**Electronic Supplementary Information**

Micellization, surface activities and thermodynamics study of dialkylpyridinium [C16pymC*n*][Br] (*n* = 1-4) in aqueous solutions

****

Figure S1. (1H, 13C) NMR and FTIR spectrum of synthesized

[C16pymC*n*][Br]( *n*=1-4).



****

Figure S2. TG and DSC spectrum of synthesized [C16pymC*n*][Br](*n*=2-4).

Table S1. Coefficients of polynomials *X*CMC=A*+* B*T +* C*T2*; the temperature *T*\*(CMC), at the minimum critical micelle concentration, CMC\*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ILs | A | B | C | CMC\* | *T*\* |
| [C16pymC1][Br] | 6.57864 | -0.0443 | 8.071×10-5 | 0.521 | 283.20 |
| [C16pymC2][Br] | 11.1991 | -0.0751 | 1.307×10-4 | 0.426 | 290.56 |
| [C16pymC3][Br] | 8.15074 | -0.0547 | 9.524×10-5 | 0.293 | 287.09 |
| [C16pymC4][Br] | 10.3093 | -0.0726 | 1.298×10-4 | 0.160 | 287.69 |

a Units: *T*(K); B(K-1); C(K-2); T\*(K); CMC\*(mmol·L-1)

Table S2. Coefficients of polynomials log *X*CMC=A*+* B*T +* C*T2*; *T*0 at *ΔHmθ*=0; standard heat capacity change upon micelle formation, Δ*Cp,mθ*, for the investigated systems.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ILs | A | B | C | *T*0 | Δ*Cp,mθ* |
| [C16pymC1][Br] | 1.54843 | -0.0276 | 4.857×10-5 | 285.16 | -316.39 |
| [C16pymC2][Br] | 4.09443 | -0.0644 | 1.126×10-4 | 287.02 | -671.84 |
| [C16pymC3][Br] | 6.18604 | -0.0792 | 1.368×10-4 | 291.05 | -791.88 |
| [C16pymC4][Br] | 6.24757 | -0.09491 | 1.626×10-4 | 288.19 | -954.49 |

a Units: *T*(K); B(K-1); C(K-2); T0(K); Δ*Cp,mθ* ( J·K-1·mol-1)