A single parameter determines mesophases transitions in swollen Liquid Crystals

Supplementary Information

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Figure S1 A: SAXS patterns evolution depending on the 1-pentanol over surfactant molar ratio (R) varying from 0.3 to 0.8 and $[\text{AP}] = 0.1\text{M}$ (1.0g CTAB, 0.046g AP, 2.00g water (pH 2), 3.06g cyclohexane).

Figure S1 B: SAXS patterns evolution depending on the 1-pentanol over surfactant molar ratio (R) varying from 0.9 to 0.15, and $[AP] = 0.1\text{M}$ (1.0g CTAB, 0.046g AP, 2.00g water (pH 2), 3.06g cyclohexane).

Figure S1 C: SAXS patterns evolution depending on the 1-pentanol over surfactant molar ratio (R) varying from 1.6 to 2.1, and $[AP] = 0.1\text{M}$ (1.0g CTAB, 0.046g AP, 2.00g water (pH 2), 3.06g cyclohexane).

Figure S1 D: SAXS patterns evolution depending on the 1-pentanol over surfactant molar ratio (R) equal to 2.2, and [AP]= 0.1M (1.0g CTAB, 0.046g AP, 2.00g water (pH 2), 3.06g cyclohexane).

Figure S2: Optical microscopy under cross-polarized light of the GLCs made with $[AP] = 0.15M$: a) $R=0.6$, b) $R=1.0$, c) $R=1.5$.

Figure S3 A: Porod representation of SAXS patterns evolution depending on the 1-pentanol over surfactant molar ratio (R) varying from 0.3 to 0.8, and $[AP] = 0.1M$ (1.0g CTAB, 0.046g AP, 2.00g water (pH 2), 3.06g cyclohexane).

Figure S3 B: Porod representation of SAXS patterns evolution depending on the 1-pentanol over surfactant molar ratio (R) varying from 0.9 to 1.6, and $[AP] = 0.1\text{M}$ (1.0g CTAB, 0.046g AP, 2.00g water (pH 2), 3.06g cyclohexane).

Figure S3 C: Porod representation of SAXS patterns evolution depending on the 1-pentanol over surfactant molar ratio (R) varying from 1.7 to 2.2, and $[AP] = 0.1M$ (1.0g CTAB, 0.046g AP, 2.00g water (pH 2), 3.06g cyclohexane).

Figure S3 D: Porod representation of SAXS patterns evolution depending on the 1-pentanol over surfactant molar ratio (R) equal to 2.2, and $[AP] = 0.1\text{M}$ (1.0g CTAB, 0.046g AP, 2.00g water (pH 2), 3.06g cyclohexane).

Figure S4: Evolution of the SLC mesophase structure with R as a function of (a) ammonium persulfate (AP), and (b) comparison between 0.1M AP and 0.2M NaF: ■ cubic phase, ▣ mixed cubic/hexagonal phase, ● hexagonal phase, ★ “intermediary” phase, ▼ lamellar phase, ▽ mixed lamellar/sponge phase, and ► sponge phase.

Table S1: d-spacing values deduced from the Porod analysis of SLC mesophases (Figure S3) prepared with different values of R (R : co-surfactant over surfactant molar ratio). [AP]= 0.1M, 1.0g CTAB, 0.046g AP, 2.00g water (pH 2), 3.06g cyclohexane.

R	d (nm)				
0.3	15.2	9.4	7.9	6.3	5.3
0.4	19.2	11.6	9.2	6.9	
0.5	19.4	11.8	8.8	6.9	
0.6	21.6	13.1	9.8	7.8	
0.7	23.3	14.2	9.1	6.3	
0.8	19.6	11.4	9.8	7.4	6.5
0.9	21.8	12.6	9.5	8.1	7.3
1.0	30.2	17.4	11.8		5.8
1.15		14.6		7.0	
1.33	26.7	11.4		5.7	
1.4	20.2	9.5		4.8	
1.5	16.8	8.7			
1.6	16.1	8.4			
1.7	14.5	7.7		6.0	
1.8	13.6	6.5		6.0	
1.9	13.4	6.5			
2.0	12.5	6.0			
2.1	13.1	6.0			
2.2	12.8	5.8			