

Surfactant-induced chirality on reluctant aggregates of a chiral amphiphilic Zn(II)porphyrin derivative in water

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Electronic Supplementary Information.

Experimental.

General. Spectroscopic measurements were performed on UV-Visible Spectrophotometer Varian Cary 1E at room temperature. Fluorescence and Resonance Light Scattering studies were carried out on JASCO 7850, and FluoroMax-2 Spectrofluorophotometers; concentrations used for UV/Visible and fluorescence measurements were within 0.8 to 5.0×10^{-6} mol l⁻¹, unless otherwise indicated. Fluorescence Microscopy images have been obtained with AvioScope A1 HBO 50 Carl Zeiss instrument, equipped with broad spectrum arc lamp, excitation range of 450 – 490 nm. Samples have been obtained by drop-casting 100 μL of the required ZnPL(+)/surfactant solution on freshly cleaned microscope glass slide.

Aggregation studies. All the spectroscopic studies have been carried out at 298 K, unless otherwise indicated. Solutions suitable for the aggregation studies were prepared as follows. Proper aliquots of a millimolar stock solution of **ZnPL(+)** in ethanol (15±150 μL), were added to the amount of ethanol (final volume of 1.0 mL) in an 8 mL glass vial. To this solution 3.0 mL of water were then added, to give 4.0 mL of resulting solution with 25% v:v proportion, and porphyrin concentrations varying within 0.8 - 5.0 μmol l⁻¹ range. A ca. 2.5 mL portion was transferred in a quartz cuvette and the relative spectra acquired. Spectra were further acquired at different time in order to get indications on the evolutions of the temporal evolution of the systems.

Solutions suitable for the experiments in the presence of surfactants have been prepared by addition of aliquots of a millimolar stock solution of **ZnPL(+)** in the preformed solutions of surfactants.

Circular Dichroism Spectroscopy studies. CD spectra have been performed on a JASCO J-600, equipped with a thermostated cell holder at 298 K, and purged with ultra-pure nitrogen gas. The samples were prepared by following the procedure described above for the UV-Vis studies.

Fluorescence spectroscopy experiments. Fluorescence spectra were recorded, at 298 ± 0.5 K, on a JASCO 780 or on a Spex Fluorolog Fluorimeters. Solutions have been prepared by following

the protocol used in the UV-Vis aggregation studies. Excitation wavelengths correspond to that of the most intense Q band maxima.

Resonance light scattering experiments. RLS experiments have been performed on a Spex Fluorolog Fluorimeter. Spectra have been acquired, at 298 ± 0.5 K, in a “synchronous scan” mode, in which the emission and excitation monochromators are pre-set to identical wavelengths. Solutions have been prepared by following the protocol used in the UV-Visible aggregation studies.

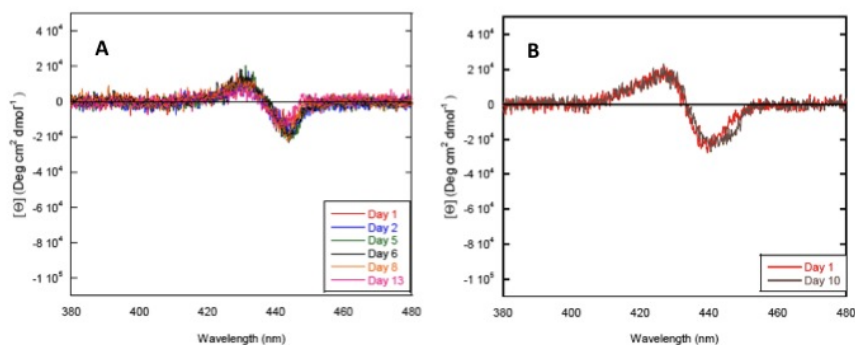


Figure ESI 1. CD plots for the aggregation of **ZnPL(+)** $10 \mu\text{M}$ in **(D)SDP** aqueous solutions at 0.1 (A), and 1.0 mM (B), with time.

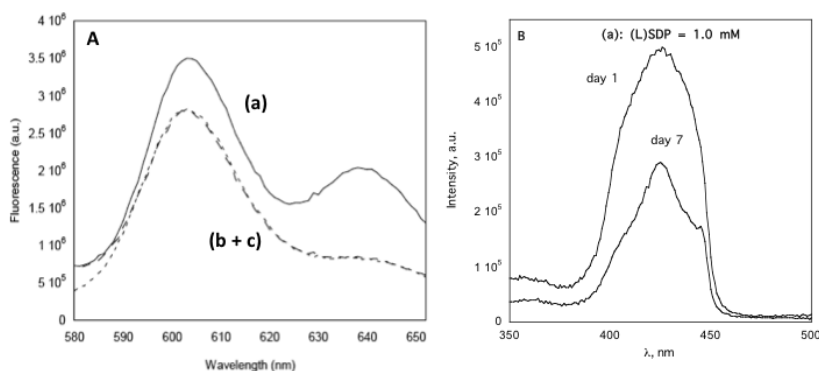


Figure ESI 2. Fluorescence (A) and emission spectra (B) of **ZnPL(+)** $10 \mu\text{M}$ in **(L)SDP** aqueous solutions at 0.01 (c), 0.1 (b), and 1.0 mM (a)

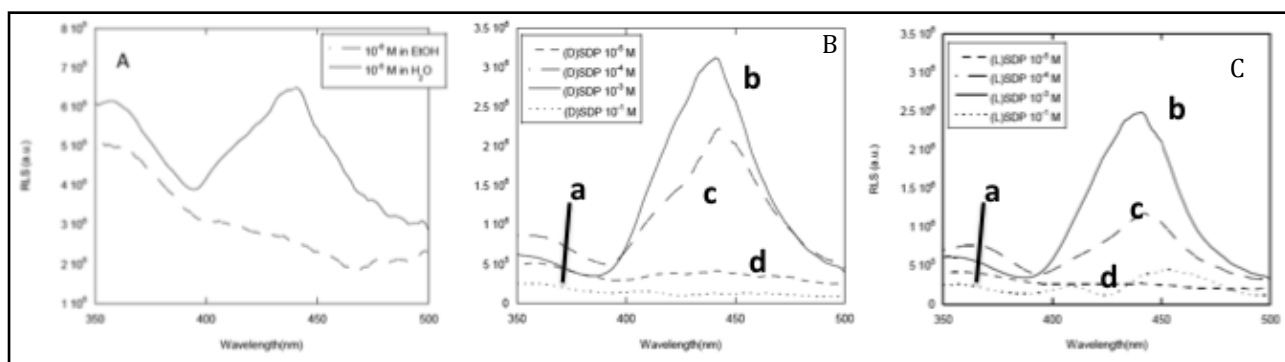


Figure ESI 3. (A) RLS intensities of the aggregates of **ZnPL(+)** 1.0 μM in ethanol (dashed line) and 10 μM in water (continuous line). RLS intensities of the aggregates of **ZnPL(+)** 10 μM in aqueous solutions of **(L)SDP** (B) and **(D)SDP** (C) at different concentrations: 0.1 M (a); 1.0 mM (b); 0.1 mM (C), and 10 μM (d).