Supporting Information

Photophysics of Faecal Pigments Stercobilin and Urobilin in Aliphatic Alcohols:

Introduction of a Sensitive Method for their Detection using Solvent Phase Extraction and Fluorometry

Swayam Prakash and Ashok Kumar Mishra*

Department of Chemistry, IIT Madras, Chennai, India

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Figure S1. Emission intensity at 518 nm with excitation wavelength 480 nm of FPs in various primary alcohol

Figure S2. Emission intensity at 518 nm with excitation wavelength 480 nm of FP-Zn(II) in various primary alcohol correlations with viscosity and dielectric constant.

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Figure S4. Extraction of FP-Zn(II) in 1-hexanol (Comparison of absorption and fluorescence)

Figure S5. Extraction of FP-Zn(II) in 1-octanol (Comparison of absorption and fluorescence)

Figure S6. Extraction of FP-Zn(II) in 1-hexanol and 1-butanol (Comparison of absorption and fluorescence)

Figure S7. Steady-state absorption and emission graph of FPs and metal complexes of in Milli Q water.

Figure S8. EEMF of various metal ions in Mili Q water

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Figure S1. Emission intensity at 518 nm of excitation 480 nm of FPs (1µM) in various primary alcohol (a) SB (1µM) and (b) UB (1µM)

Figure S2. Emission intensity at 518 nm of excitation 480 nm of FPs (1µM)-Zn(II) (20 mM) in various primary alcohol (a) Correlation of fluorescence Intensity of SB-Zn(II) with dielectric constant, (b) Correlation of fluorescence Intensity of SB-Zn(II) with viscosity, (c) Correlation of fluorescence Intensity of UB-Zn(II) with dielectric constant and (d) Correlation of fluorescence Intensity of UB-Zn(II) with viscosity.
Figure S3. Extraction of FP-Zn(II) in 1-butanol

(a) Steady-state absorption spectra of UB (1 µM) and UB (1 µM) -Zn(II) (20 mM) in water before and after extract with 1-butanol (b) Steady-state emission spectra of UB (1 µM) and UB (1 µM) -Zn(II) (20 mM) in water before and after extract with 1-butanol at excitation wavelength of 480 nm, (c) Steady-state absorption spectra of SB (1 µM) and SB (1 µM) -Zn(II) (20 mM) in water before and after extract with 1-butanol (d) Steady-state emission spectra of SB(1 µM) and SB (1 µM) -Zn(II) (20 mM) in water before and after extract with 1-butanol at excitation wavelength of 480 nm, Instrument parameters were kept constant at IT = 1 sec and CCD sensitivity kept high.
Figure S4. Extraction of FP-Zn(II) in 1-hexanol

(a) Steady-state absorption spectra of UB (1 µM) and UB (1 µM)-Zn(II) (20 mM) in water before and after extract with 1-hexanol (b) Steady-state emission spectra of UB (1 µM) and UB (1 µM)-Zn(II) (20 mM) in water before and after extract with 1-hexanol with excitation wavelength at 480 nm, (c) Steady-state absorption spectra of SB (1 µM) and SB (1 µM)-Zn(II) (20 mM) in water before and after extract with 1-hexanol (d) Steady-state emission spectra of SB (1 µM) and SB(1 µM)-Zn(II) (20 mM) in water before and after extract with 1-hexanol with excitation wavelength at 480 nm, Instrument parameters were kept constant at IT = 1 sec and CCD sensitivity kept high.
Figure S5. Extraction of FP-Zn(II) in 1-octanol

(a) Steady-state absorption spectra of SB (1 µM) and SB (1 µM)-Zn(II) (20 mM) in water before and after extract with 1-hexanol (b) Steady-state emission spectra of SB (1 µM) and SB-Zn(II) (20 mM) in water before and after extract with 1-hexanol with excitation wavelength at 480 nm, Instrument parameters were kept constant at IT = 1 sec and CCD kept high.
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**Fig S6.** Extraction of FP-Zn(II) in 1-hexanol and 1-butanol (Comparison of absorption and fluorescence) (a) Steady-state absorption of SB-Zn(II) by 1-hexanol, (b) Steady-state emission of SB-Zn(II) by 1-hexanol, (c) Steady-state absorption of SB-Zn(II) by 1-butanol, (b) Steady-state emission of SB-Zn(II) by 1-butanol
Supporting Information

![Graphs showing absorption and emission spectra](image)

**Figure S7.** a) Steady-state absorption spectra of UB (1 µM) and metal ions of (20 mM) concentration in water (b) Steady-state emission spectra of UB (1 µM) and metal ions of (20 mM) concentration in water at an excitation wavelength of 480 nm, (c) Steady-state absorption spectra of SB (1 µM) and metal ions of (20 mM) concentration in water (b) Steady-state emission spectra of SB (1 µM) and metal ions of (20 mM) concentration in water at an excitation wavelength of 480 nm, Instrument parameters were kept constant at IT = 0.1 sec and CCD sensitivity kept high.
Figure S8. EEMF of various metal ions in Mili Q water.
**Supporting Information**

**Figure S9.** EEMF of various real water samples (a) WWTP water extracted with 1-butanol in the presence of 20 mM Zn(II), (b) lake water extracted with 1-butanol in the presence of 20 mM Zn(II), (c) tap water extracted with 1-butanol in the presence of 20 mM Zn(II)

**SB Implicit 1-hexanol**

Charge = 0, Multiplicity = 1

**TDDFT**

**Figure S10a** TDDFT of SB Implicit model in 1-hexanol. Wavelength maximum = 443.05 (nm)

Cartesian coordinates of the optimized ground state geometry

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UB Implicit 1-hexanol

Charge = 0, Multiplicity = 1

**TDDFT**

![UV-Vis Spectrum](image)

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18
Supporting Information

Figure S10b TDDFT of UB Implicit model in 1-hexanol. Wavelength maximum = 452.68 (nm)

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SB Explicit 1-hexanol

Charge = 0, Multiplicity = 1

TDDFT

**Figure S10c** TDDFT of SB Explicit model in 1-hexanol. Wavelength maximum = 445.06 (nm)

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**UB Implicit 1-hexanol**

| 688 | Charge = 0, Multiplicity = 1 |

**TDDFT**
Supporting Information

Figure S10d TDDFT of UB Explicit model in 1-hexanol. Wavelength maximum = 452.24 (nm)

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