

Appendix A. Supplementary data

«Study of lithium-extraction systems based on benzo-15-crown-5 ether and alkylimidazolium-based ionic liquid»

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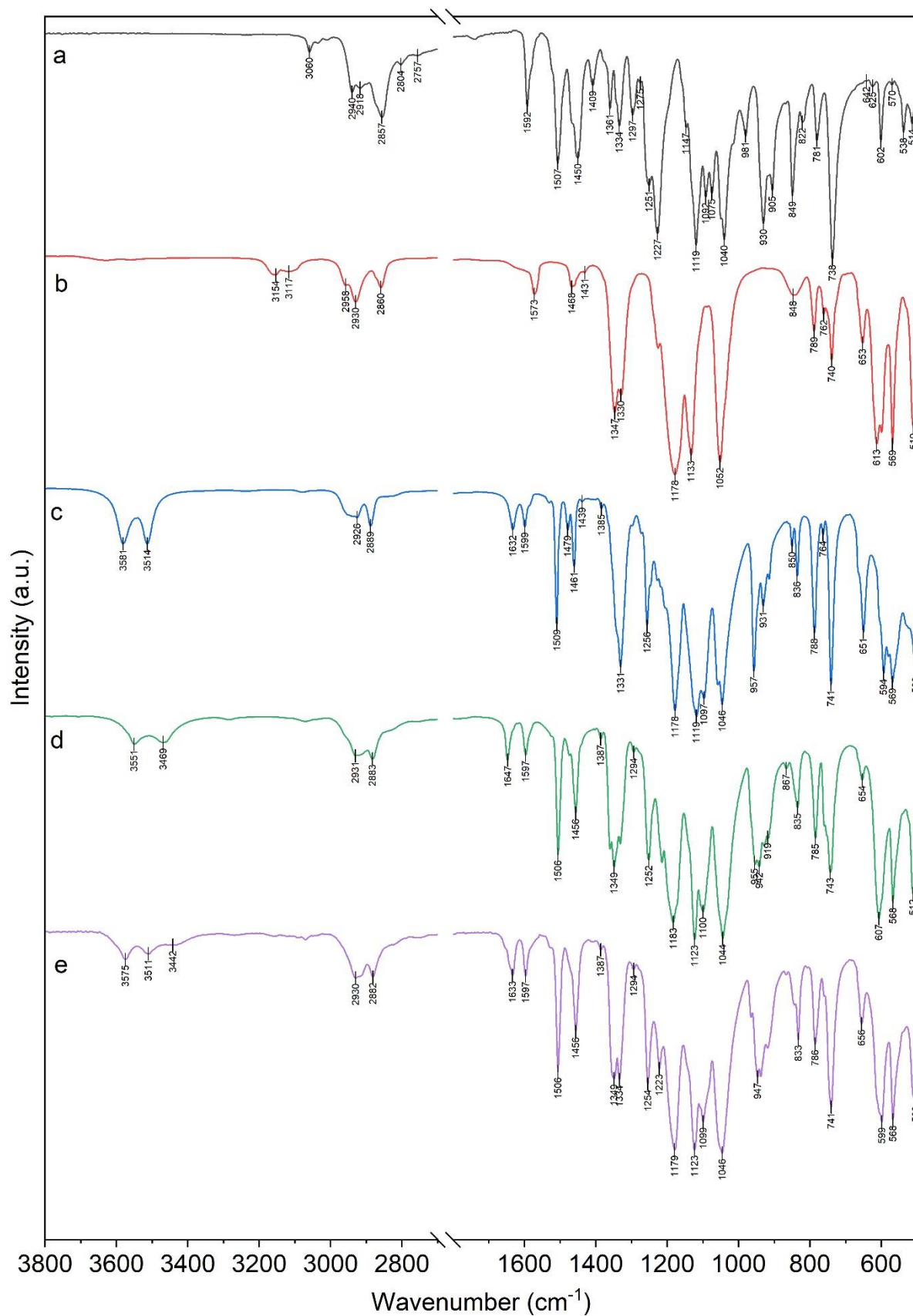


Figure S1. FT-IR spectrum a) B15C5; b) [C8mim][NTf₂]; c) [Li(B15C5)(H₂O)(NTf₂)]; d) [Li(B15C5)_{1.5}(H₂O)(NTf₂)]; e) [Li(B15C5)₂(H₂O)(NTf₂)].

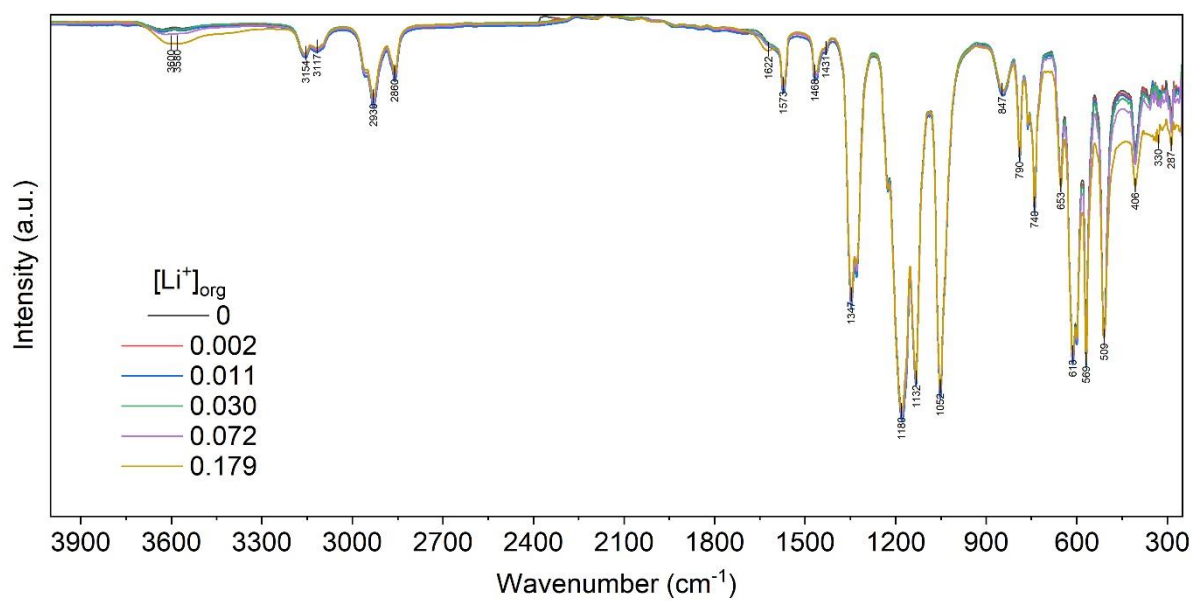


Figure S2. FTIR-spectra of LiNTf_2 blank extraction in $[\text{C8mim}][\text{NTf}_2]$ with different $[\text{Li}^+]$ content.

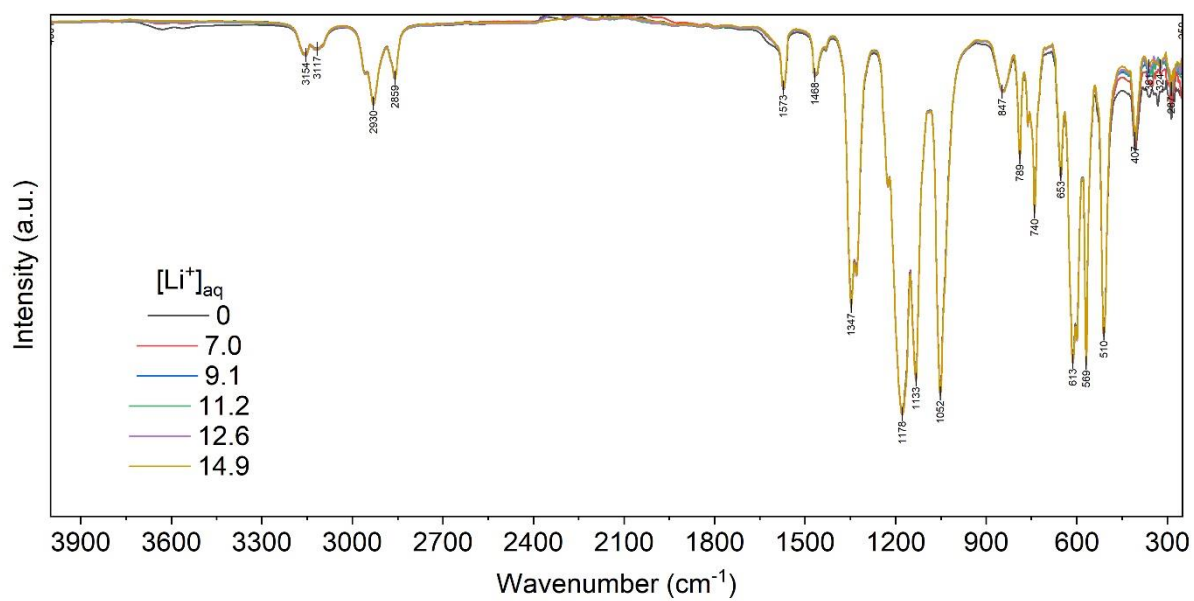


Figure S3. FTIR-spectra of LiCl blank extraction extract in $[\text{C8mim}][\text{NTf}_2]$ at different concentrations of $[\text{Li}^+]$ in equilibrium aqueous phase.

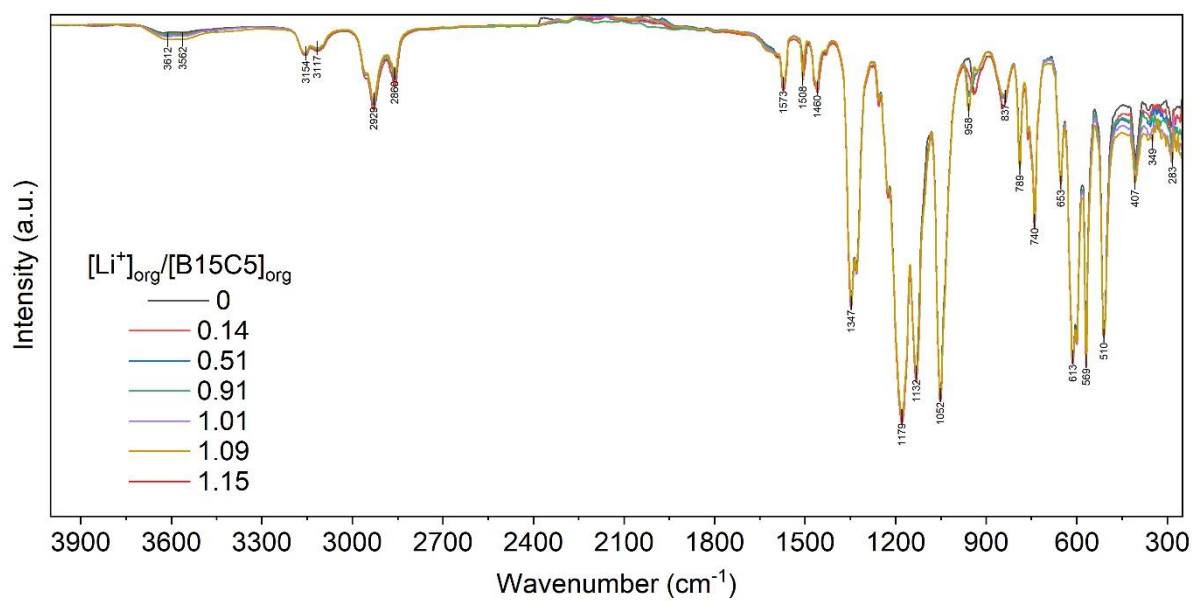


Figure S4. FTIR-spectra of LiNTf₂-B15C5 (0.5 mol/L)-[C8mim][NTf₂] extract at the different $[Li^+]/[B15C5]$ ratio.

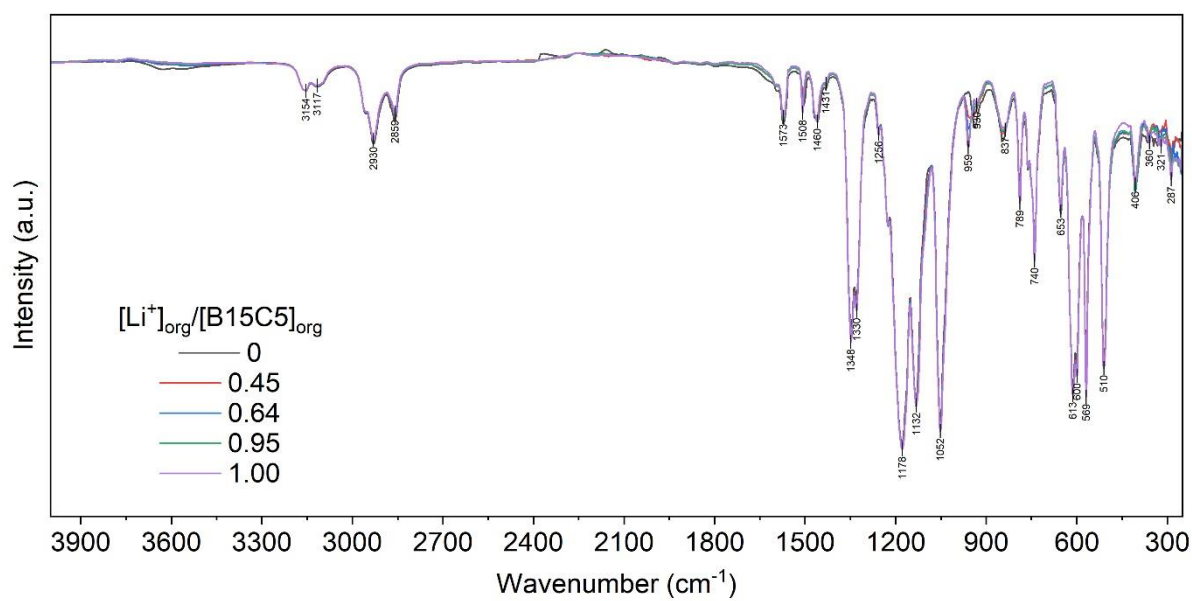


Figure S5. FTIR-spectra of LiCl-B15C5 (0.5 mol/L)-[C8mim][NTf₂] extracts at different $[Li^+]/[B15C5]$ ratio.

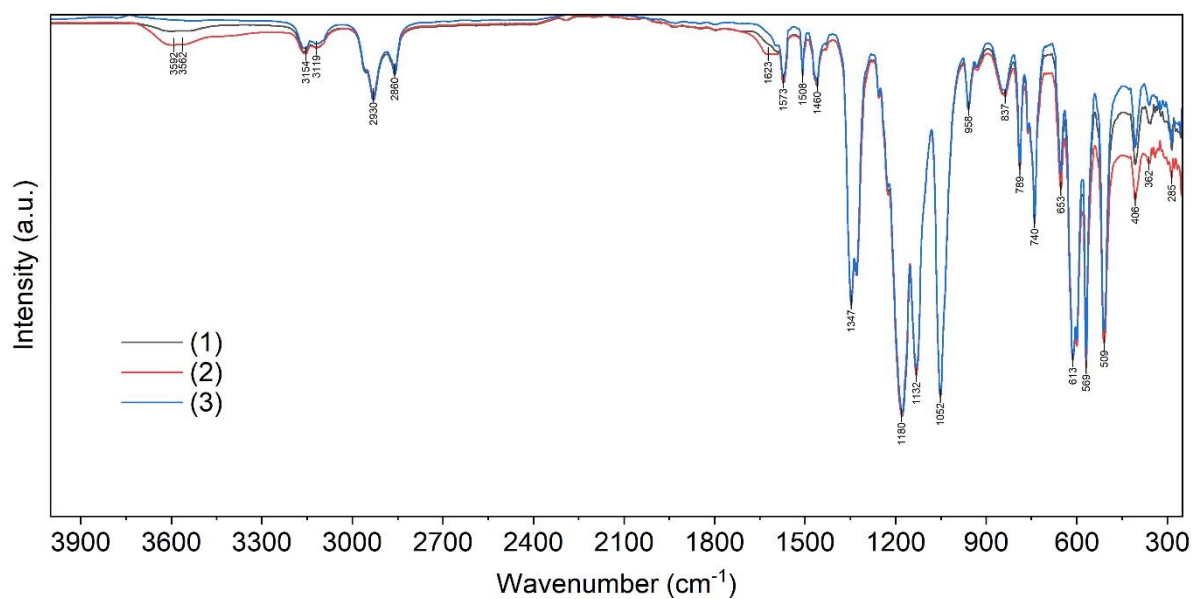


Figure S6. FTIR-spectra 1) solution of the complex (**I**) in [C8mim][NTf₂] (0,5 mol/L); 2) extract of LiNTf₂-B15C5 (0.5 mol/L)-[C8mim][NTf₂]; 3) extract of LiCl-B15C5 (0.5 mol/L)-[C8mim][NTf₂]

Table S1. The results of the synthesis of complexes I – III.

Compound	Yield, %	The results of elemental analysis
$[Li(B15C5)(H_2O)(NTf_2)]$ (I)	76.84	N. 2.53; C. 34.70; H. 3.62; S. 11.60 (Calc.: N. 2.52; C. 34.60; H. 3.63; S. 11.55)
$[Li(B15C5)_{1.5}(H_2O)](NTf_2)$ (II)	47.30	N. 2.02; C. 39.91; H. 4.41; S. 9.32 (Calc.: N. 2.03; C. 40.06; H. 4.39; S. 9.30)
$[Li(B15C5)_2(H_2O)](NTf_2)$ (III)	51.49	N. 1.69; C. 43.68; H. 4.91; S. 7.82 (Calc.: N. 1.70; C. 43.74; H. 4.89; S. 7.79)