

Supporting Information (ESI)

Fractionation of *Isochrysis galbana* proteins, arabinans and glucans using ionic liquid-based aqueous biphasic systems

João H. P. M. Santos¹, João P. Trigo^{1,2}, Élia Maricato¹, Cláudia Nunes^{1,2}, Manuel A.

Coimbra², Sónia P. M. Ventura^{1*}

¹CICECO, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal

²QOPNA, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal

***Corresponding author:**

Campus Universitário de Santiago, University of Aveiro, Aveiro, Portugal

Tel: +351-234-370200; Fax: +351-234-370084; E-mail address: spventura@ua.pt

Number of pages: 4

Number of figures: 1

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Figures

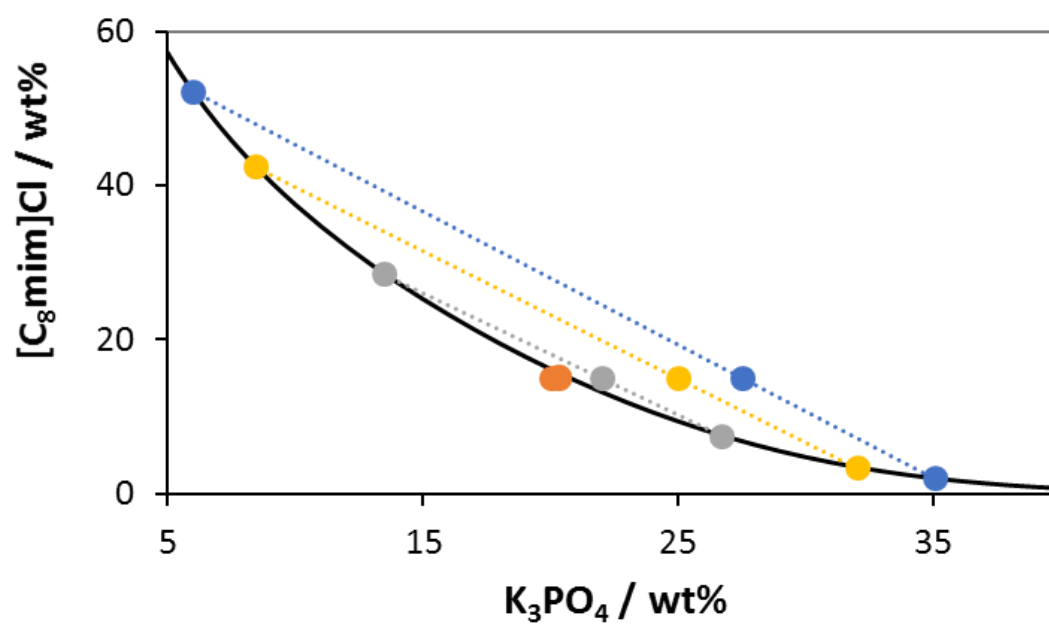


Fig S1. Phase diagrams and tie-lines (TLs) of the system composed of [C₈mim]Cl + K₃PO₄, for the following mixture points (wt%/wt%): 15/20 (●), 15/22 (●), 15/25 (●), and 15/27.5 (●) of [C₈mim]Cl/K₃PO₄. TLs are represented in dashed lines.

Tables

Table S1. Mass balance (MB) values for proteins and carbohydrates for each purification platform (ABS).

Aqueous biphasic systems	MB_{prot} ± std (%)	MB_{carb} ± std (%)
[C ₂ mim]Cl + Phosphate Buffer	76.47 ± 5.37	109.04 ± 9.83
[C ₂ mim]Cl + K ₂ HPO ₄	89.55 ± 5.87	97.18 ± 10.67
[C ₂ mim]Cl + K ₃ PO ₄	93.6 ± 11.1	70.11 ± 0.74
[C ₂ mim][CH ₃ CO ₂] + K ₃ PO ₄	102.73 ± 2.34	85.52 ± 9.51
[C ₂ mim][CF ₃ SO ₃] + K ₃ PO ₄	80.88 ± 6.55	101.25 ± 9.17
[C ₂ mim][N(CN ₂)] + K ₃ PO ₄	89.24 ± 4.15	90.39 ± 3.83
[C ₄ mim]Cl + K ₃ PO ₄	102.74 ± 0.68	75.24 ± 4.56
[C ₆ mim]Cl + K ₃ PO ₄	98.25 ± 3.25	94.44 ± 1.56
[C ₈ mim]Cl + K ₃ PO ₄	101.35 ± 7.74	82.03 ± 8.57
[C ₁₀ mim]Cl + K ₃ PO ₄	*	95.07 ± 14.71
[C ₈ mim]Cl + K ₃ PO ₄ (Inorganic salt: 20 wt%)	*	71.76 ± 13.30
[C ₈ mim]Cl + K ₃ PO ₄ (Inorganic salt: 25 wt%)	*	71.38 ± 4.31
[C ₈ mim]Cl + K ₃ PO ₄ (Inorganic salt: 27.5 wt%)	*	73.86 ± 2.49

*Due to the high IL hydrophobicity, it was not possible to measure the protein content in the IL-rich phase, being this content estimated by the concentration of proteins in salt-rich phase.

Table S2. Overall mass balance (OMB) values of proteins and carbohydrates taking into consideration the polishing steps (ultrafiltration and precipitation) for the optimized [C₈mim]Cl + K₃PO₄ - based ABS. The OMB were calculated considering the initial amount of proteins and carbohydrates introduced in the ABS and obtained after extraction from the *I. galbana* cells – Aq. Extract.

OMB_{prot} ± std (%)	OMB_{carb} ± std (%)	OMB_{carb} ± std (%)	OMB_{carb} ± std (%)
Sn Top phase	Pp Top phase	Bottom phase	Pp Top phase + Bottom phase
99 ± 2	21 ± 5	21 ± 5	42 ± 5