

Supporting Information

Analyzing the effects of protecting osmolytes on solute-water interactions by solvatochromic comparison method: I. Small organic compounds

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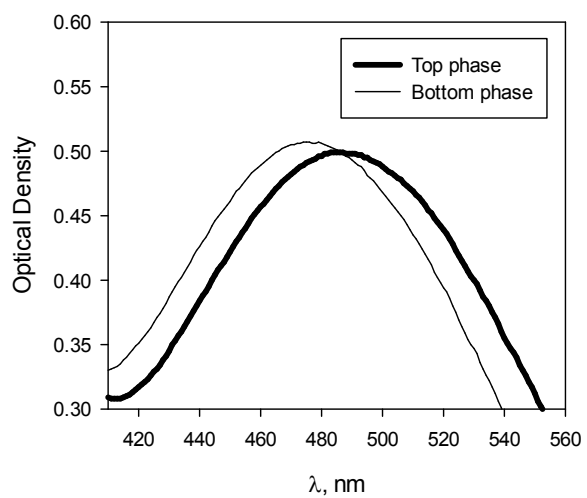


Figure S1: The solvatochromic absorption band of Reichardt's betaine dye for the coexisting phases in dextran-PEG-0.5 M sorbitol-0.01 M K/NaPB ATPS (K/NaPB – potassium/sodium phosphate buffer, pH 7.4).

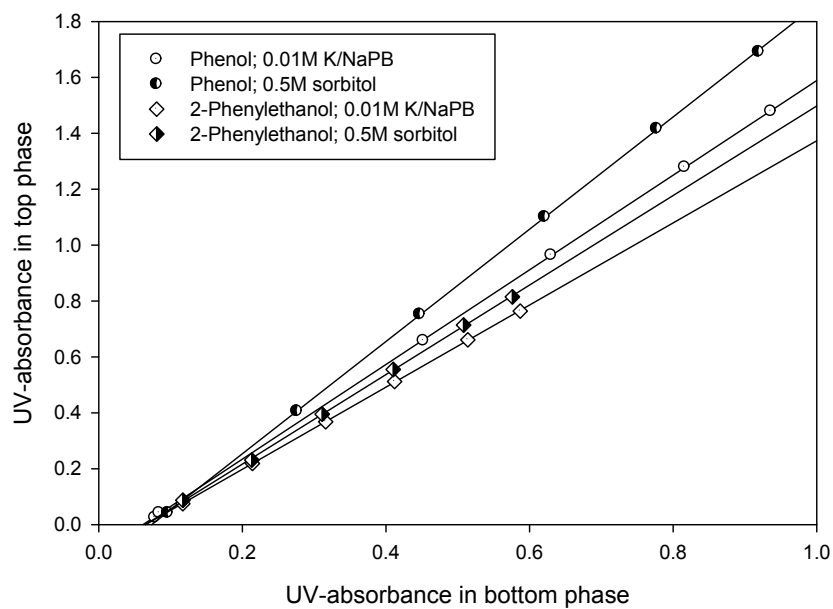


Figure S2. An illustrative example of the output of the partition experiments. Concentration of a solute (phenol, 2-phenylethanol) in the top phase expressed as the UV absorbance at the maximum wavelength plotted against concentration of the same solute in the bottom phase. The slope of each curve represents the partition coefficient of a given solute under conditions indicated.

Table S1. Solvatochromic solvent parameters characterizing the dipolarity/polarizability π^* , the hydrogen bond donor acidity α , and hydrogen bond acceptor basicity β of the media in the coexisting phases of the aqueous two-phase systems: 12.0 wt% Dex-75 – 6.0 wt% PEG-8K - 0.01M K/NaPB, pH 7.4 and 12.0 wt% Dex-75 – 6.0 wt% PEG-8K - 0.5 M osmolyte - 0.01M K/NaPB, pH 7.4 (K/NaPB – sodium/potassium phosphate buffer).

| | Top Phase | | | Bottom Phase | | |
|-----------------|-------------|-------------|-------------|--------------|-------------|-------------|
| | π^* | α | β | π^* | α | β |
| 0.01 M K/NaPB | 1.101±0.002 | 1.039±0.003 | 0.618±0.001 | 1.143±0.001 | 1.090±0.001 | 0.612±0.003 |
| 0.5 M Sorbitol | 1.122±0.001 | 1.013±0.002 | 0.631±0.004 | 1.164±0.003 | 1.079±0.003 | 0.625±0.004 |
| 0.5 M Sucrose | 1.132±0.002 | 0.973±0.003 | 0.634±0.004 | 1.206±0.003 | 1.019±0.004 | 0.611±0.004 |
| 0.5 M Trehalose | 1.122±0.003 | 0.968±0.002 | 0.640±0.004 | 1.164±0.001 | 1.049±0.002 | 0.634±0.003 |
| 0.5 M TMAO | 1.101±0.001 | 0.998±0.002 | 0.643±0.001 | 1.132±0.002 | 1.072±0.002 | 0.634±0.008 |