

New non-toxic *N*-alkyl cholinium-based ionic liquids as excipients to improve the solubility of poorly water-soluble drugs

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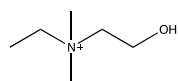
1. Experimental Methods

Proton nuclear magnetic resonance (¹H NMR) spectra and carbon nuclear magnetic resonance (¹³C NMR) spectra were recorded on a Bruker Avance III 400 at 400 MHz and 100 MHz, respectively. All spectra were obtained in D₂O, with exception of 2D ¹H-¹H NOESY experiments, which were obtained in dmsd-d₆. The NOESY were recorded also at Avance III, 400 MHz with a probe QNP, 400 MHz S₁. Chemical shifts are expressed in ppm and *J* values are given in Hz. Proton chemical shifts are reported with the solvent reference (D₂O, δ 4.79 ppm) or (dmsd-d₆, δ 2.50 ppm).

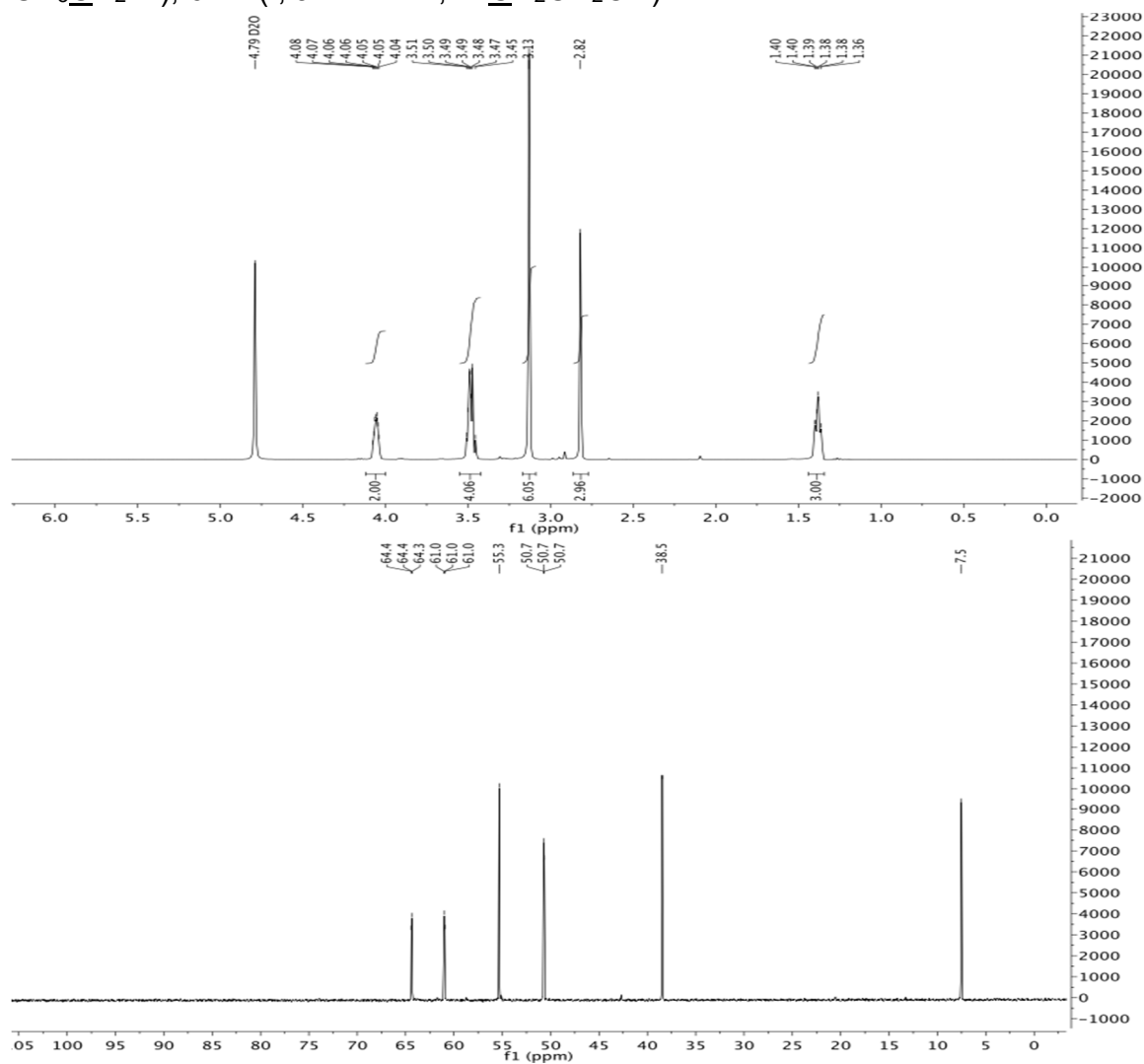
Melting points were determined in a Stuart Scientific Melting Point SPM 1, at rate 3 °C/ min.

Figure S1. Characterization data for ionic liquids

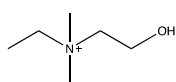
[C₂Ch][C₁SO₃]



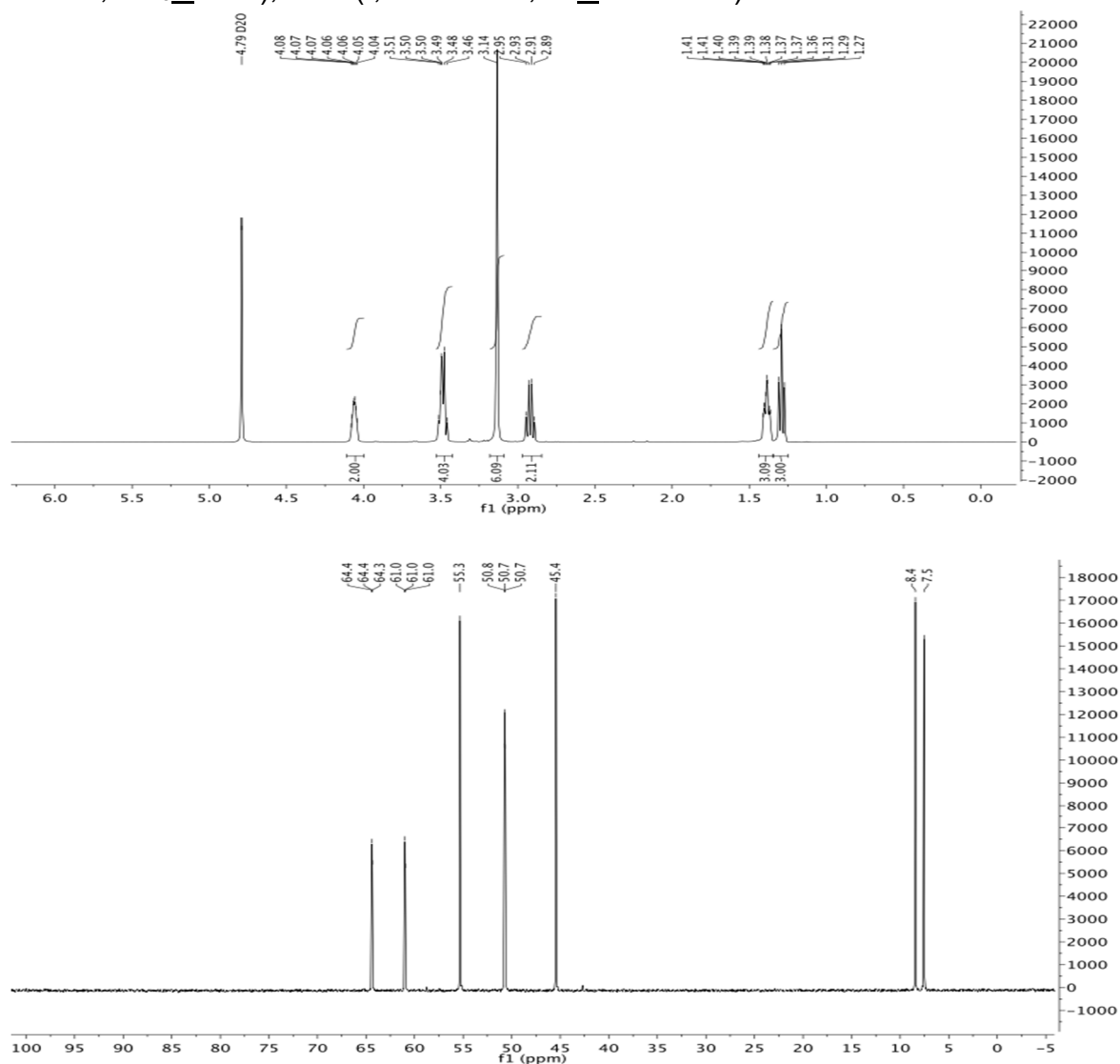
Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 1.36-1.40 (m, 3H, CH₃CH₂N-); 2.82 (s, 3H, CH₃SO₃); 3.13 (s, 6H, -N(CH₃)₂); 3.45-3.51 (m, 4H, CH₃CH₂N-, -NCH₂CH₂OH); 4.04-4.08 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 7.5 (CH₃CH₂N-); 38.5 (CH₃SO₃); 50.7 (t, *J* = 4.1 Hz, -NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 61.0 (t, *J* = 2.1 Hz, CH₃CH₂N-); 64.4 (t, *J* = 2.1 Hz, -NCH₂CH₂OH)



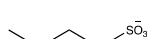
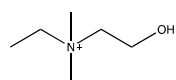
[C₂H][C₂SO₃]



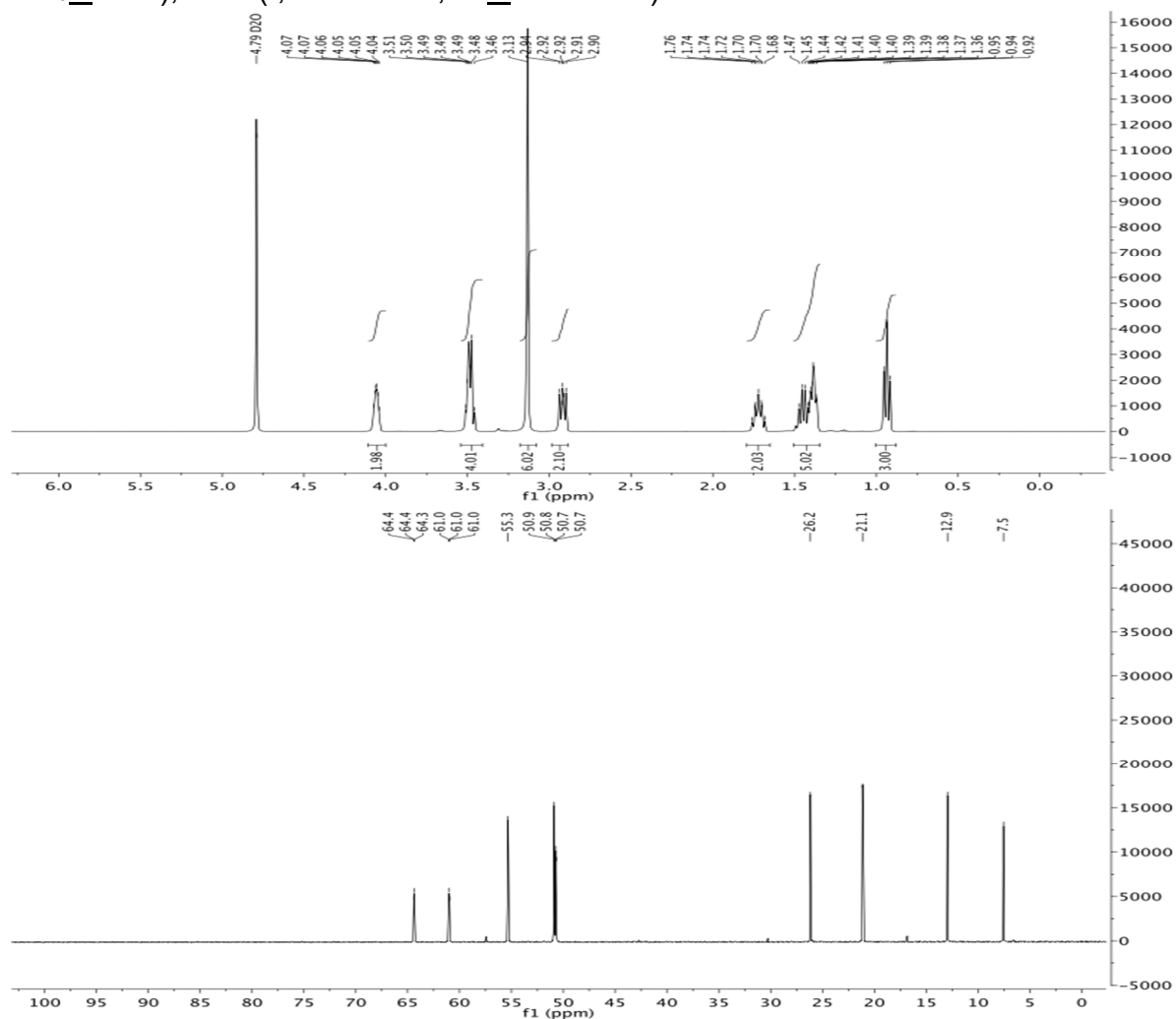
Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 1.29 (t, 3H, *J* = 7.4 Hz, CH₃CH₂SO₃); 1.36-1.41 (m, 3H, CH₃CH₂N-); 2.92 (q, 2H, *J* = 7.6 Hz, *J* = 14.9 Hz, CH₃CH₂SO₃); 3.14 (s, 6H, -N(CH₃)₂); 3.46-3.51 (m, 4H, CH₃CH₂N-, -NCH₂CH₂OH); 4.04-4.08 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 7.5 (CH₃CH₂N-); 8.4 (CH₃CH₂SO₃); 45.4 (CH₃CH₂SO₃); 50.7 (t, *J* = 3.8 Hz, -NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 61.0 (t, *J* = 2.9 Hz, CH₃CH₂N-); 64.4 (t, *J* = 2.8 Hz, -NCH₂CH₂OH)



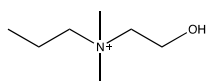
[C₂Ch][C₄SO₃]



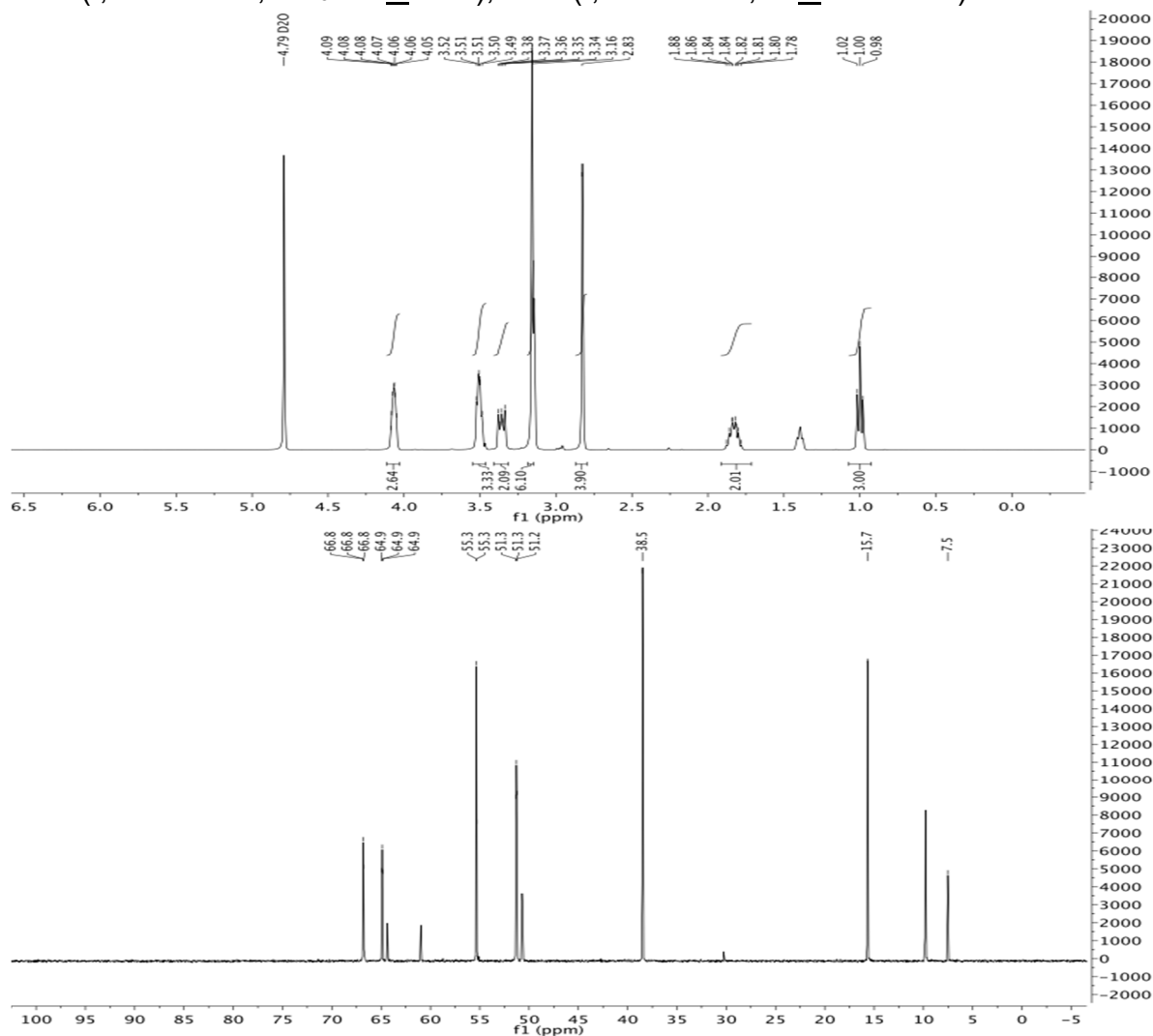
Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 0.94 (t, 3H, *J* = 7.3 Hz, CH₃CH₂CH₂CH₂SO₃); 1.36-4.7 (m, 5H, CH₃CH₂N-, CH₃CH₂CH₂CH₂SO₃); 1.68-1.76 (m, 2H, CH₃CH₂CH₂CH₂SO₃); 2.90-2.94 (m, 2H, CH₃CH₂CH₂CH₂SO₃); 3.13 (s, 6H, -N(CH₃)₂); 3.46-3.51 (m, 4H, -NCH₂CH₂OH, CH₃CH₂N-); 4.04-4.07 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 7.5 (CH₃CH₂N-); 12.9 (CH₃CH₂CH₂CH₂SO₃); 21.1 (CH₃CH₂CH₂CH₂SO₃); 26.2 (CH₃CH₂CH₂CH₂SO₃); 50.7 (t, *J* = 3.9 Hz, -NCH₂CH₂OH); 50.9 (CH₃CH₂CH₂CH₂SO₃); 55.3 (-N(CH₃)₂); 61.0 (t, *J* = 2.8 Hz, CH₃CH₂N-); 64.4 (t, *J* = 2.7 Hz, -NCH₂CH₂OH)



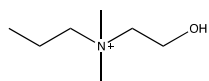
[C₃Ch][C₁SO₃]



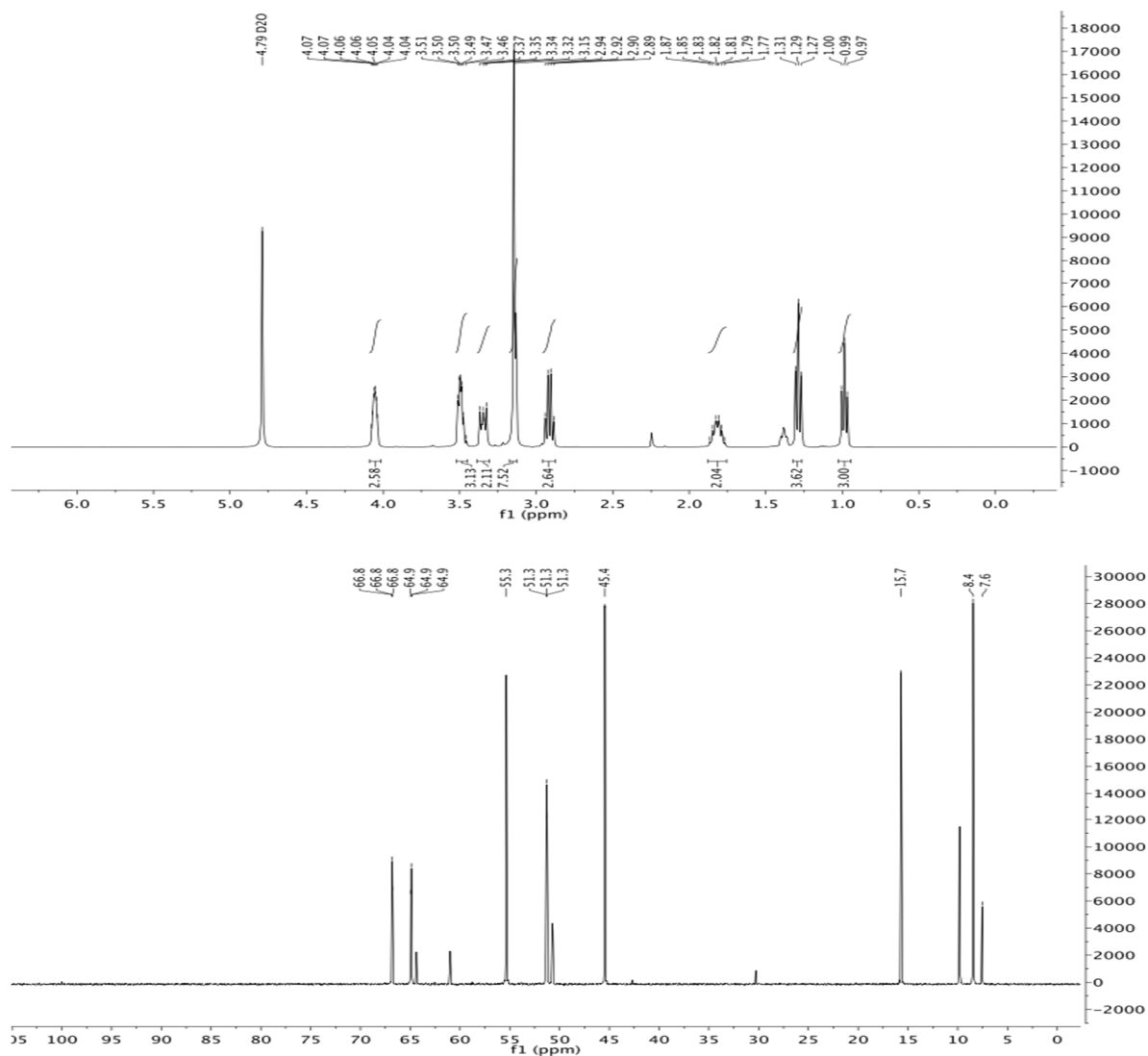
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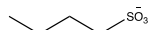
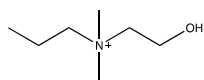
[C₃Ch][C₂SO₃]



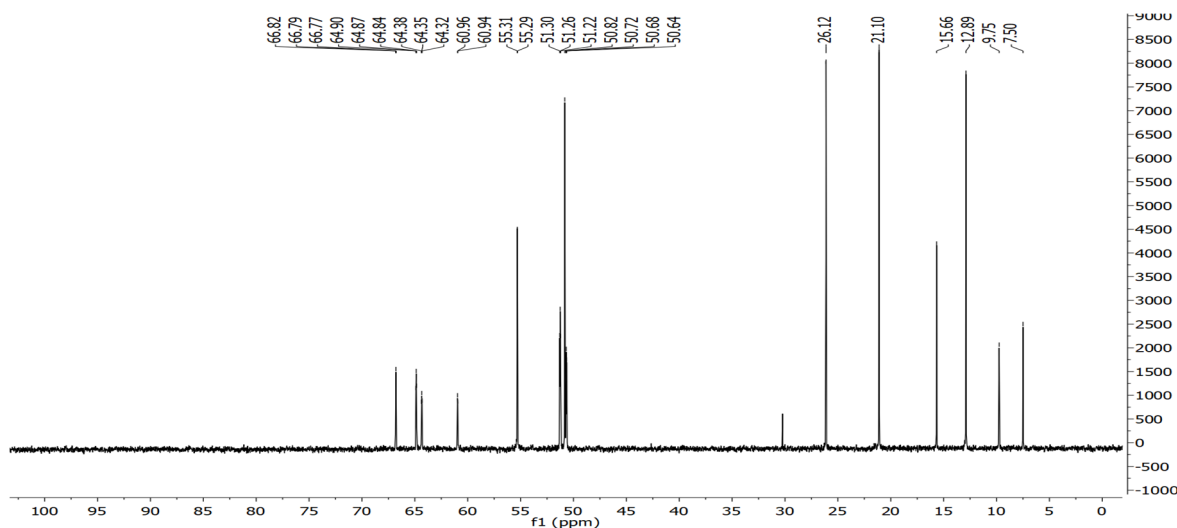
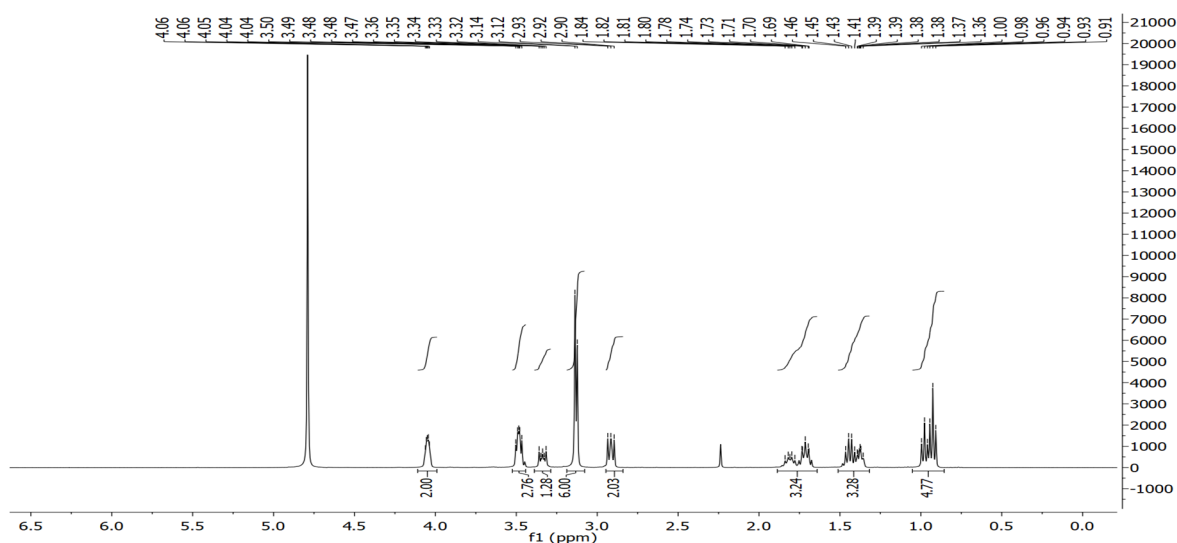
Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 0.99 (t, 3H, *J* = 7.3 Hz, CH₃CH₂CH₂N-); 1.29 (t, 3H, *J* = 7.3 Hz, CH₃CH₂SO₃); 1.77-1.87 (m, 2H, CH₃CH₂CH₂N-); 2.89-2.94 (m, 2H, CH₃CH₂SO₃); 3.15 (s, 6H, -N(CH₃)₂); 3.32-3.37 (m, 2H, CH₃CH₂CH₂N-); 3.46-3.51 (m, 2H, -NCH₂CH₂OH); 4.04-4.07 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 7.5 (CH₃CH₂CH₂N-); 8.4 (CH₃CH₂SO₃); 15.7 (CH₃CH₂CH₂N-); 45.4 (CH₃CH₂SO₃); 51.3 (t, *J* = 3.7 Hz, -NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 64.9 (t, *J* = 2.9 Hz, CH₃CH₂CH₂N-); 66.8 (t, *J* = 2.5 Hz, -NCH₂CH₂OH)



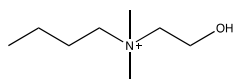
[C₃Ch][C₄SO₃]



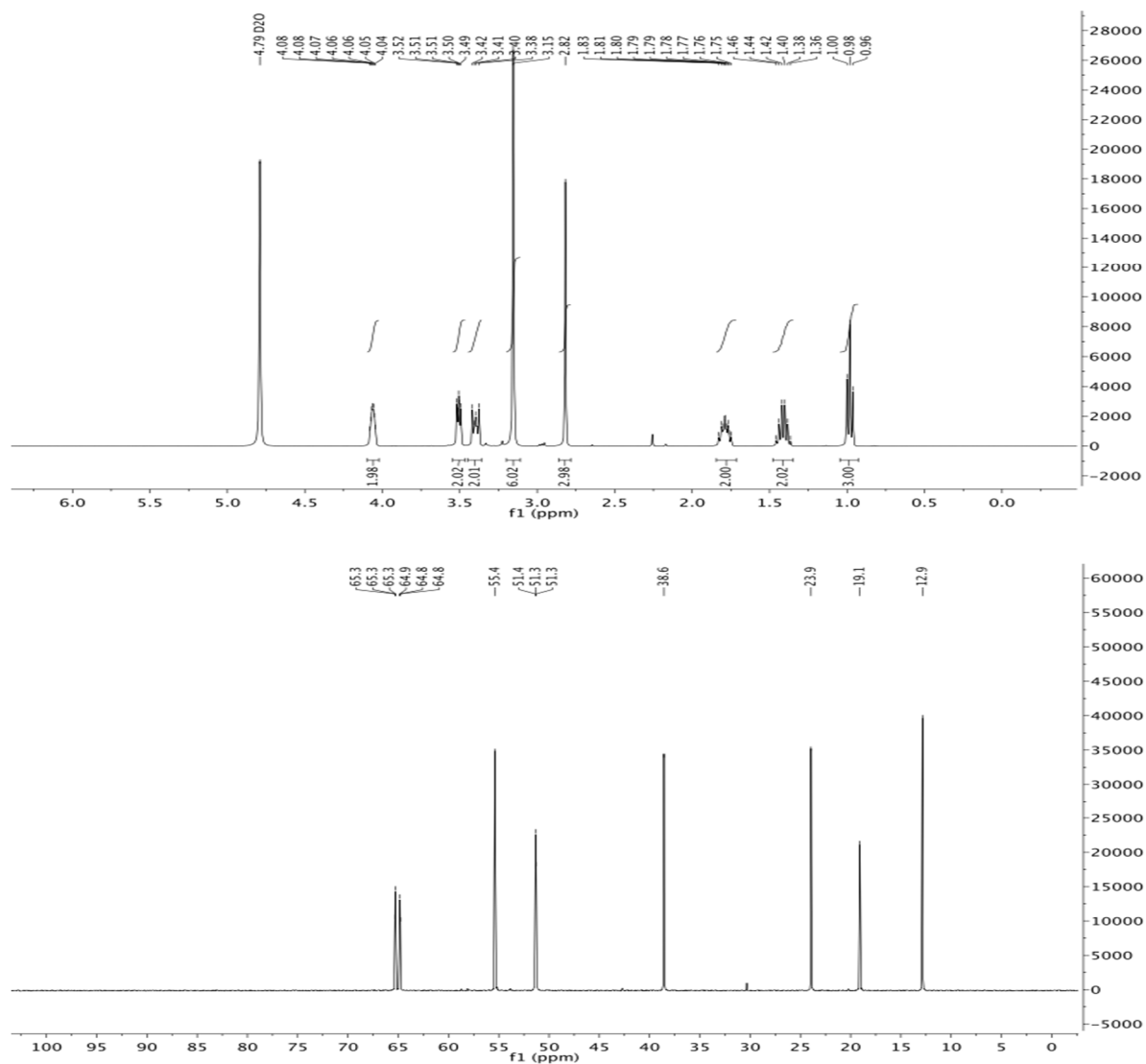
Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 0.91-1.00 (m, 6H, CH₃CH₂CH₂N-, CH₃CH₂CH₂CH₂SO₃); 1.36-1.45 (m, 4H, CH₃CH₂CH₂CH₂SO₃, CH₃CH₂CH₂CH₂SO₃); 1.69-1.84 (m, 2H, CH₃CH₂CH₂N-); 2.89-2.93 (m, 2H, CH₃CH₂CH₂CH₂SO₃); 3.14 (s, 6H-N(CH₃)₂); 3.32-3.36 (m, 2H, CH₃CH₂CH₂N-); 3.47-3.50 (m, 2H, -NCH₂CH₂OH); 4.04-4.06 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 9.8 (CH₃CH₂CH₂N-); 12.9 (CH₃CH₂CH₂CH₂SO₃); 15.7 CH₃CH₂CH₂N-); 21.1 (CH₃CH₂CH₂CH₂SO₃); 26.1 (CH₃CH₂CH₂CH₂SO₃); 50.8 (CH₃CH₂CH₂CH₂SO₃); 51.3 (t, J = 4.0 Hz, -NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 64.9 (t, J = 2.8 Hz, CH₃CH₂CH₂N-); 66.8 (t, J = 2.7 Hz, -NCH₂CH₂OH)



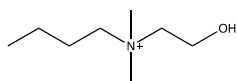
[C₄H][C₁SO₃]



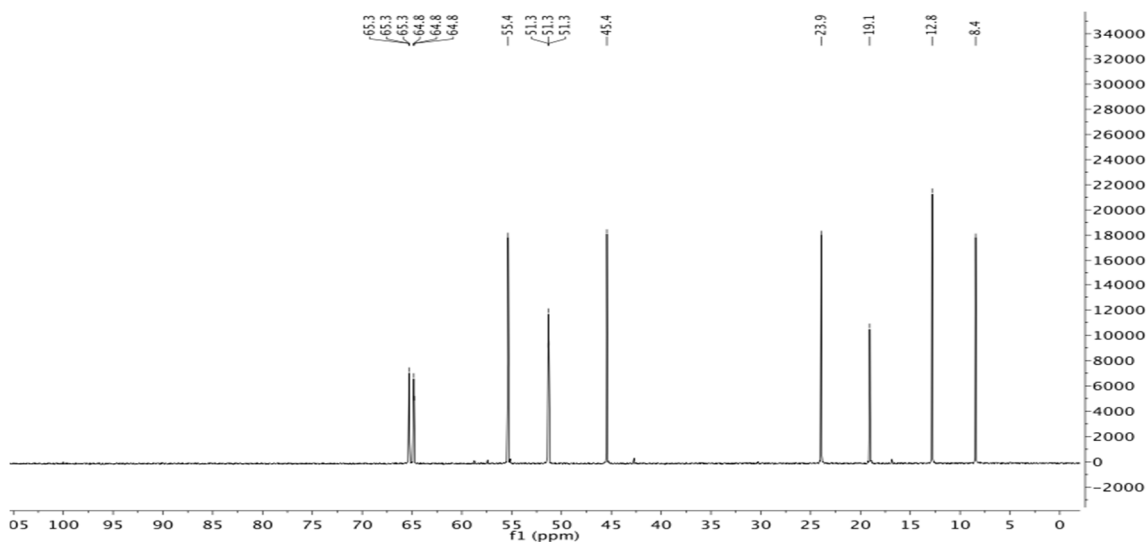
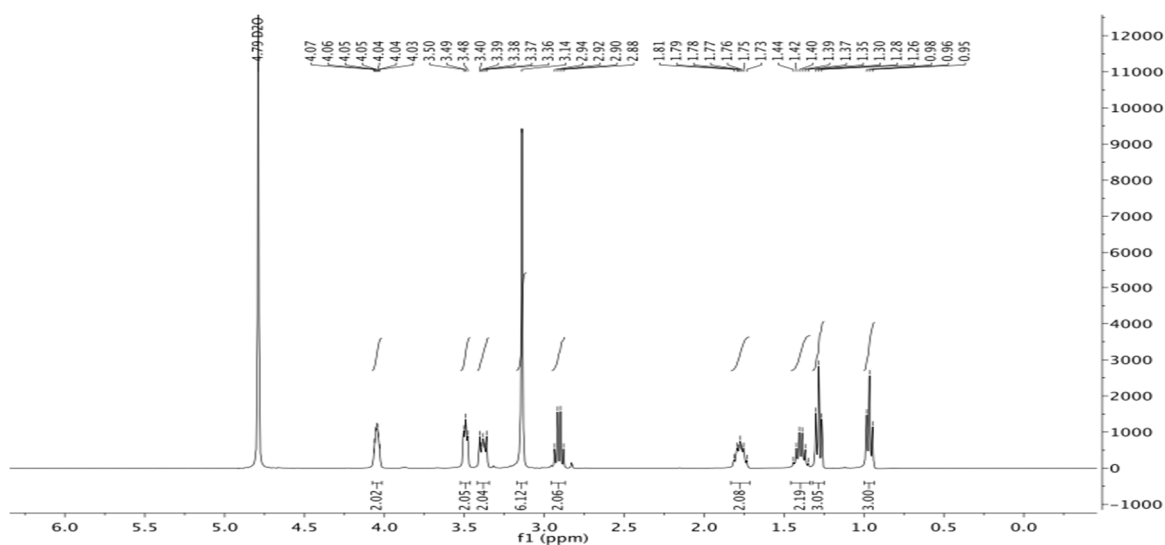
Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 0.98 (t, 3H, *J* = 6.3 Hz, CH₃CH₂CH₂CH₂N-); 1.36-1.46 (m, 2H, CH₃CH₂CH₂CH₂N-); 1.75-1.83 (m, 2H, CH₃CH₂CH₂CH₂N-); 2.82 (s, 3H, CH₃SO₃); 3.15 (s, 6H, -N(CH₃)₂); 3.38-3.42 (m, 2H, CH₃CH₂CH₂CH₂N-); 3.49-3.53 (m, 2H, -NCH₂CH₂OH); 4.04-4.08 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 12.9 (CH₃CH₂CH₂CH₂N-); 19.1 (CH₃CH₂CH₂CH₂N-); 23.9 (CH₃CH₂CH₂CH₂N-); 38.6 CH₃SO₃; 51.3 (t, *J* = 3.9 Hz, -NCH₂CH₂OH); 55.4 (-N(CH₃)₂); 64.8 (t, *J* = 2.8 Hz, CH₃CH₂CH₂CH₂N-); 65.3 (t, *J* = 2.7 Hz, -NCH₂CH₂OH)



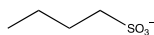
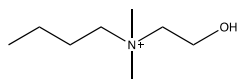
[C₄Ch][C₂SO₃]



Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 0.96 (t, 3H, *J* = 6.8 Hz, CH₃CH₂CH₂CH₂N-); 1.28 (t, 3H, *J* = 7.3 Hz, CH₃CH₂SO₃); 1.35-1.44 (m, 2H, CH₃CH₂CH₂CH₂N-); 1.75-1.81 (m, 2H, CH₃CH₂CH₂CH₂N-); 2.91 (q, 2H, *J* = 7.3 Hz, *J* = 14.5 Hz, CH₃CH₂SO₃); 3.14 (s, 6H, -N(CH₃)₂); 3.36-3.40 (m, 2H, CH₃CH₂CH₂CH₂N-NCH₂CH₂OH); 3.49 (t, 2H, *J* = 4.0 Hz, -NCH₂CH₂OH); 4.03-4.07 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 8.4 (CH₃CH₂SO₃); 12.8 (CH₃CH₂CH₂CH₂N-); 19.1 (CH₃CH₂CH₂CH₂N-); 23.9 (CH₃CH₂CH₂CH₂N-); 45.4 (CH₃CH₂SO₃); 51.3 (t, *J* = 3.6 Hz, -NCH₂CH₂OH); 55.4 (-N(CH₃)₂); 64.8 (t, *J* = 2.9 Hz, CH₃CH₂CH₂CH₂N-); 65.3 (t, *J* = 2.7 Hz, -NCH₂CH₂OH)



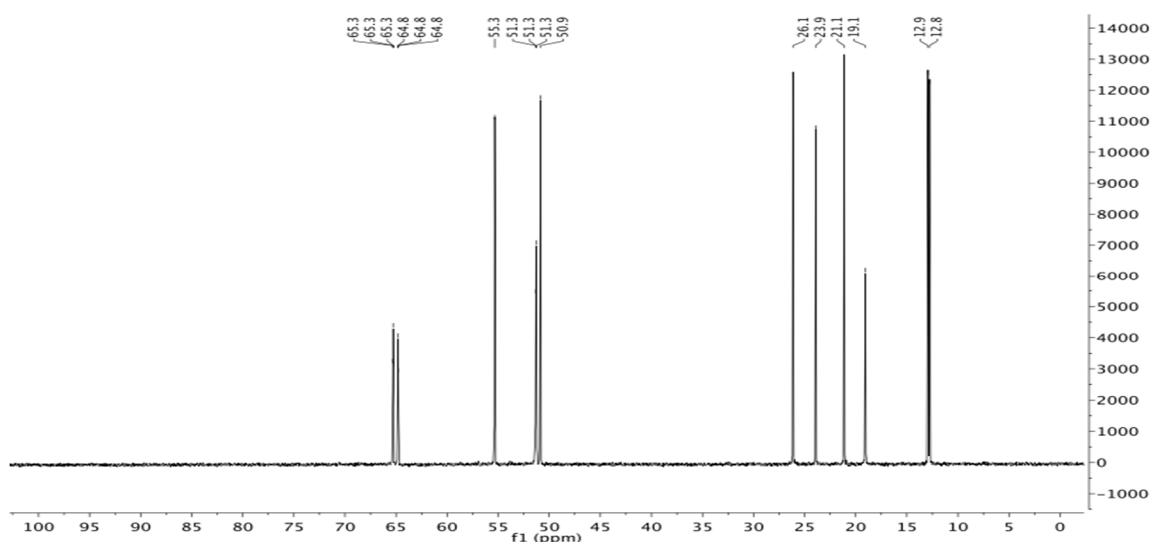
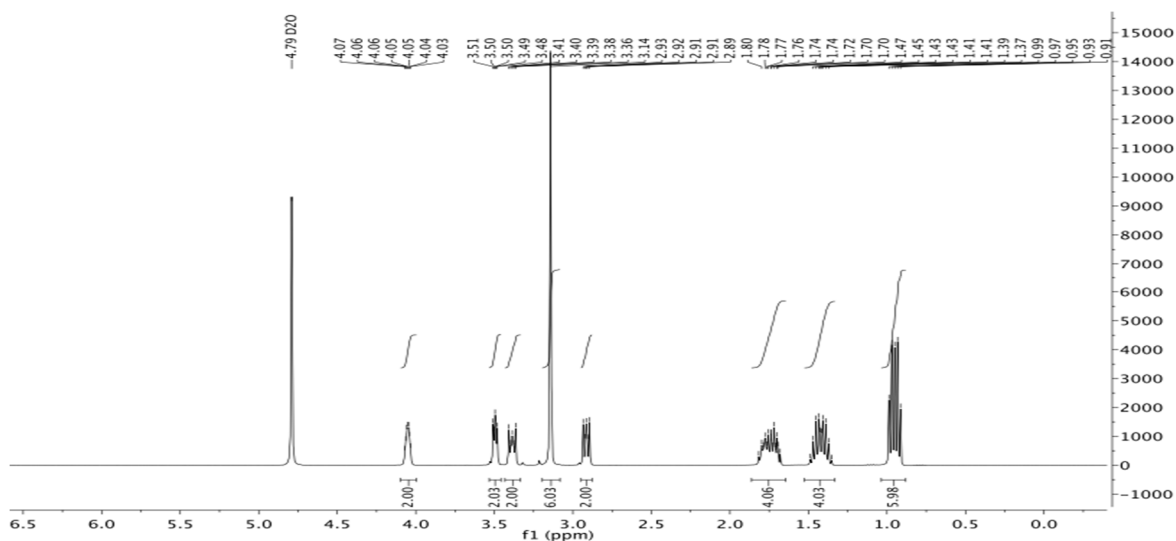
[C₄H][C₄SO₃]



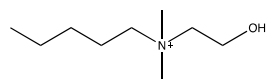
Yellowish solid, m.p 47.2-48.5 °C, ¹H NMR (D₂O, 400

MHz): δ (ppm) 0.91-0.99 (m, 6H, CH₃CH₂CH₂CH₂SO₃, CH₃CH₂CH₂CH₂N-); 1.35-1.49

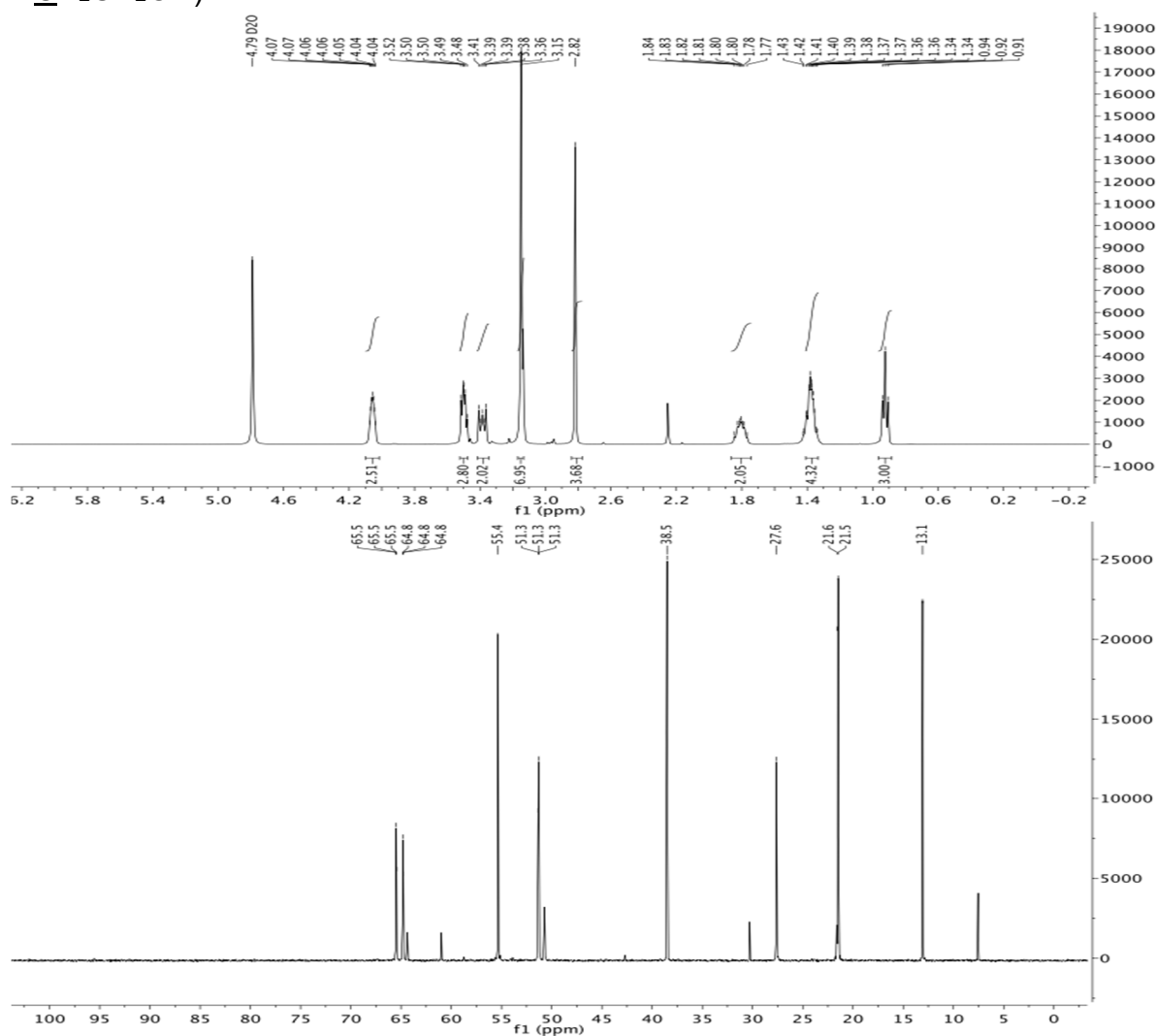
(m, 4H, CH₃CH₂CH₂CH₂SO₃, CH₃CH₂CH₂CH₂N-); 1.68-1.82 (m, 4H, CH₃CH₂CH₂CH₂SO₃, CH₃CH₂CH₂CH₂N-); 2.89-2.93 (m, 2H, CH₃CH₂CH₂CH₂SO₃); 3.14 (s, 6H, -N(CH₃)₂); 3.36-3.41 (m, 2H, CH₃CH₂CH₂CH₂N-); 3.48-3.51 (m, 2H, -NCH₂CH₂OH); 4.03-4.07 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 12.8 (CH₃CH₂CH₂CH₂SO₃); 12.9 (CH₃CH₂CH₂CH₂N-); 19.1 (CH₃CH₂CH₂CH₂N-); 21.1 (CH₃CH₂CH₂CH₂N-); 23.9 (CH₃CH₂CH₂CH₂SO₃); 26.1 (CH₃CH₂CH₂CH₂SO₃); 50.9 (CH₃CH₂CH₂CH₂SO₃); 51.3 (t, *J* = 3.9 Hz, -NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 64.8 (t, *J* = 2.8 Hz, CH₃CH₂CH₂CH₂N-); 65.3 (t, *J* = 2.2 Hz, -NCH₂CH₂OH)



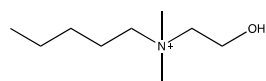
[C₅Ch][C₁SO₃]



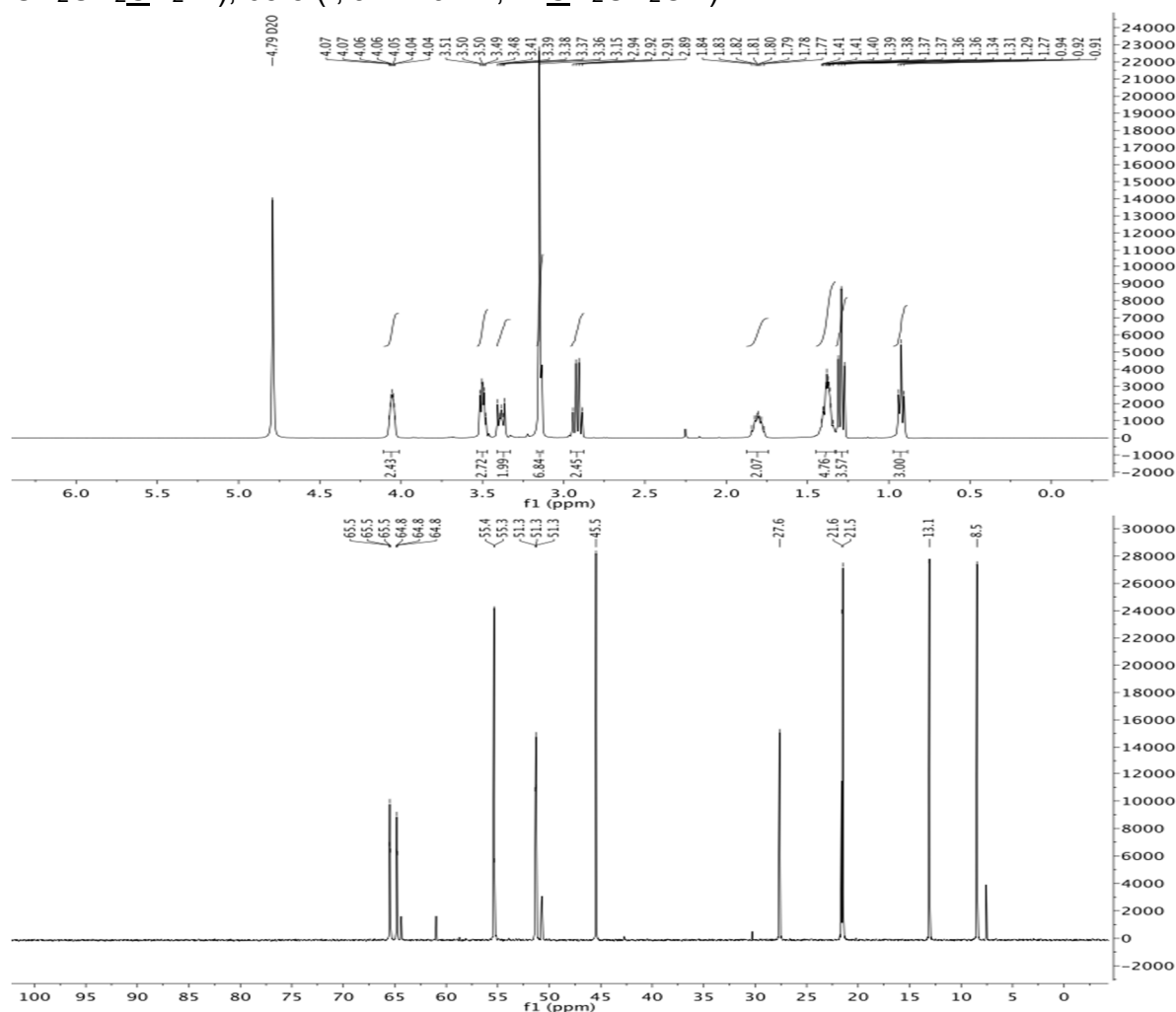
Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 0.92 (t, 3H, *J* = 6.4 Hz, CH₃CH₂CH₂CH₂CH₂N⁻); 1.34-1.43 (m, 4H, CH₃CH₂CH₂CH₂CH₂N⁻); 1.77-1.84 (m, 2H, CH₃CH₂CH₂CH₂CH₂N⁻); 2.82 (s, 3H, CH₃SO₃⁻); 3.15 (s, 6H, -N(CH₃)₂); 3.36-3.41 (m, 2H, CH₃CH₂CH₂CH₂CH₂N⁻); 3.48-3.52 (m, 2H, -NCH₂CH₂OH); 4.04-4.07 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 13.1 (CH₃CH₂CH₂CH₂CH₂N⁻); 21.5 (CH₃CH₂CH₂CH₂CH₂N⁻); 21.6 (CH₃CH₂CH₂CH₂CH₂N⁻); 27.6 (CH₃CH₂CH₂CH₂CH₂N⁻); 38.5 (CH₃SO₃⁻); 51.3 (t, *J* = 3.6 Hz, -NCH₂CH₂OH); 55.4 (-N(CH₃)₂); 64.8 (t, *J* = 2.7 Hz, CH₃CH₂CH₂CH₂CH₂N⁻); 65.8 (t, *J* = 2.9 Hz, -NCH₂CH₂OH)



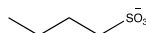
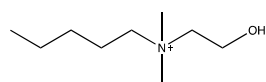
[C₅H][C₂SO₃]



Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 0.92 (t, 3H, $J = 6.5$ Hz, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}^-$); 1.29 (t, 3H, $J = 7.2$ Hz, $\text{CH}_3\text{CH}_2\text{SO}_3$); 1.34-1.41 (m, 4H, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}^-$); 1.77-1.84 (m, 2H, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}^-$); 2.91 (q, 2H, $J = 7.3$ Hz, $J = 14.8$ Hz, $\text{CH}_3\text{CH}_2\text{SO}_3$); 3.15 (s, 6H, $-\text{N}(\text{CH}_3)_2$); 3.36-3.41 (m, 2H, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}^-$); 3.48-3.51 (m, 2H, $-\text{NCH}_2\text{CH}_2\text{OH}$); 4.04-4.07 (m, 2H, $-\text{NCH}_2\text{CH}_2\text{OH}$); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 8.5 ($\text{CH}_3\text{CH}_2\text{SO}_3$); 13.1 ($\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}^-$); 21.5 ($\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}^-$); 21.6 ($\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}^-$); 27.6 ($\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}^-$); 45.5 ($\text{CH}_3\text{CH}_2\text{SO}_3$); 51.3 (t, $J = 3.6$ Hz, $-\text{NCH}_2\text{CH}_2\text{OH}$); 55.3 ($-\text{N}(\text{CH}_3)_2$); 64.8 (t, $J = 2.7$ Hz, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}^-$); 65.5 (t, $J = 2.9$ Hz, $-\text{NCH}_2\text{CH}_2\text{OH}$)

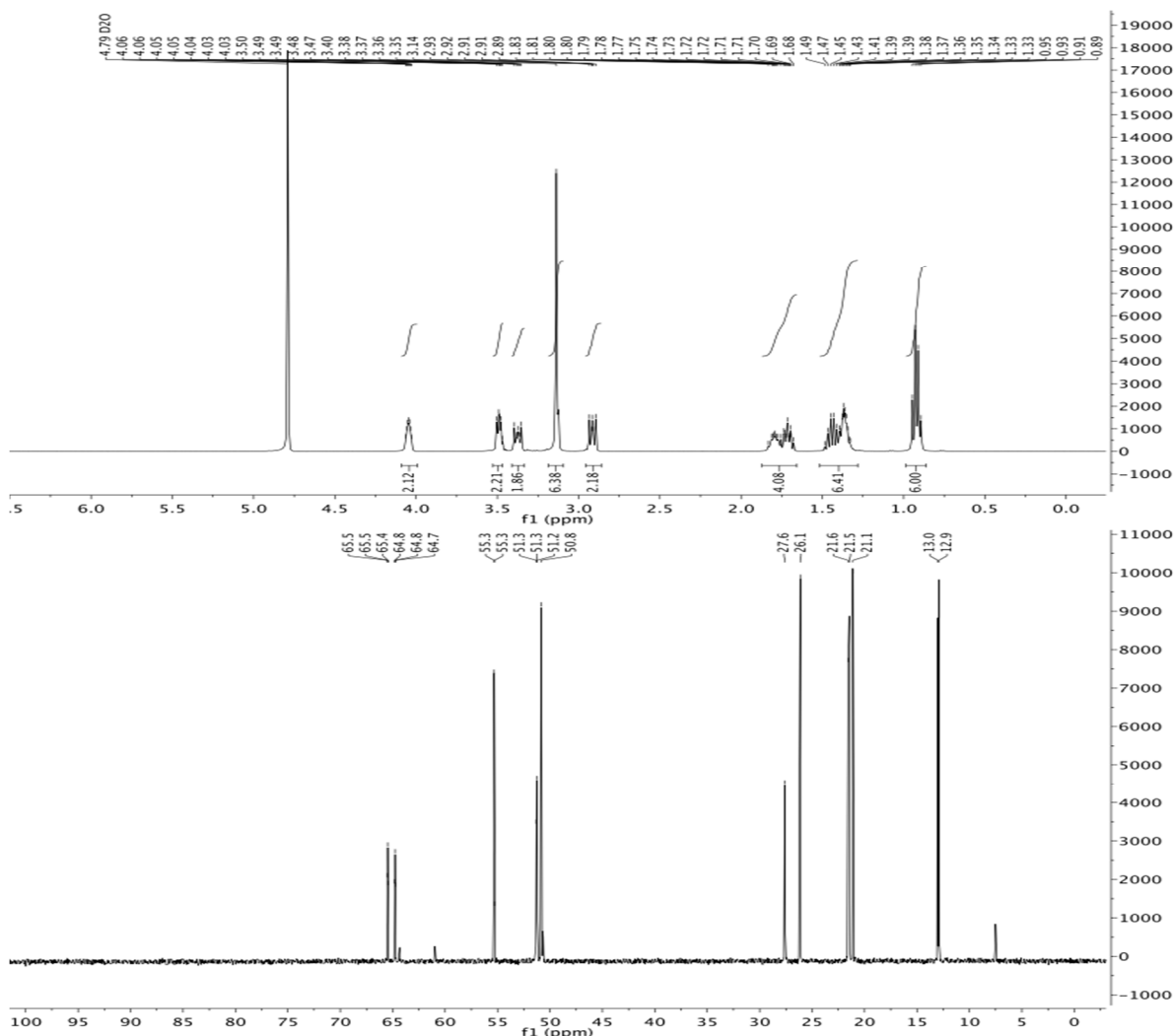


[C₅H][C₄SO₃]

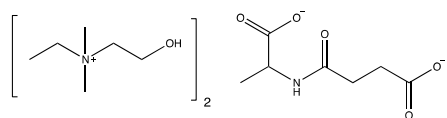


Yellowish solid, ¹H NMR (D₂O, 400 MHz): δ (ppm)

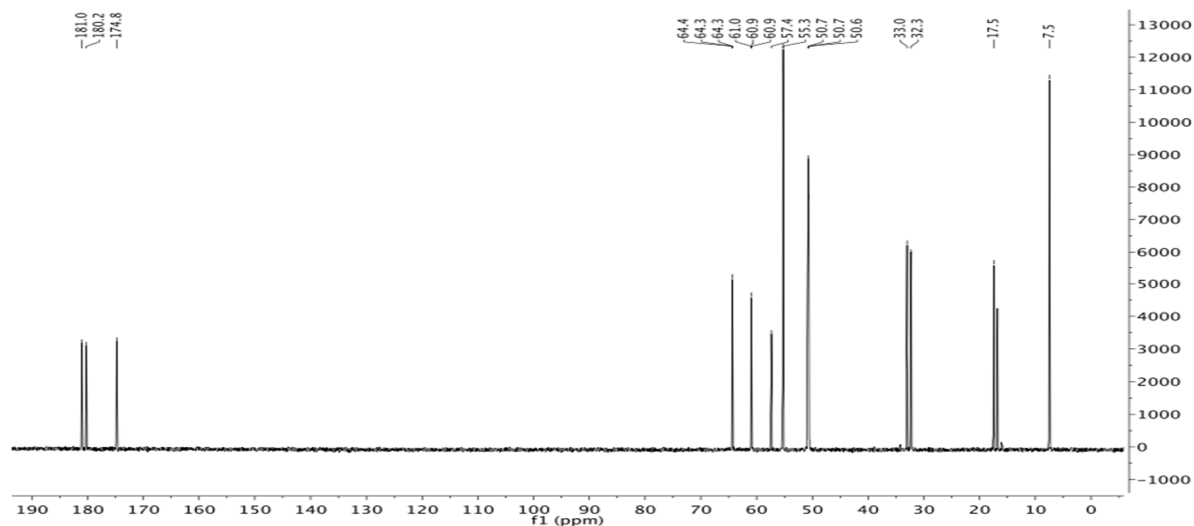
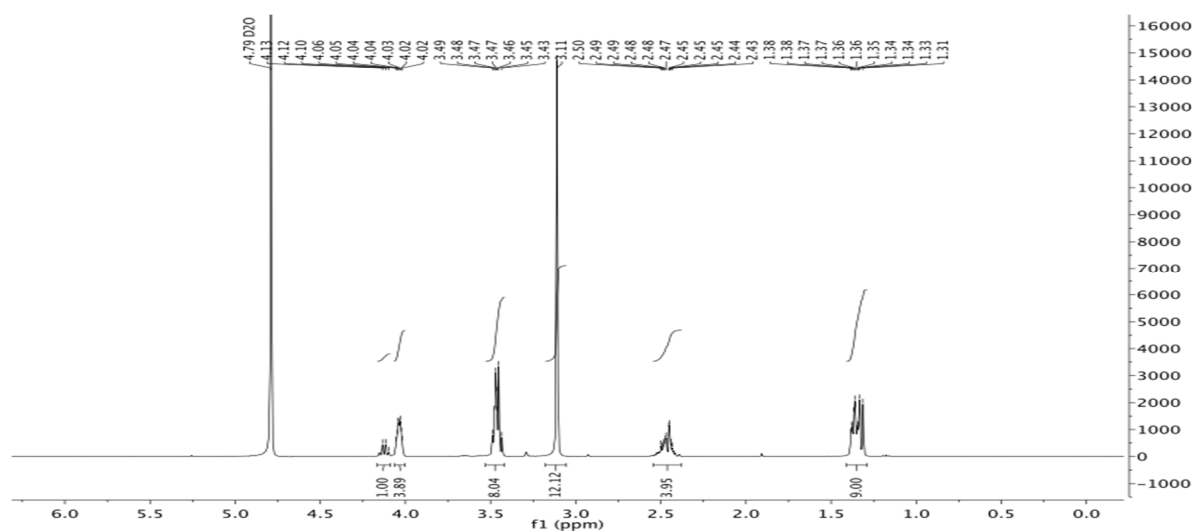
0.89-0.95 (m, 6H, CH₃CH₂CH₂CH₂CH₂N⁻, CH₃CH₂CH₂CH₂CH₂SO₃); 1.33-1.49 (m, 6H, CH₃CH₂CH₂CH₂CH₂N⁻, CH₃CH₂CH₂CH₂CH₂SO₃); 1.68-1.83 (m, 4H, CH₃CH₂CH₂CH₂CH₂N⁻, CH₃CH₂CH₂CH₂CH₂SO₃); 2.89-2.93 (m, 2H, CH₃CH₂CH₂CH₂SO₃); 3.14 (s, 6H-N(CH₃)₂); 3.35-3.40 (m, 2H, CH₃CH₂CH₂CH₂CH₂N⁻); 3.47-3.50 (m, 2H, -NCH₂CH₂OH); 4.03-4.06 (m, 2H, -NCH₂CH₂OH); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 12.9 CH₃CH₂CH₂CH₂CH₂SO₃; 13.0 (CH₃CH₂CH₂CH₂CH₂N⁻); 21.1 (CH₃CH₂CH₂CH₂CH₂SO₃); 21.5 (CH₃CH₂CH₂CH₂CH₂N⁻); 21.6 (CH₃CH₂CH₂CH₂CH₂N⁻); 26.1 (CH₃CH₂CH₂CH₂SO₃); 27.6 (CH₃CH₂CH₂CH₂CH₂N⁻); 50.8 (CH₃CH₂CH₂CH₂SO₃); 51.3 (t, *J* = 3.9 Hz, -NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 64.8 (t, *J* = 2.8 Hz, CH₃CH₂CH₂CH₂CH₂N⁻); 65.5 (t, *J* = 2.7 Hz, -NCH₂CH₂OH)



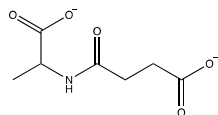
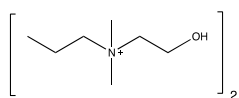
[C₂Ch]₂[SucAla]



Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm) 1.31-1.38 (m, 6H, CH₃CH₂N-, 3H, -CH(CH₃)NH-); 2.43-2.50 (m, 4H, -C(O)CH₂CH₂C(O)O-); 3.11 (s, 12H, -N(CH₃)₂); 3.43-3.49 (m, 4H, -NCH₂CH₂OH, 4H, CH₃CH₂N-); 4.02-4.06 (m, 4H, -NCH₂CH₂OH); 4.12 (q, 1H, J = 7.3 Hz, J = 14.5 Hz, -CH(CH₃)NH-); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 7.5 (CH₃CH₂N-); 17.5 (-CH(CH₃)NH-); 32.3 (COCH₂CH₂COO); 33.0 (C(O)CH₂CH₂C(O)O); 50.7 (-NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 57.4 (-CH(CH₃)NH-); 60.9 (CH₃CH₂N-); 64.3 (-NCH₂CH₂OH); 174.8 (-NH(CO)); 180.2 (-C(O)CH₂CH₂C(O)O); 181.0 (-C(O)CH₂CH₂C(O)O)

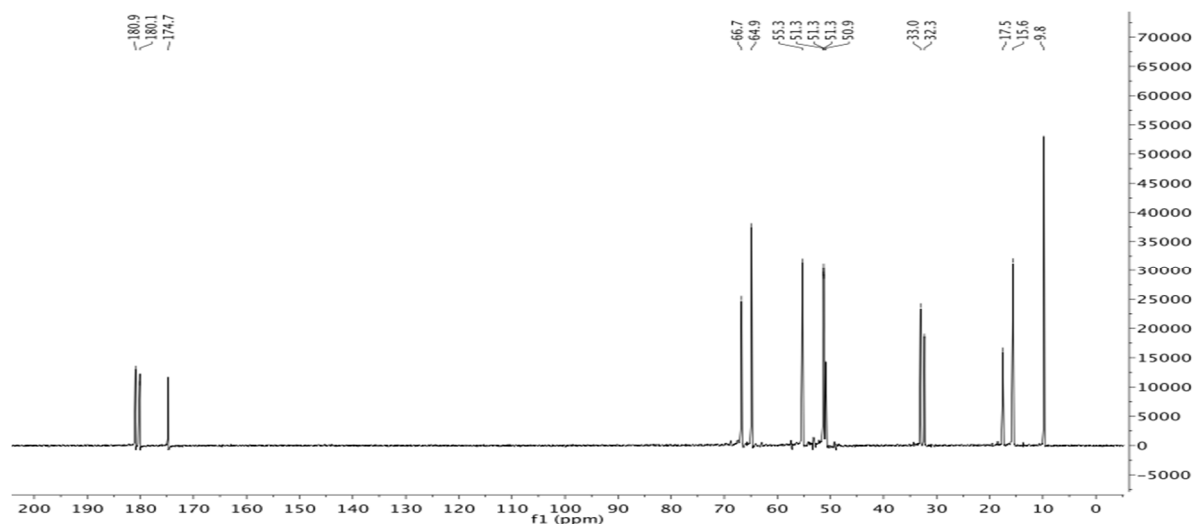
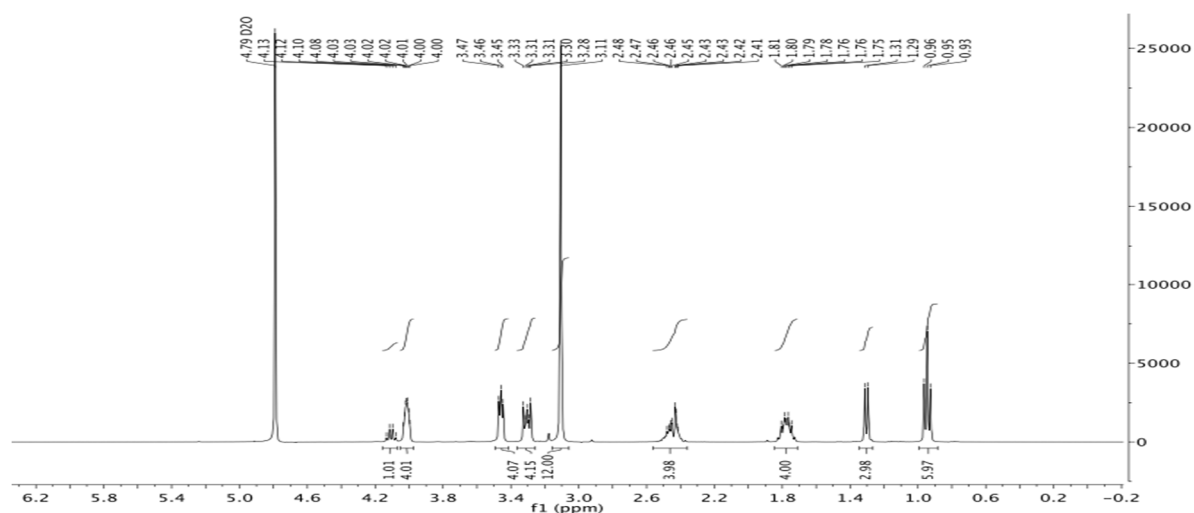


[C₃Ch]₂[SucAla]

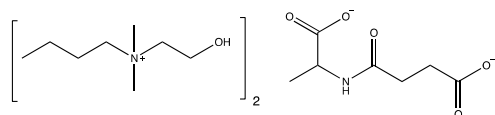


Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm)

0.95 (t, 6H, *J* = 7.3 Hz, CH₃CH₂CH₂N-); 1.30 (d, 3H, *J* = 7.1 Hz, -CH(CH₃)NH-); 1.75-1.82 (m, 4H, CH₃CH₂CH₂N-); 2.41-2.48 (m, 4H, -C(O)CH₂CH₂C(O)O); 3.11 (s, 12H, -N(CH₃)₂); 3.28-3.33 (m, 4H, CH₃CH₂CH₂N-); 3.46 (t, 2H, *J* = 5.8 Hz, -NCH₂CH₂OH); 4.00-4.03 (m, 4H, -NCH₂CH₂OH); 4.11 (q, 1H, *J* = 7.2 Hz, *J* = 14.4 Hz, -CH(CH₃)NH-); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 9.8 (CH₃CH₂CH₂N-); 15.6 (CH₃CH₂CH₂N-); 17.5 (-CH(CH₃)NH-); 32.3 (COCH₂CH₂COO); 32.9 (C(O)CH₂CH₂C(O)O); 50.9 (-CH(CH₃)NH-); 51.3 (-NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 64.8 (CH₃CH₂CH₂N-); 66.7 (-NCH₂CH₂OH); 174.8 (-NH(CO)); 180.2 (-C(O)CH₂CH₂C(O)O); 180.9 (-C(O)CH₂CH₂C(O)O)

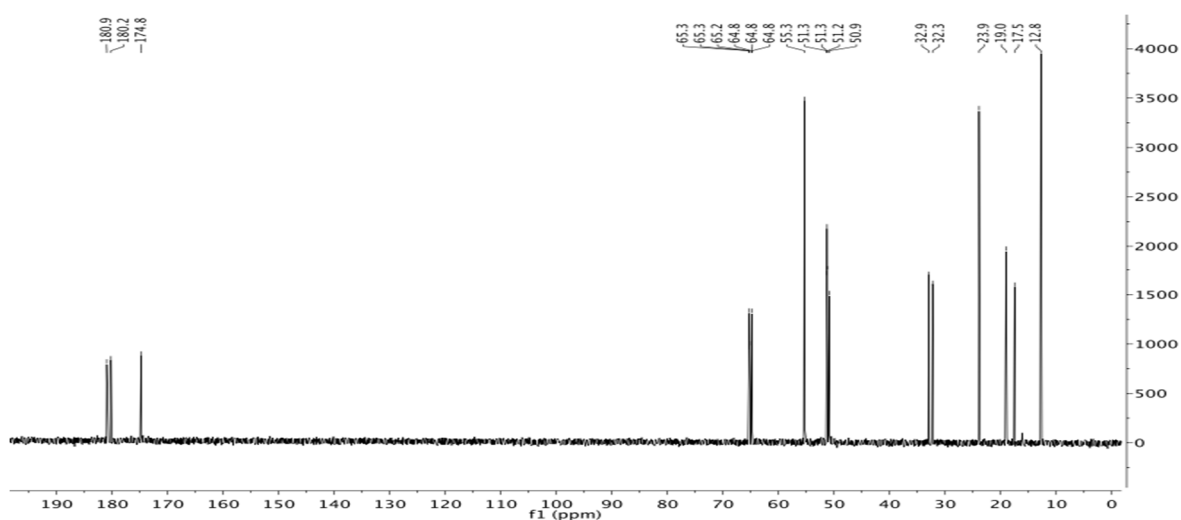
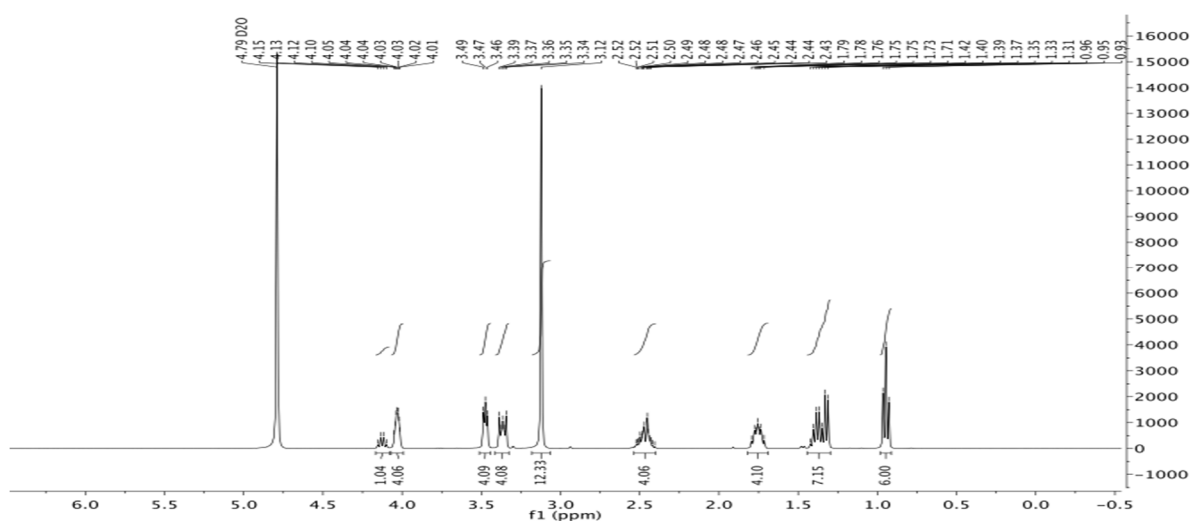


[C₄Ch]₂[SucAla]

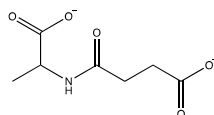
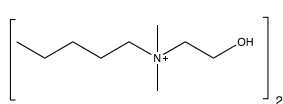


Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm)

0.95 (t, 6H, *J* = 7.2 Hz, CH₃CH₂CH₂CH₂N-); 1.31-1.42 (m, 4H, CH₃CH₂CH₂CH₂N-, 3H, -CH(CH₃)NH-); 1.71-1.79 (m, 4H, CH₃CH₂CH₂CH₂N-); 2.41-2.52 (m, 4H, -C(O)CH₂CH₂C(O)O); 3.12 (s, 12H, -N(CH₃)₂); 3.34-3.39 (m, 4H, CH₃CH₂CH₂CH₂N-); 3.46 (t, 2H, *J* = 5.1 Hz, -NCH₂CH₂OH); 4.01-4.05 (m, 4H, -NCH₂CH₂OH); 4.12 (q, 1H, *J* = 7.2 Hz, *J* = 14.3 Hz, -CH(CH₃)NH-); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 12.8 (CH₃CH₂CH₂CH₂N-); 17.5 (-CH(CH₃)NH-); 19.0 (CH₃CH₂CH₂CH₂N-); 23.9 (CH₃CH₂CH₂CH₂N-); 32.3 (COCH₂CH₂COO); 32.9 (C(O)CH₂CH₂C(O)O); 50.9 (-CH(CH₃)NH-); 51.3 (-NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 64.8 (CH₃CH₂CH₂N-); 65.3 (-NCH₂CH₂OH); 174.8 (-NH(CO)); 180.2 (-C(O)CH₂CH₂C(O)O); 180.9 (-C(O)CH₂CH₂C(O)O)

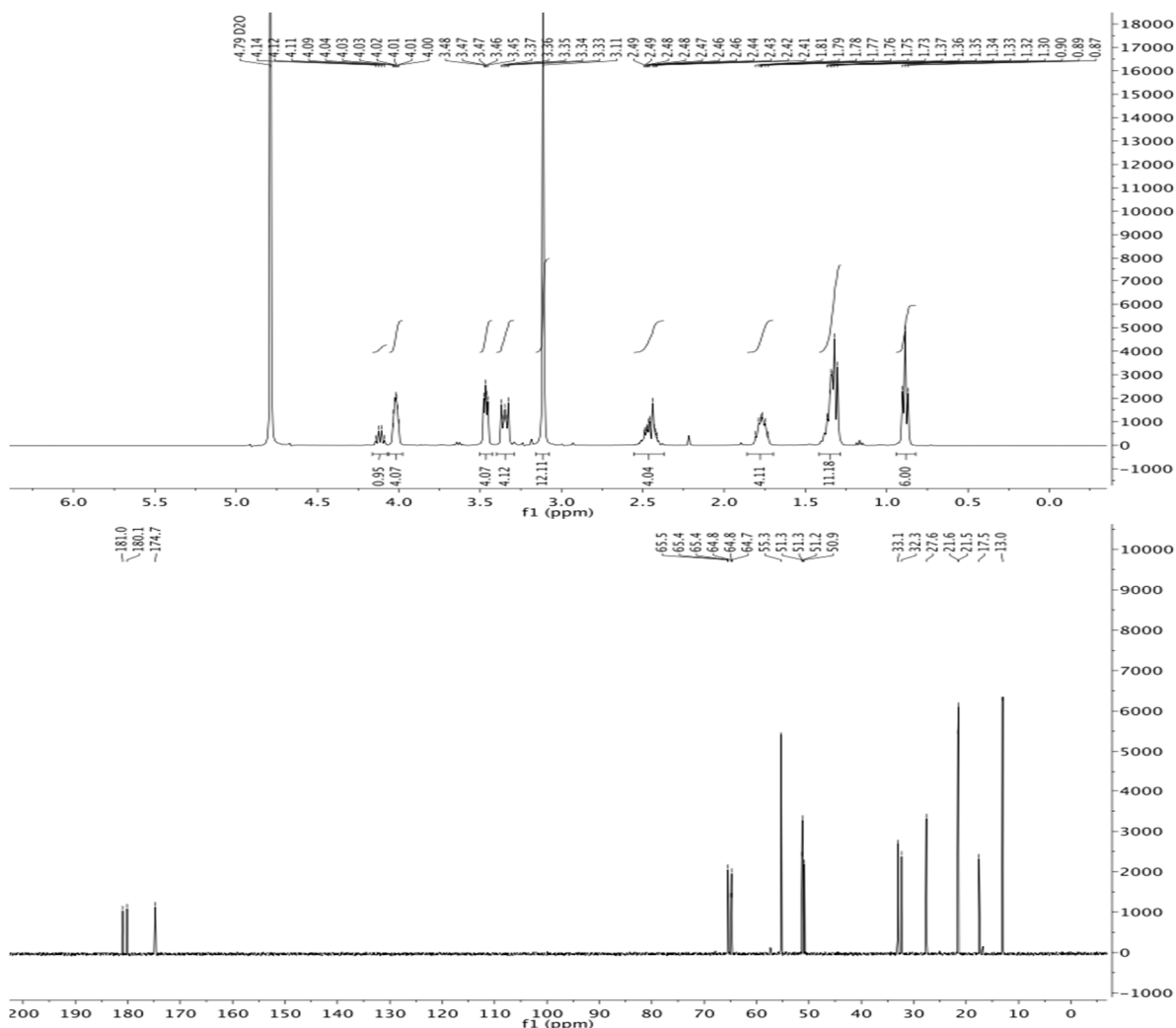


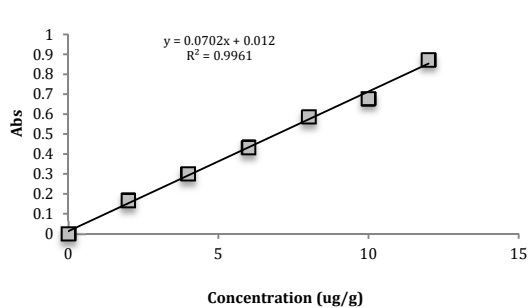
[C₅Ch]₂[SucAla]



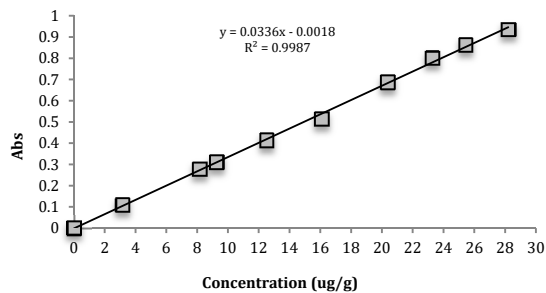
Viscous oil, ¹H NMR (D₂O, 400 MHz): δ (ppm)

0.89 (t, 6H, *J* = 6.4 Hz, CH₃CH₂CH₂CH₂CH₂N-); 1.30-1.37 (m, 8H, CH₃CH₂CH₂CH₂CH₂N-, 3H, -CH(CH₃)NH-); 1.73-1.81 (m, 4H, CH₃CH₂CH₂CH₂CH₂N-); 2.41-2.49 (m, 4H, -C(O)CH₂CH₂C(O)O); 3.11 (s, 12H, -N(CH₃)₂); 3.33-3.37 (m, 4H, CH₃CH₂CH₂CH₂CH₂N-); 3.45-3.48 (m, 2H, -NCH₂CH₂OH); 4.00-4.04 (m, 4H, -NCH₂CH₂OH); 4.11 (q, 1H, *J* = 7.5 Hz, *J* = 14.5 Hz, -CH(CH₃)NH-); ¹³C NMR (D₂O, 100 MHz): δ (ppm) 13.0 (CH₃CH₂CH₂CH₂CH₂N-); 17.5 (-CH(CH₃)NH-); 21.5 (CH₃CH₂CH₂CH₂N-); 21.6 (CH₃CH₂CH₂CH₂N-); 27.6 (CH₃CH₂CH₂CH₂CH₂N-); 32.3 (COCH₂CH₂COO); 33.1 (C(O)CH₂CH₂C(O)O); 50.9 (-CH(CH₃)NH-); 51.3 (-NCH₂CH₂OH); 55.3 (-N(CH₃)₂); 64.8 (CH₃CH₂CH₂N-); 65.4 (-NCH₂CH₂OH); 174.7 (-NH(CO)); 180.1 (-C(O)CH₂CH₂C(O)O); 181.0 (-C(O)CH₂CH₂C(O)O)





Paracetamol



Sodium diclofenac

Figure S2. Calibration Curves of Paracetamol and Sodium Diclofenac in octanol-saturated water

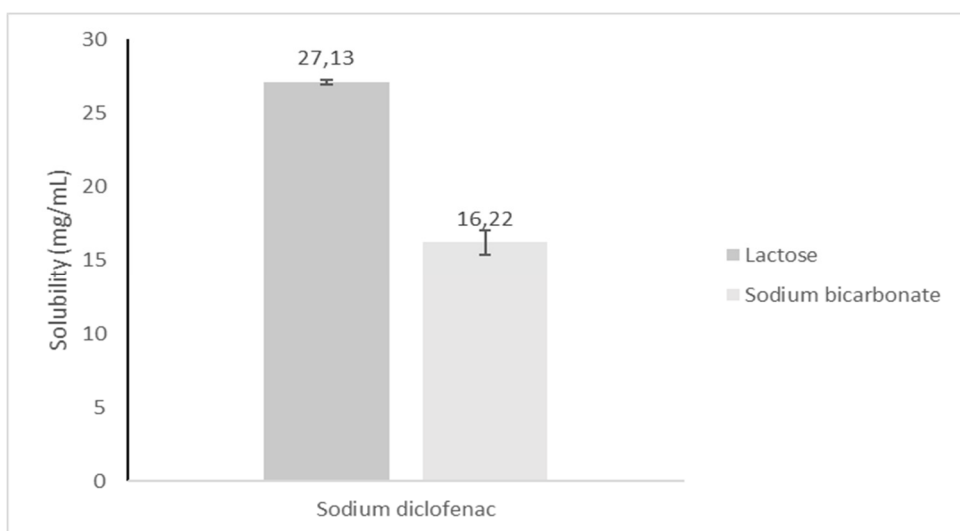
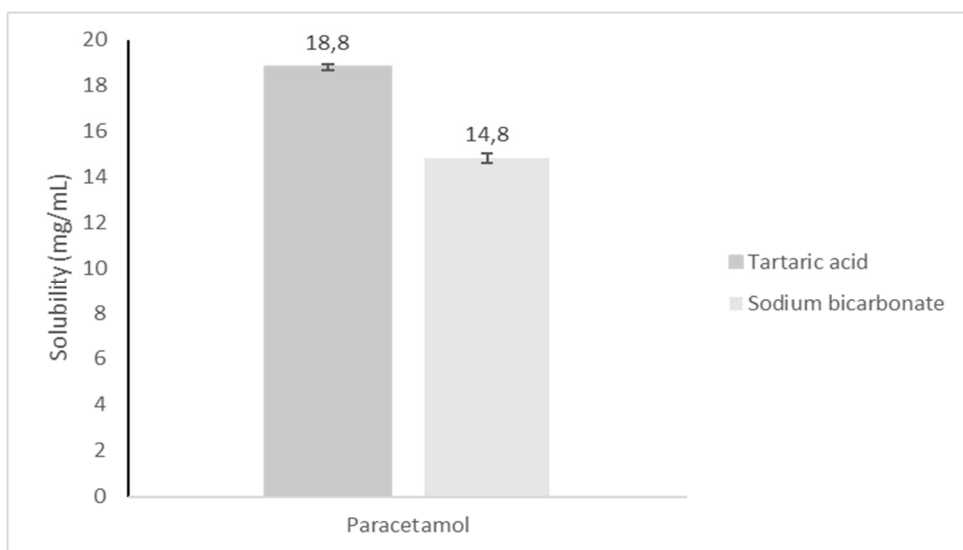


Figure S3. Solubility of Paracetamol and Sodium Diclofenac with common excipients in aqueous solutions at 37 °C after 24 h