Tm^{3+}$ nanoprobes (200 mg L^{-1}) with different concentrations of CH-a.

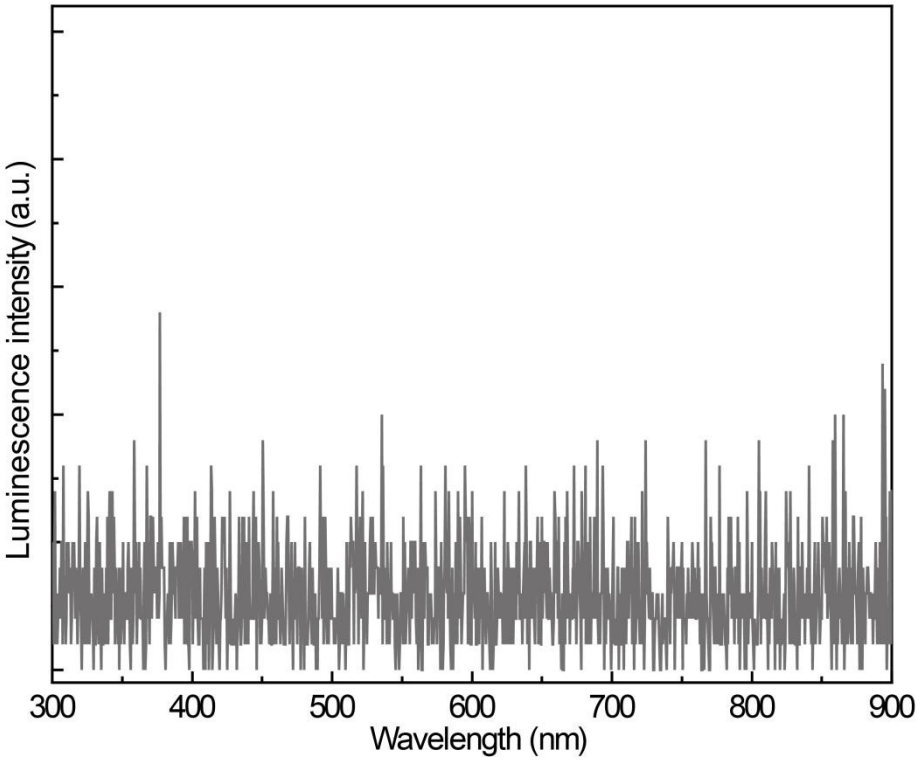

Fig. S2 The luminescence spectrum of CH-a solution under 980 nm excitation.

Table S1 The fitting parameters of the decay curves under 980 nm excitation.

CH-a concentration (mg L^{-1})	τ_1 (ms)	τ_2 (ms)	A_1	A_2	R^2	τ (ms)
0	1.34	1.34	0.38	0.37	0.96	1.34
6.56	1.44	1.44	0.35	0.35	0.96	1.44
16.51	1.26	1.26	0.32	0.34	0.96	1.26
21.16	1.30	1.31	0.34	0.36	0.96	1.31