Supplementary Materials :

Cascading One-opt Synthesis of Biodegradable Uronic Acid-based Surfactants from Oligoalginates, Semi-Refined Alginates and Crude Brown Seaweeds

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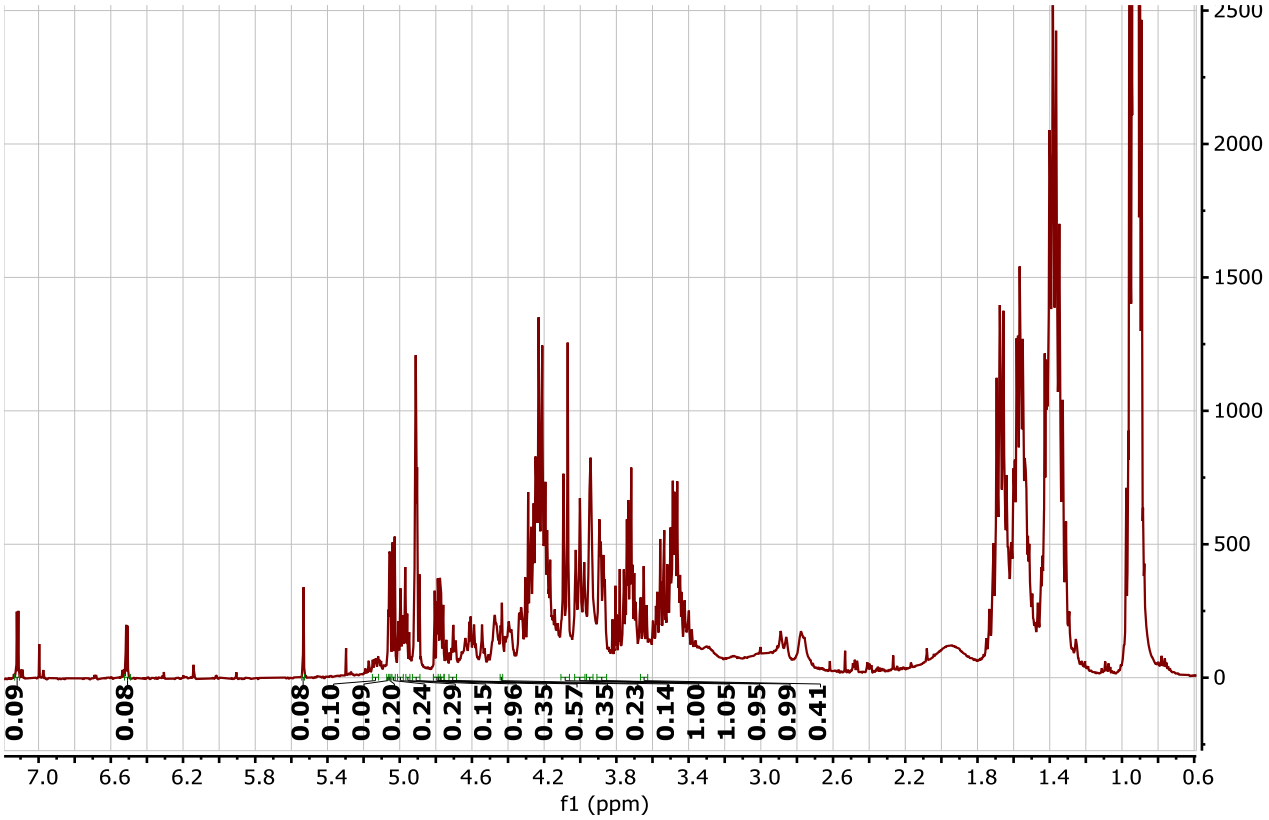

Figure S1: ^{1}H NMR spectrum of **C_4-C_4 Man** from OM (δ: 7.2-0.6 ppm) (400 MHz, $CDCl_3$).

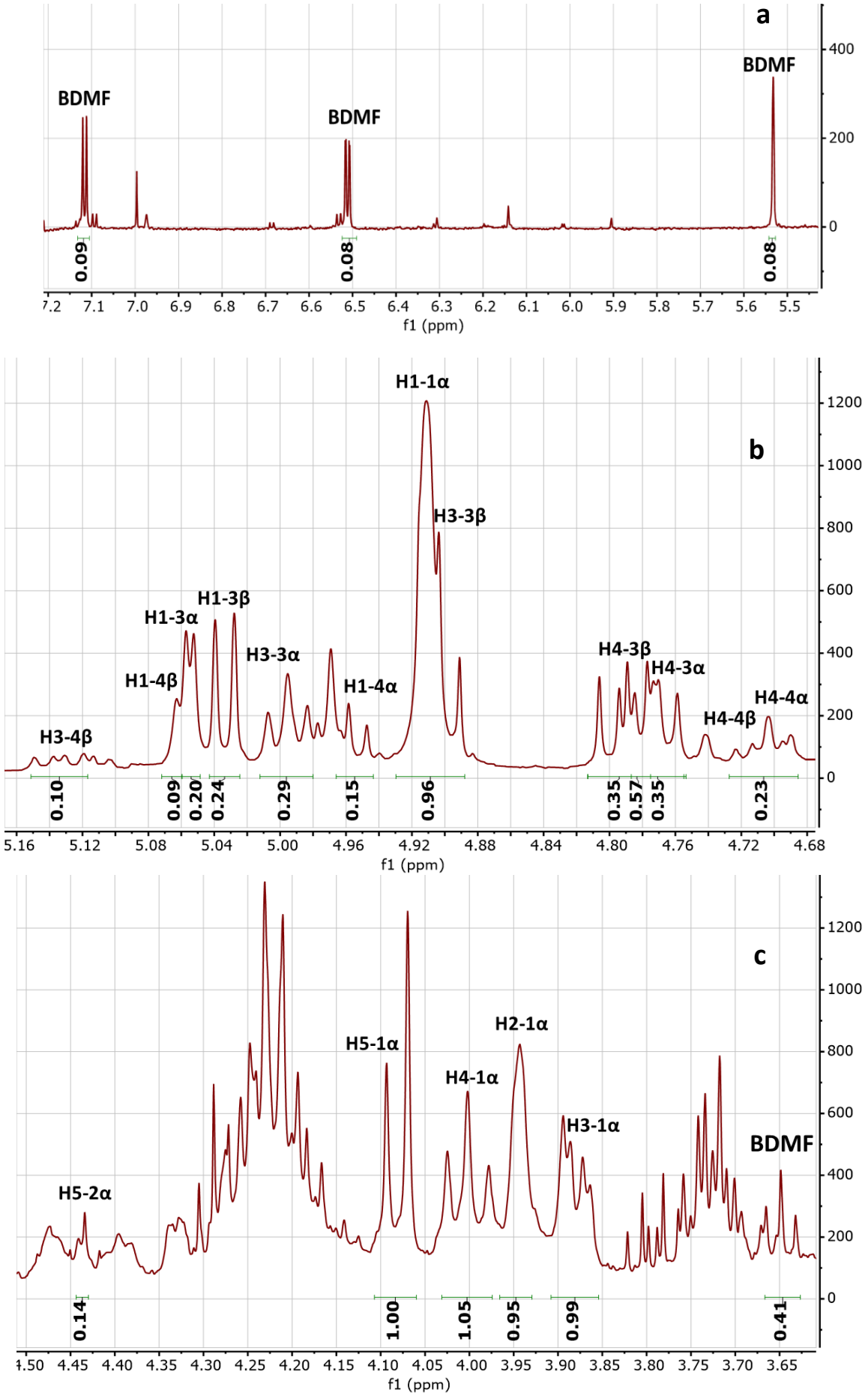

Figure S2: Zooms of ^{1}H NMR spectrum of **C_4-C_4 Man** from OM in the zones: (a) 7.2-5.5 ppm; (b) 5.16-4.68 ppm; (c) 4.50-3.60 ppm (400 MHz, $CDCl_3$).

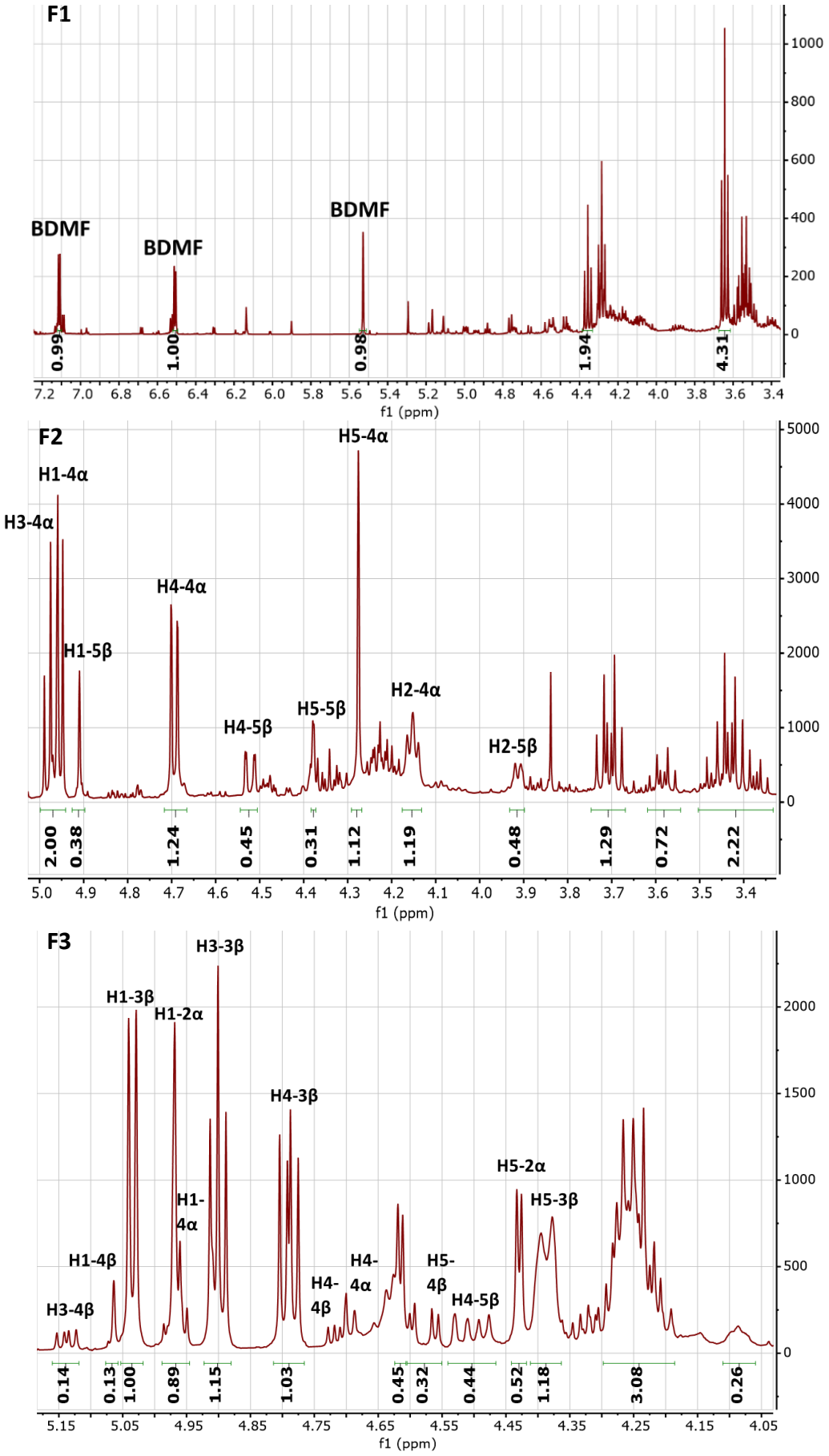

Figure S3: Zooms of ^{1}H NMR spectra of **fractions F1, F2 and F3** isolated after column chromatography of **C_4-C_4 Man** from OM (400 MHz, $CDCl_3$).

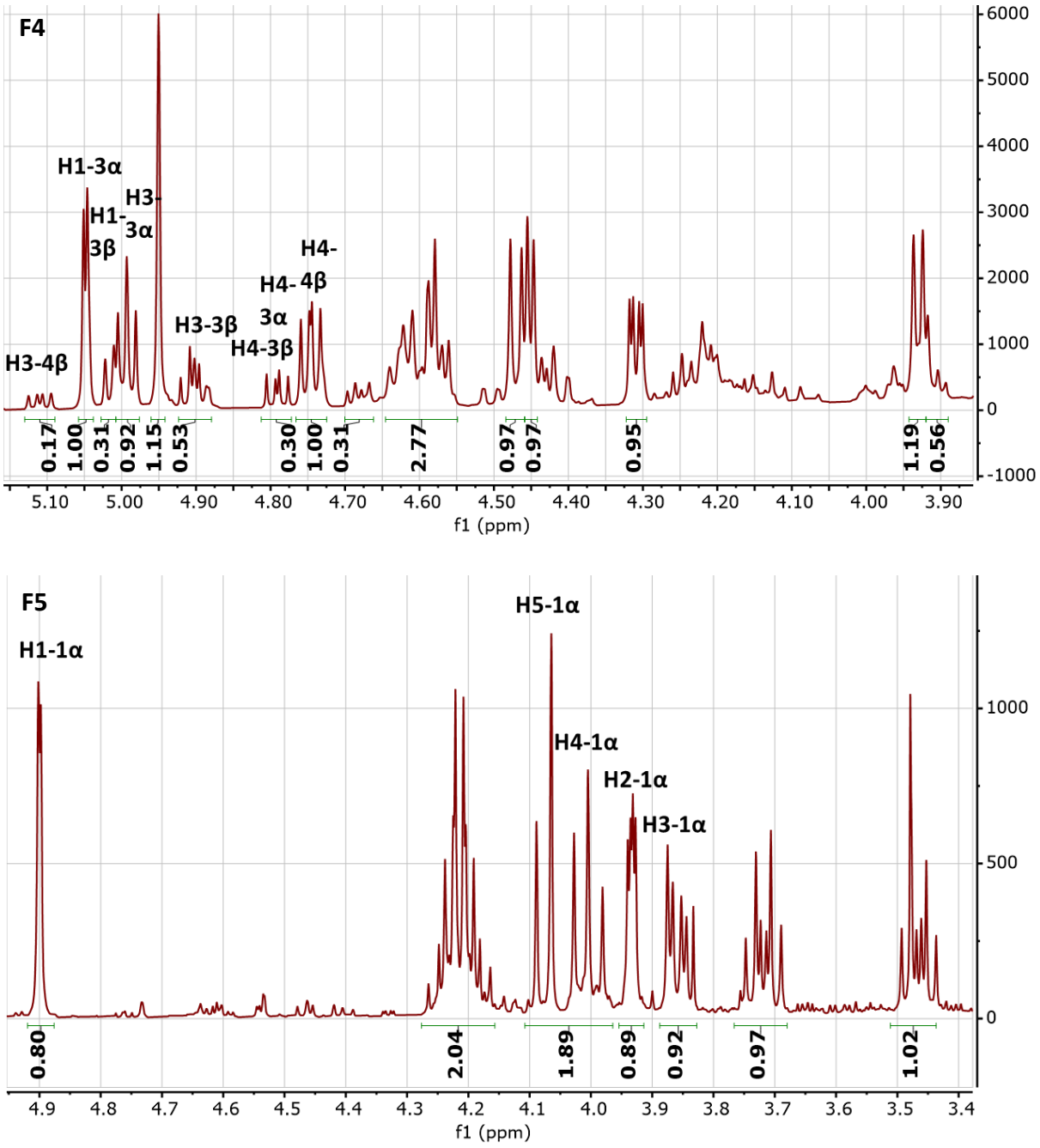

Figure S4: Zooms of ^{1}H NMR spectra of **fractions F4 and F5** isolated after column chromatography of **C_4-C_4 Man** from OM (400 MHz, $CDCl_3$).

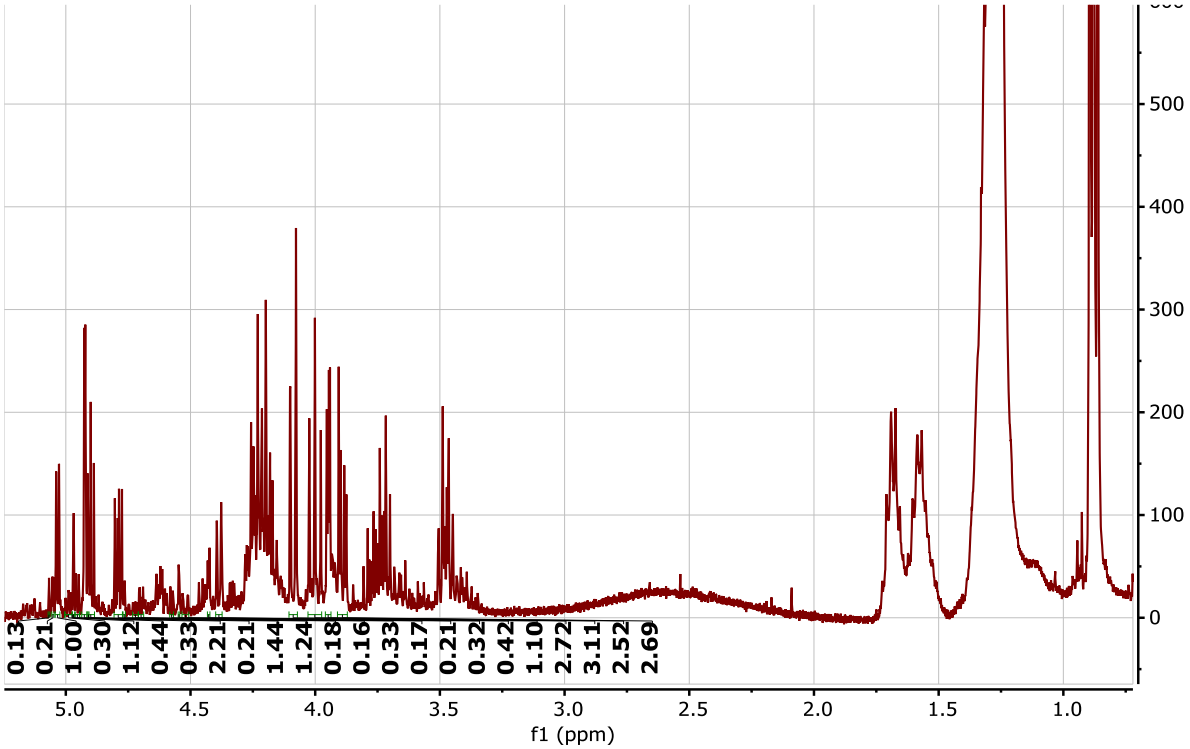

Figure S5: ^{1}H NMR spectrum of **C_{12}-C_{12} Man** from OM (δ: 5.2-0.6 ppm) (400 MHz, $CDCl_3$).

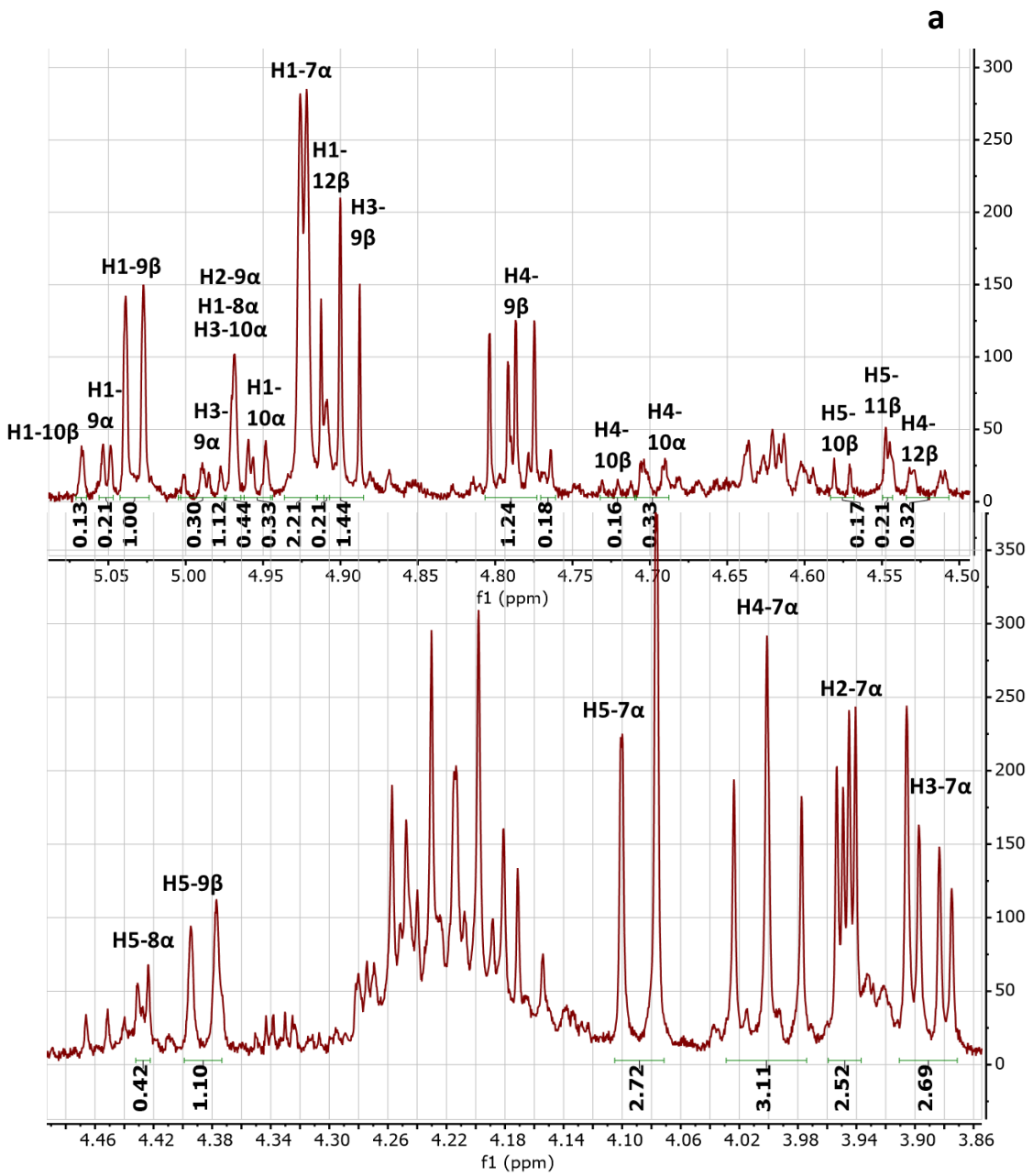

Figure S6: Zooms of ^{1}H NMR spectrum of **C_{12}-C_{12} Man** from OM in the zones: (a) 5.15-4.50 ppm; (b) 4.50-3.86 ppm (400 MHz, $CDCl_3$).

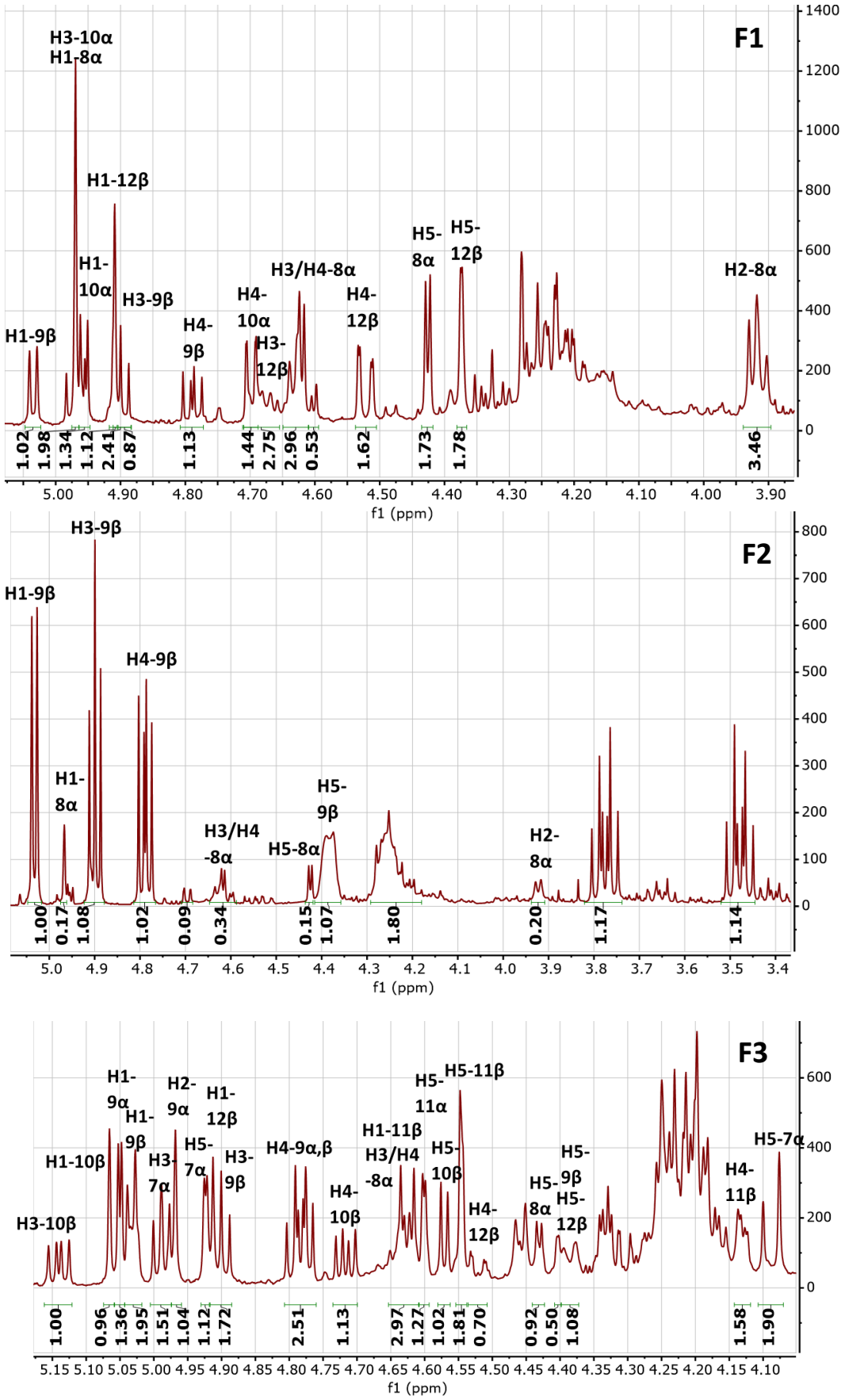

Figure S7: Zooms of ^{1}H NMR spectra of **fractions F1, F2 and F3** isolated after the second column chromatography of **C_{12}-C_{12} Man** from OM (400 MHz, $CDCl_3$).

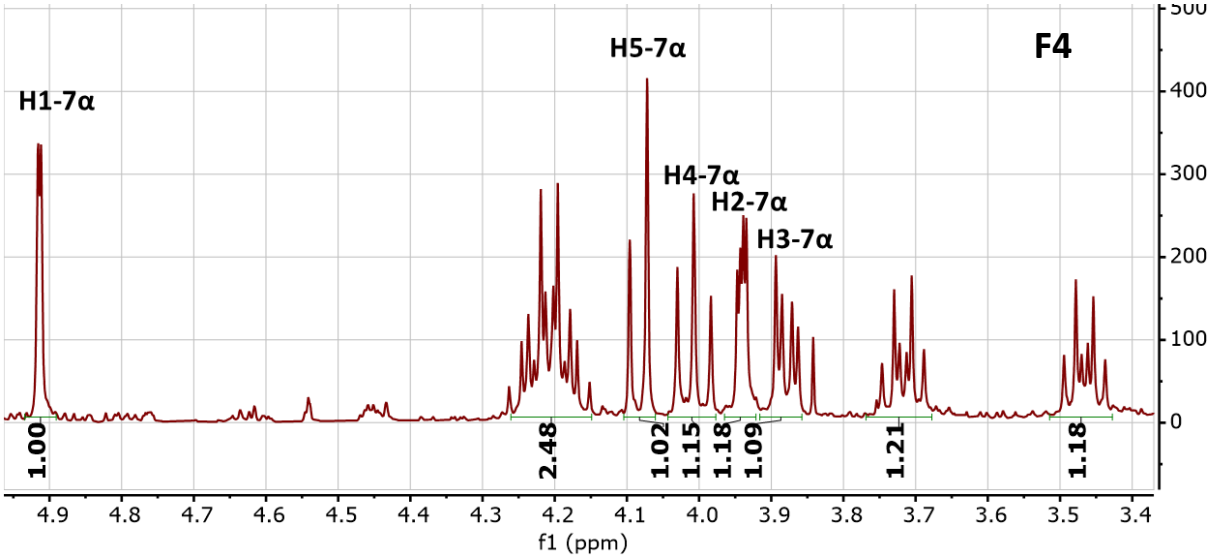

Figure S8: Zoom of ^{1}H NMR spectrum of **fraction F4** isolated after column chromatography of **C_{12}-C_{12} Man** from OM (400 MHz, $CDCl_3$).

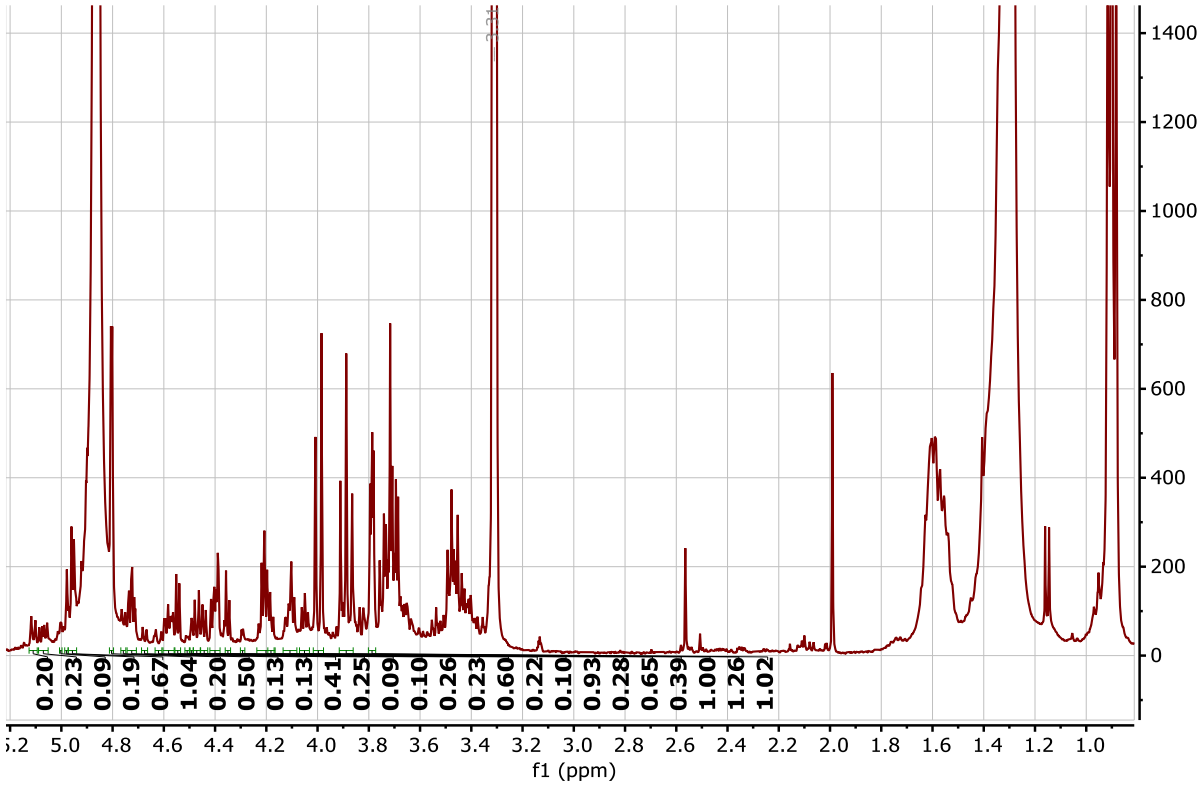

Figure S9: ^{1}H NMR spectrum of **H-C$_{12}$ Man** from OM (δ: 5.2-0.6 ppm) (400 MHz, CD_3OD).

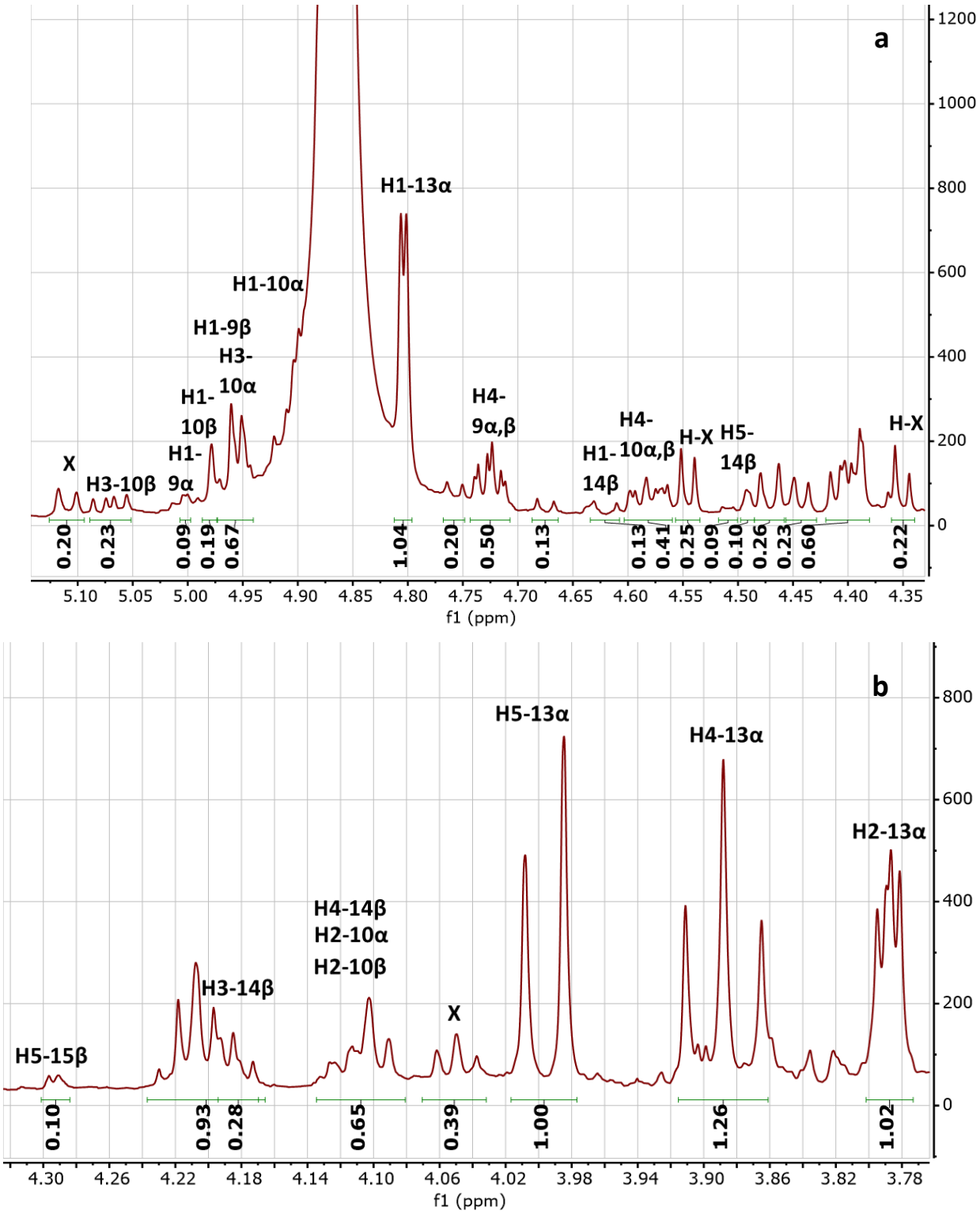

Figure S10: Zooms of ^{1}H NMR spectrum of **H-C$_{12}$ Man** from OM in the zones: (a) 5.15-4.35 ppm; (b) 4.35-3.77ppm (400 MHz, CD$_3$OD).

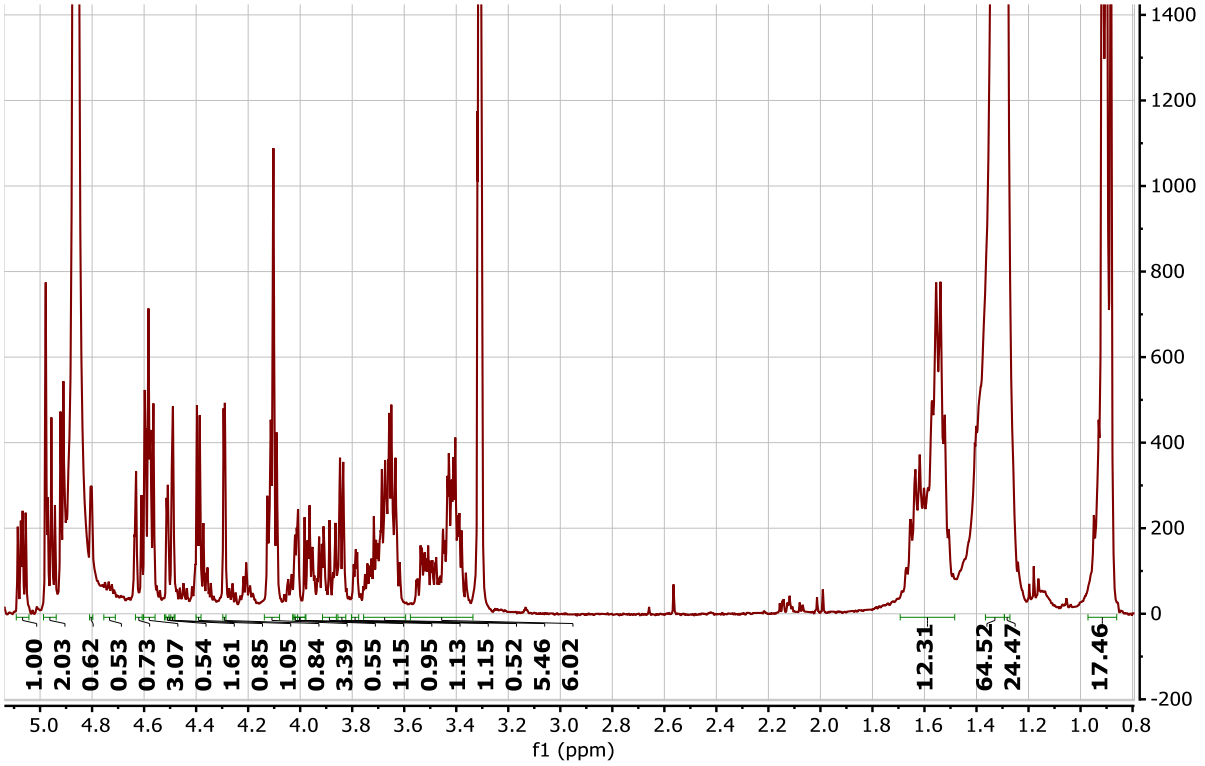

Figure S11: ^{1}H NMR spectrum of **H-C$_{12}$ Gul** from OG (δ: 5.2-0.6 ppm) (400 MHz, CD$_3$OD).

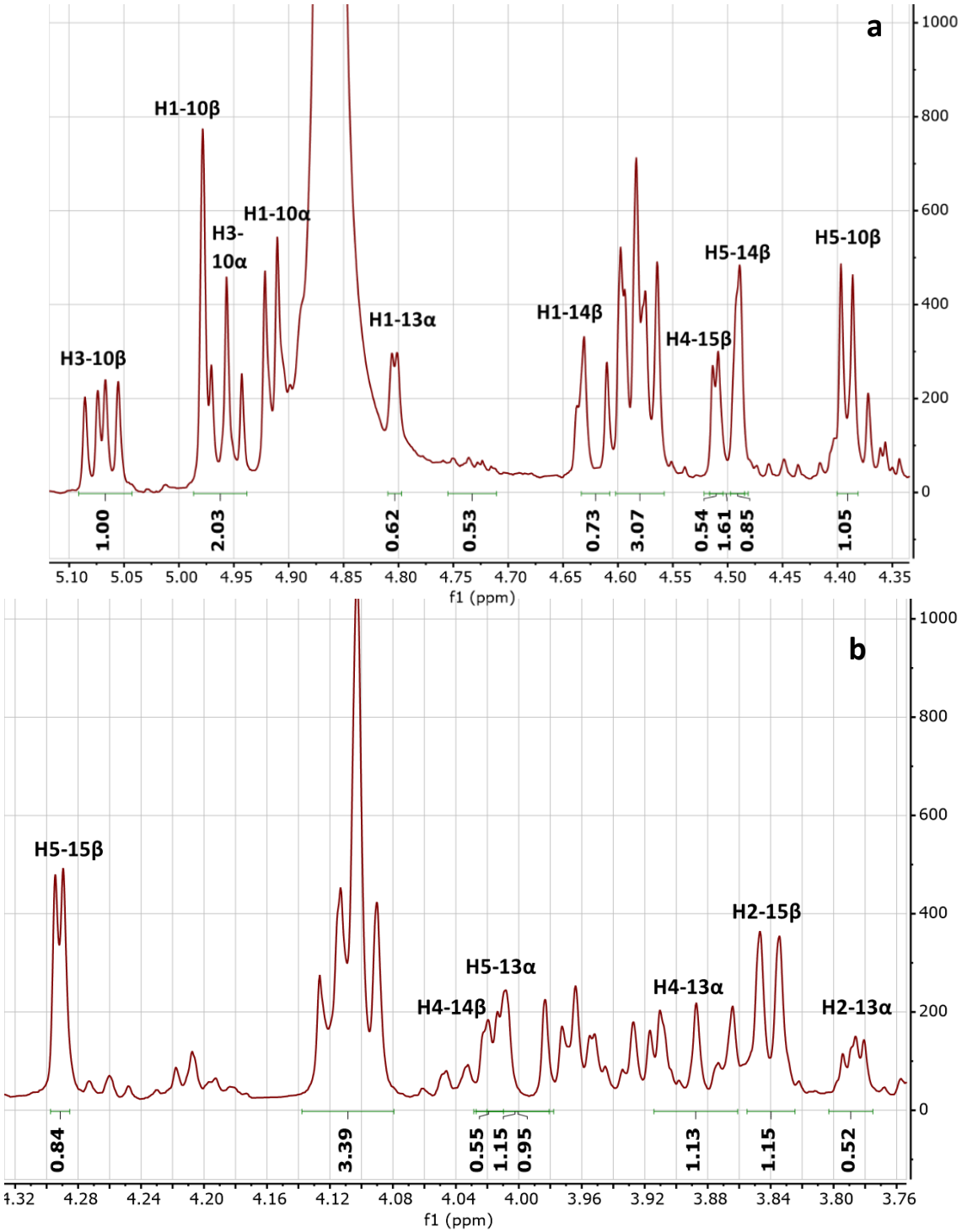

Figure S12: Zooms of ^{1}H NMR spectrum of **H-C$_{12}$ Gul** from OG in the zones: (a) 5.15-4.35 ppm; (b) 4.32-3.76 ppm (400 MHz, CD$_3$OD).

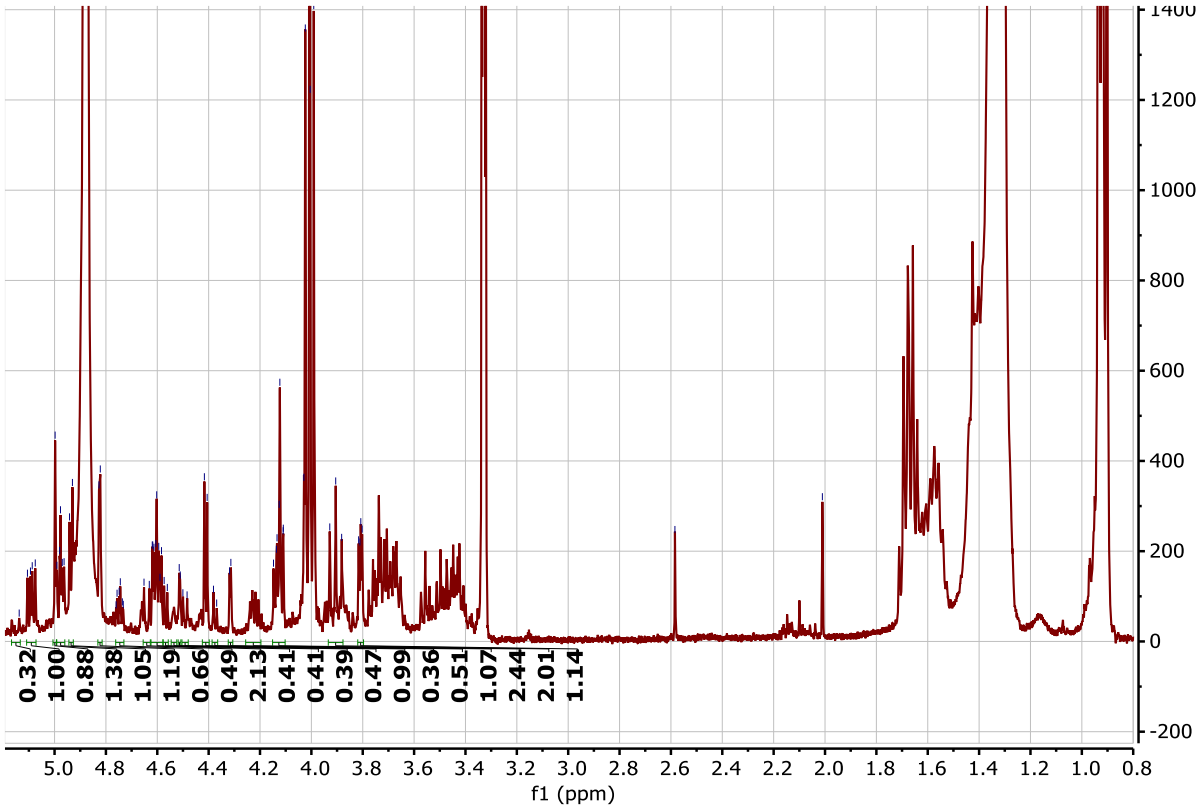

Figure S13: ^{1}H NMR spectrum of **H-C$_{12}$ OAlg** from OAlg (δ: 5.2-0.6 ppm) (400 MHz, CD_3OD).

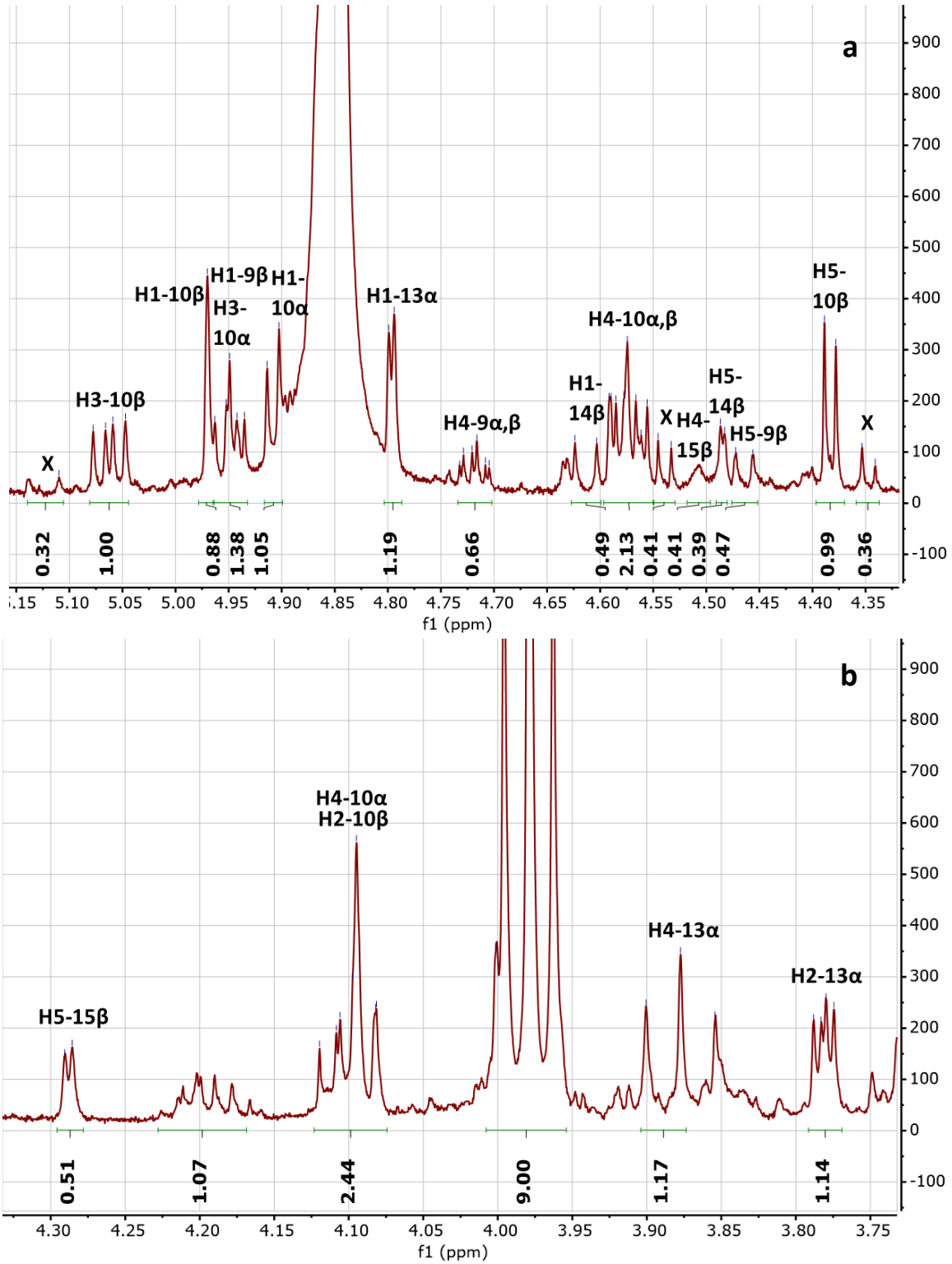

Figure S14: Zooms of ^{1}H NMR spectrum of **H-C$_{12}$ OAlg** from OAlg in the zones: (a) 5.15-4.35 ppm; (b) 4.32-3.74 ppm (400 MHz, CD$_3$OD).

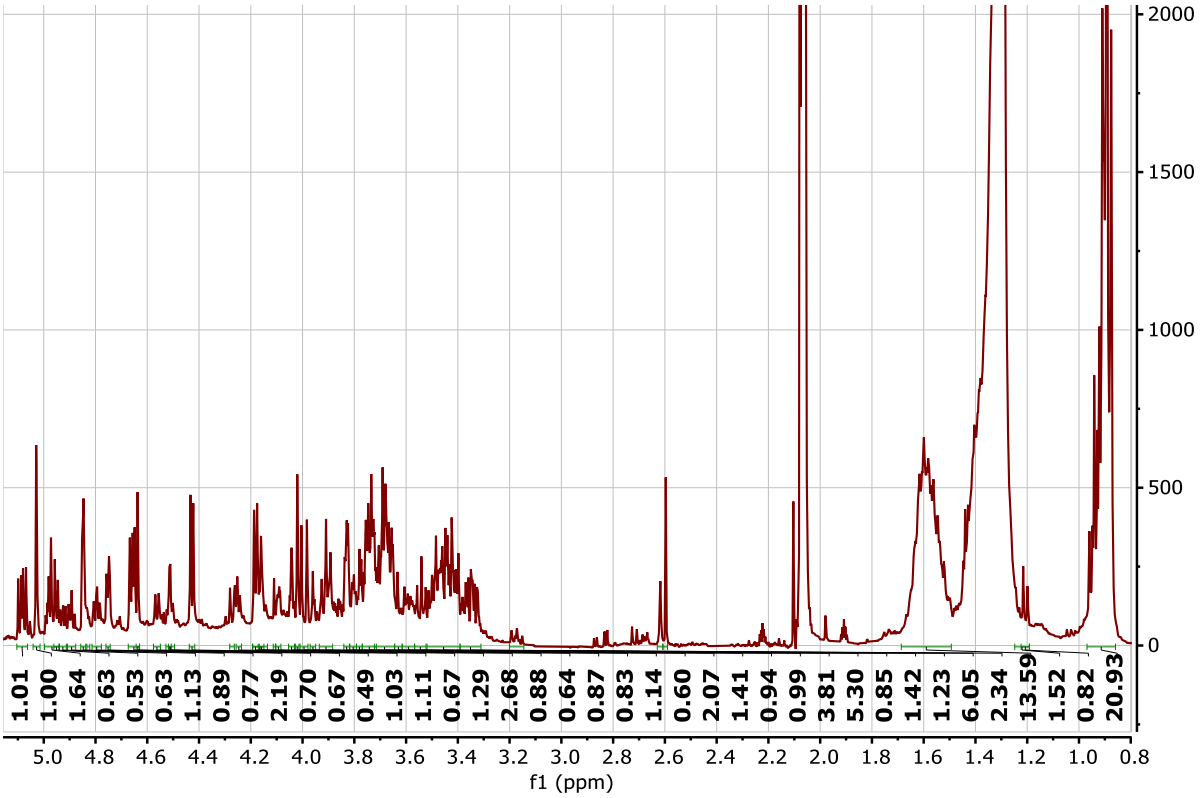

Figure S15: ^{1}H NMR spectrum of **H-C$_{12}$ s-r Alg** from s-r Alg (δ: 5.2-0.6 ppm) (400 MHz, acetone-d6).

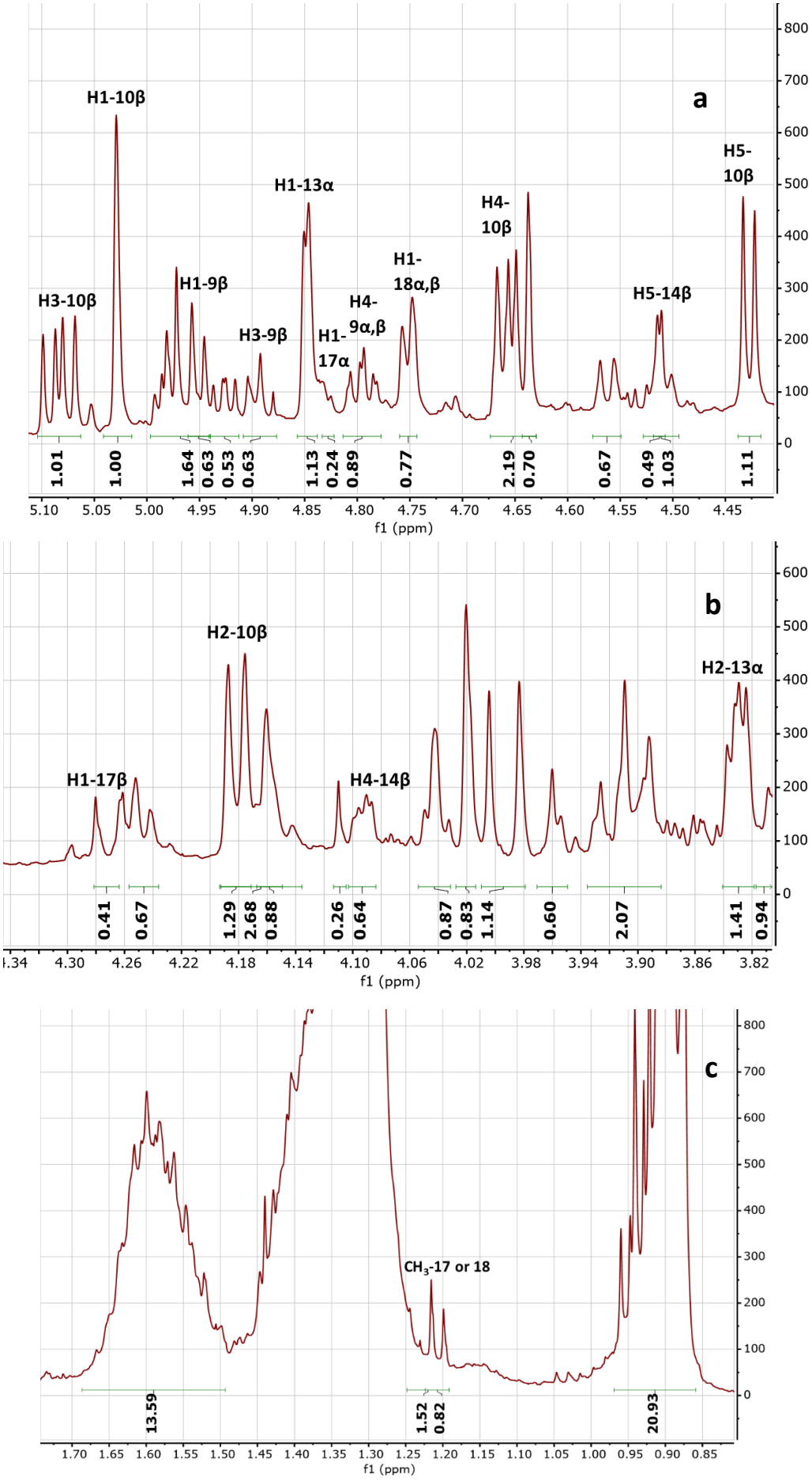

Figure S16: Zooms of ^{1}H NMR spectrum of **H-C$_{12}$ s-r Alg** from s-r Alg in the zones: (a) 5.10-4.40 ppm; (b) 4.34-3.81 ppm; (c) 1.75-0.80 ppm (400 MHz, acetone-d6).

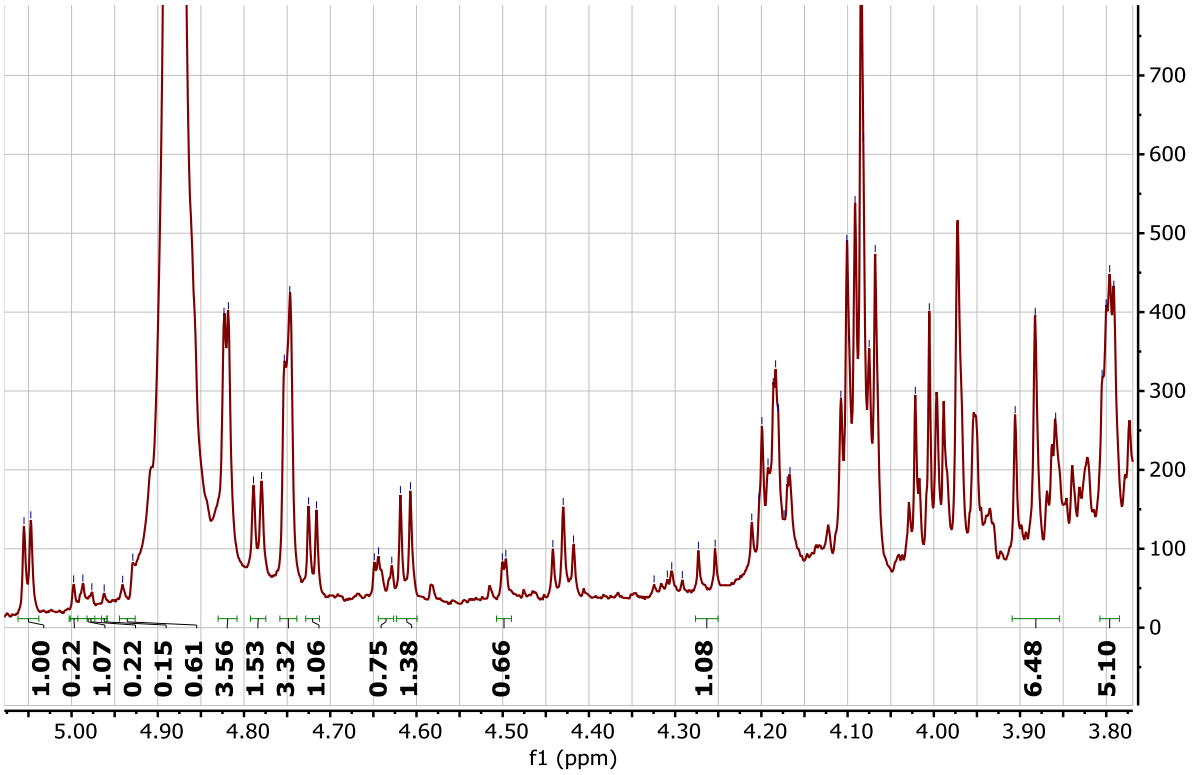

Figure S17: ^{1}H NMR spectrum of **H-C$_8$ crude Alg** from crude Alg (δ: 5.20-3.80 ppm) (400 MHz, CD$_3$OD).

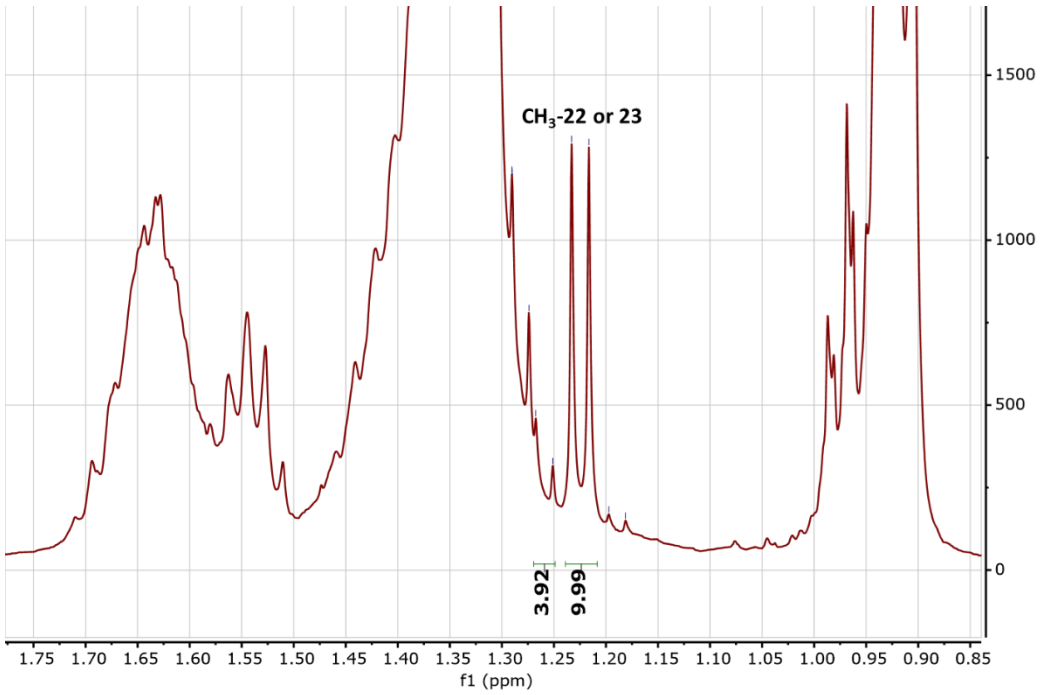

Figure S18: Zoom of ^{1}H NMR spectrum of **H-C$_8$ crude Alg** from crude Alg in the zone 1.76-0.85 (400 MHz, CD$_3$OD).

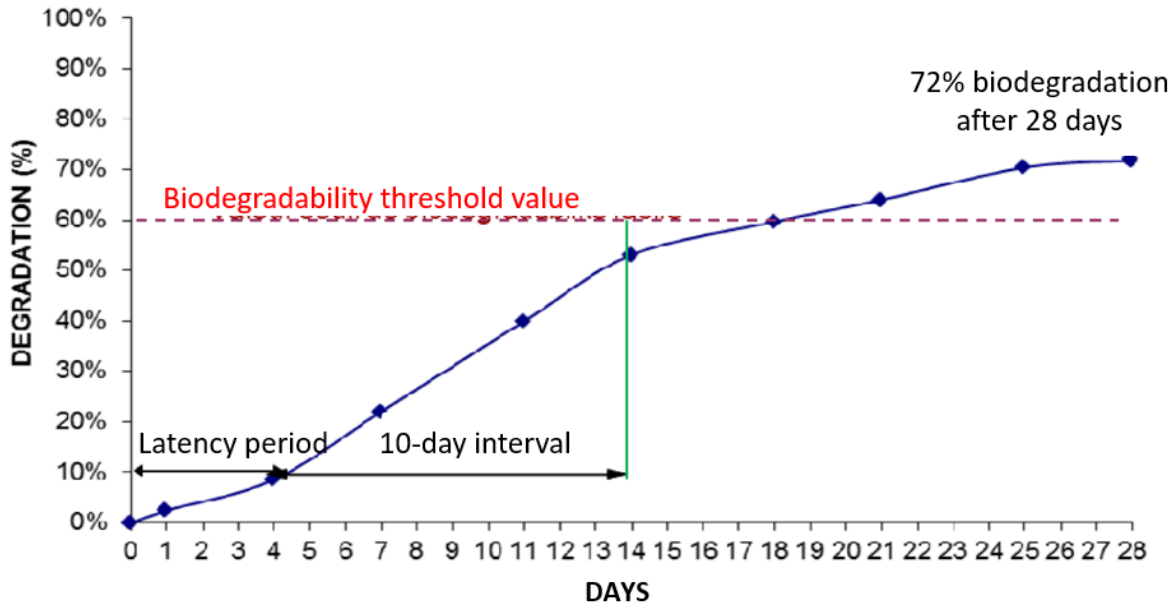

Figure S19: Biodegradability results (**H-C12 s-r Alg**) according to the OCDE 301 B method.

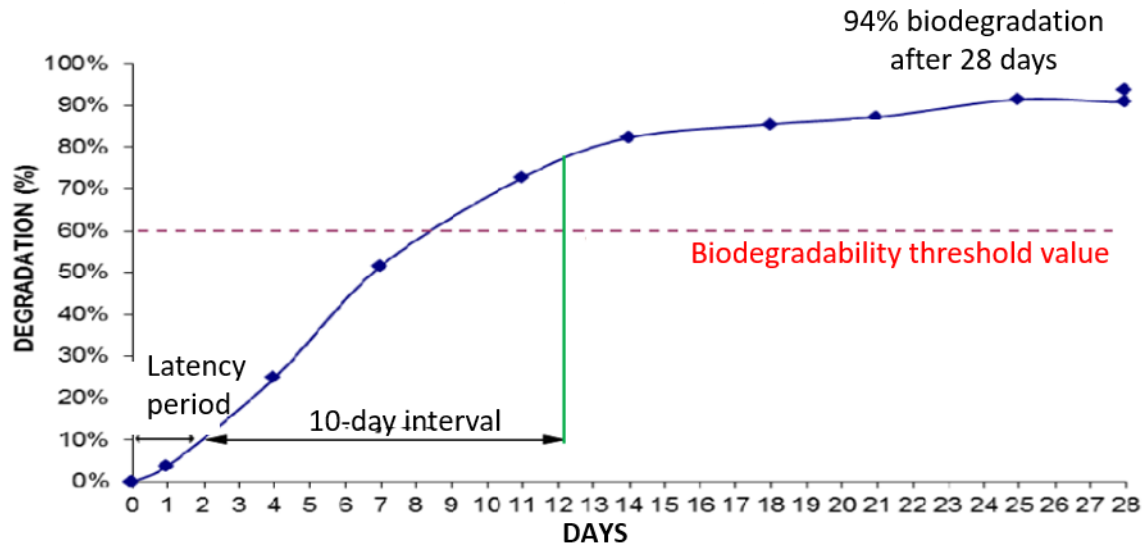

Figure 20: Biodegradability results (**SLES**) according to the OCDE 301 B method.