

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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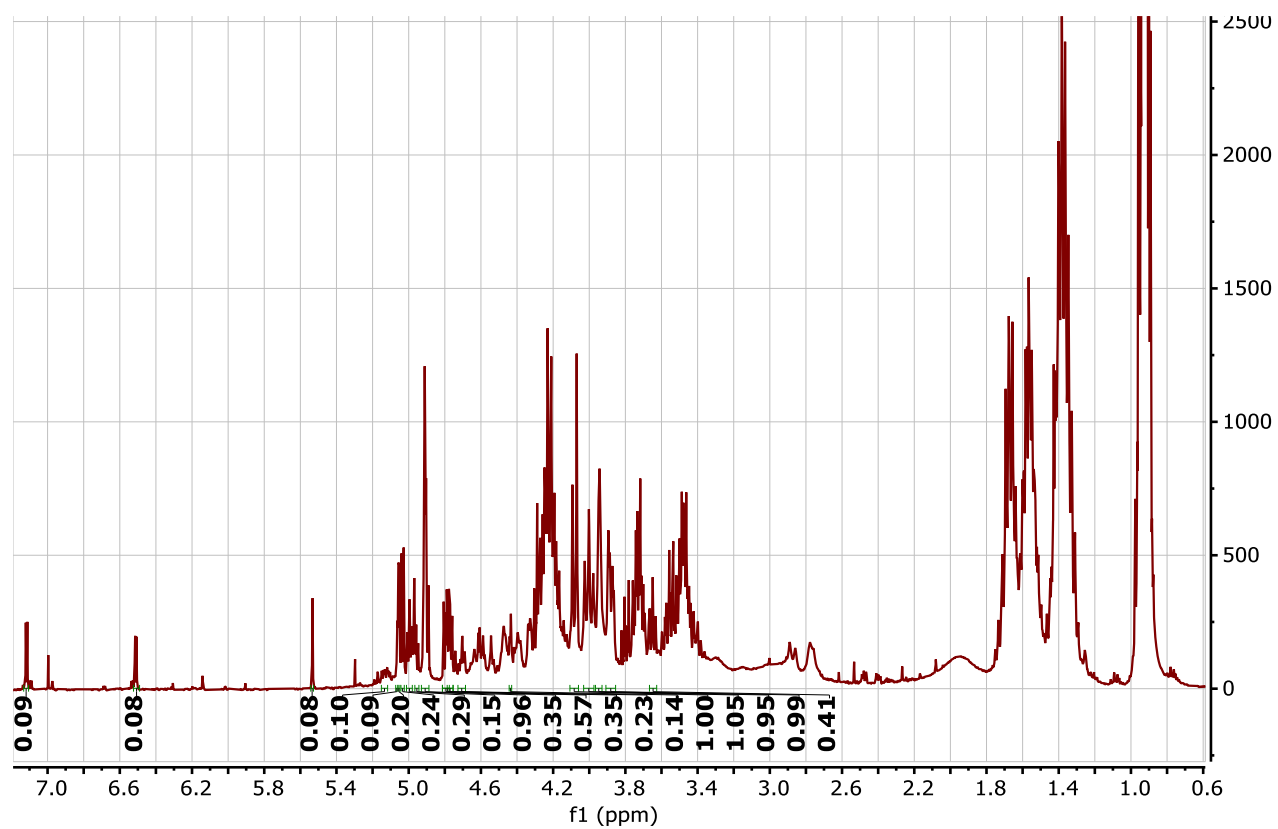


Figure S1: ^1H NMR spectrum of C₄-C₄ Man from OM (δ : 7.2-0.6 ppm) (400 MHz, CDCl_3).

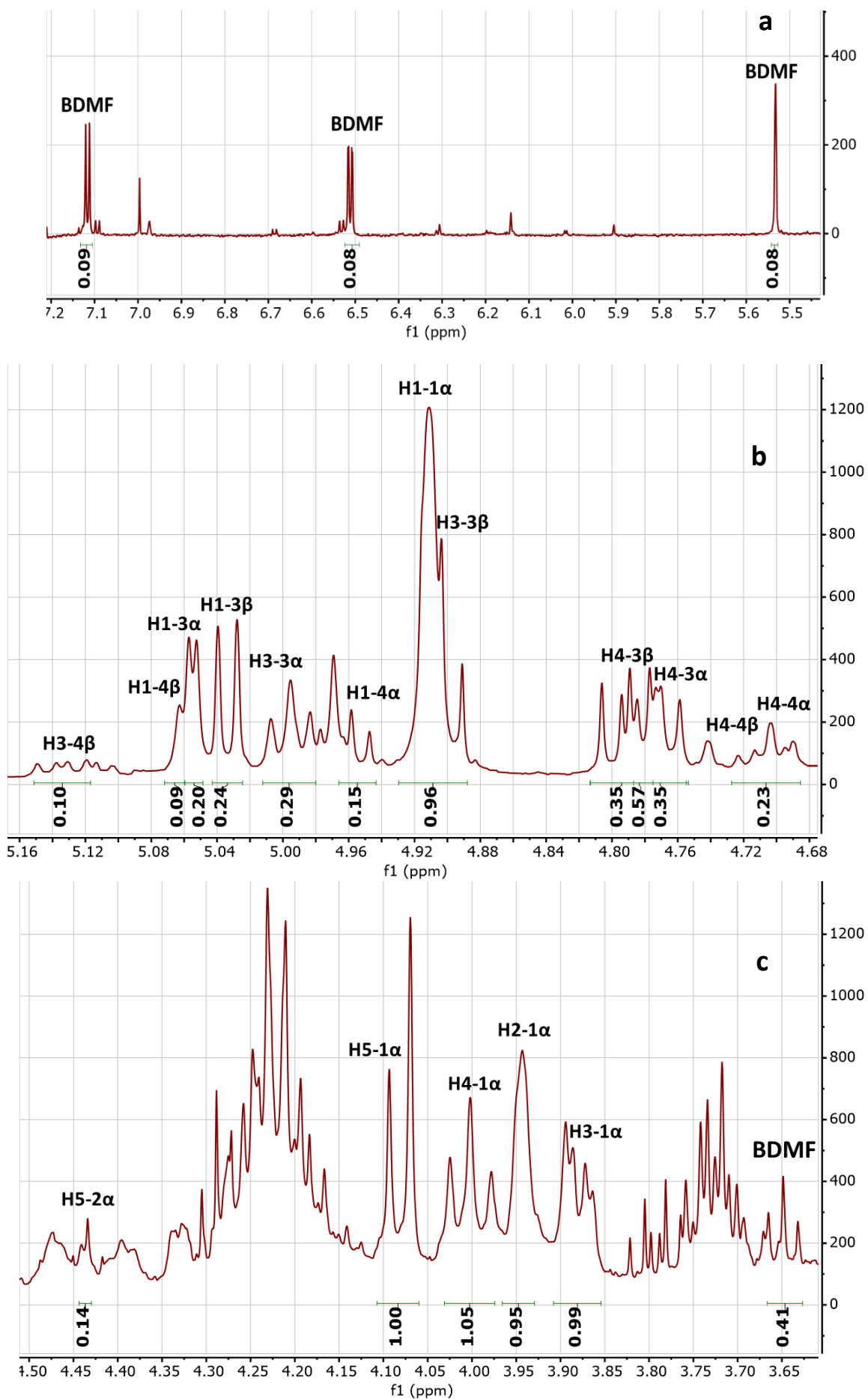


Figure S2: Zooms of ^1H NMR spectrum of **C₄-C₄ Man** from OM in the zones: (a) 7.2-5.5 ppm; (b) 5.16-4.68 ppm; (c) 4.50-3.60 ppm (400 MHz, CDCl_3).

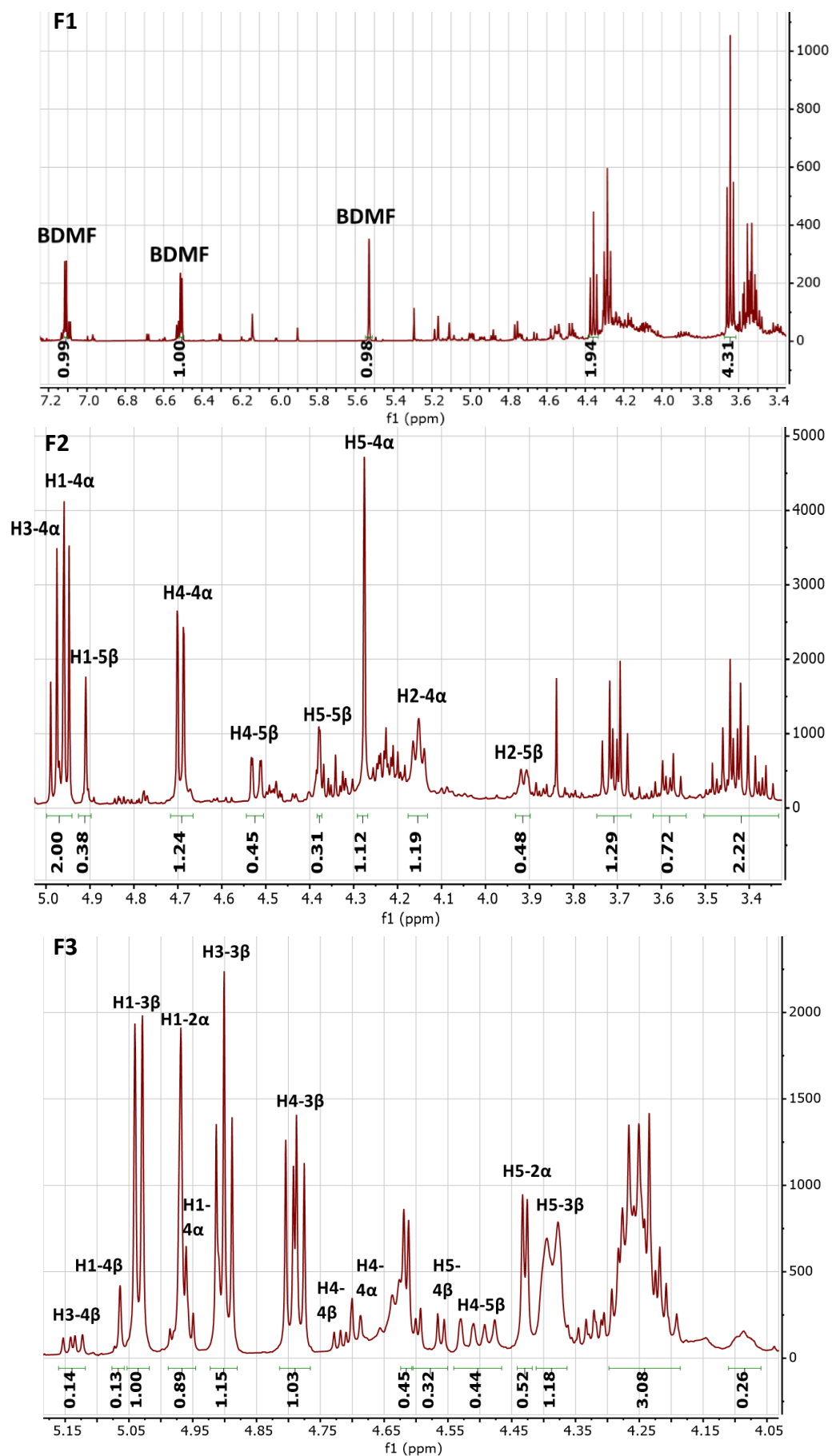


Figure S3: Zooms of ^1H NMR spectra of fractions **F1**, **F2** and **F3** isolated after column chromatography of **C₄-C₄ Man** from OM (400 MHz, CDCl_3).

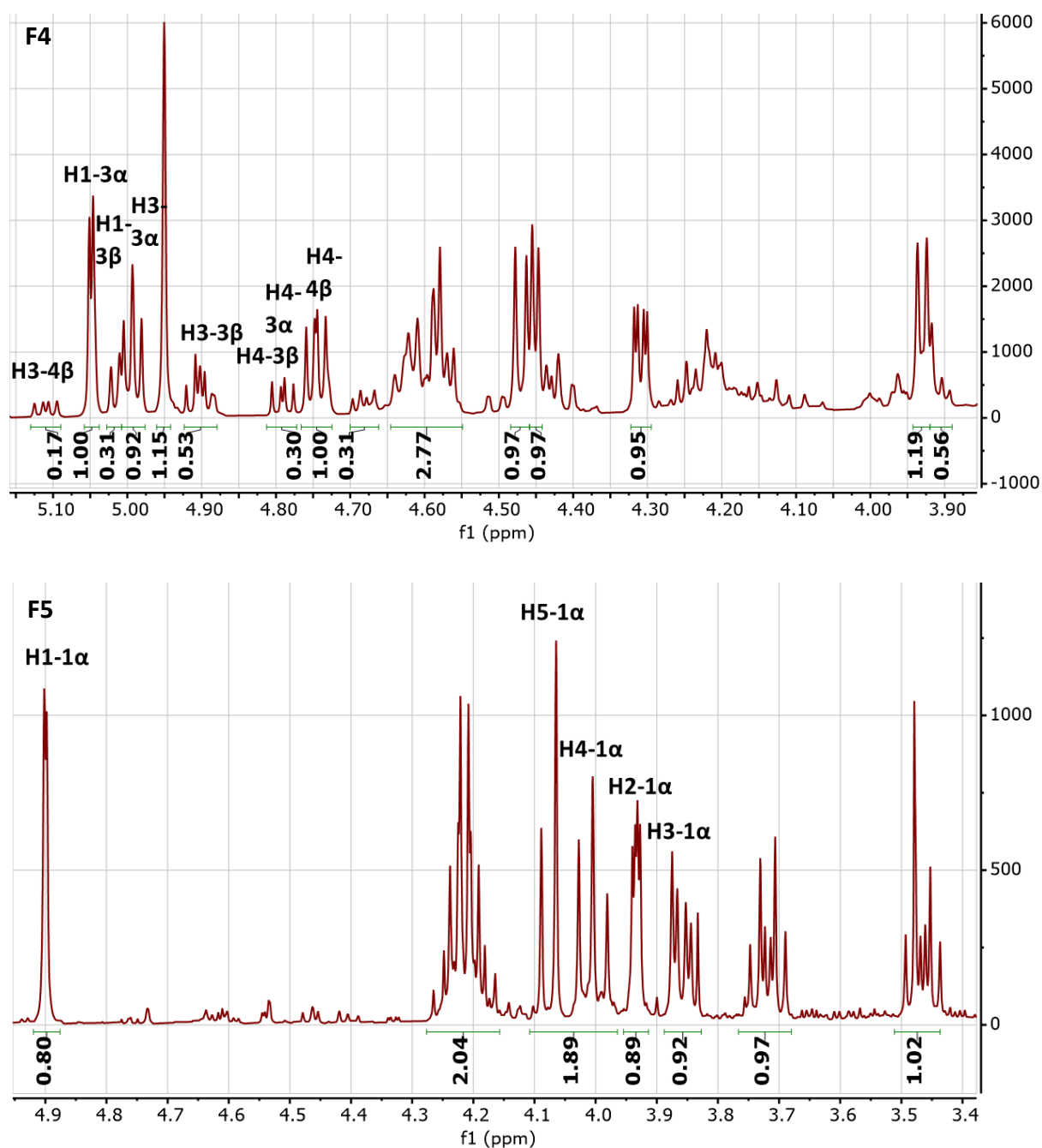


Figure S4: Zooms of ^1H NMR spectra of **fractions F4 and F5** isolated after column chromatography of **C₄-C₄ Man** from OM (400 MHz, CDCl_3).

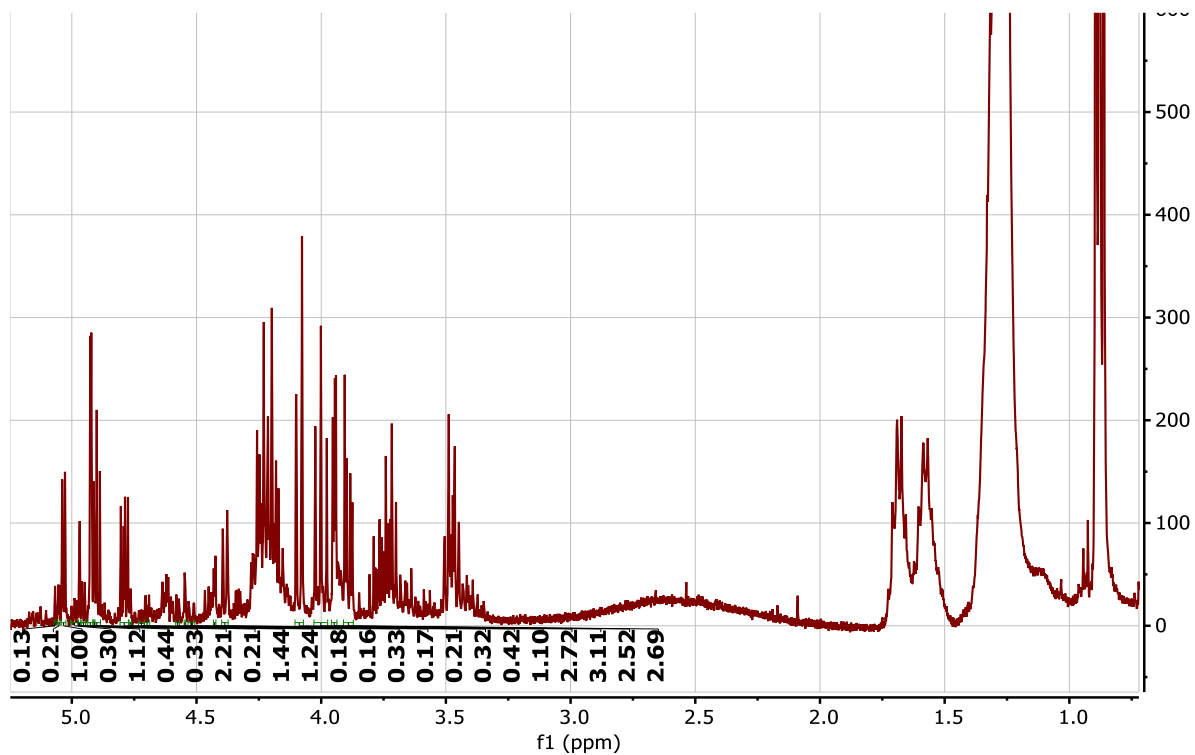


Figure S5: ^1H NMR spectrum of $\text{C}_{12}\text{-C}_{12}$ Man from OM (δ : 5.2-0.6 ppm) (400 MHz, CDCl_3).

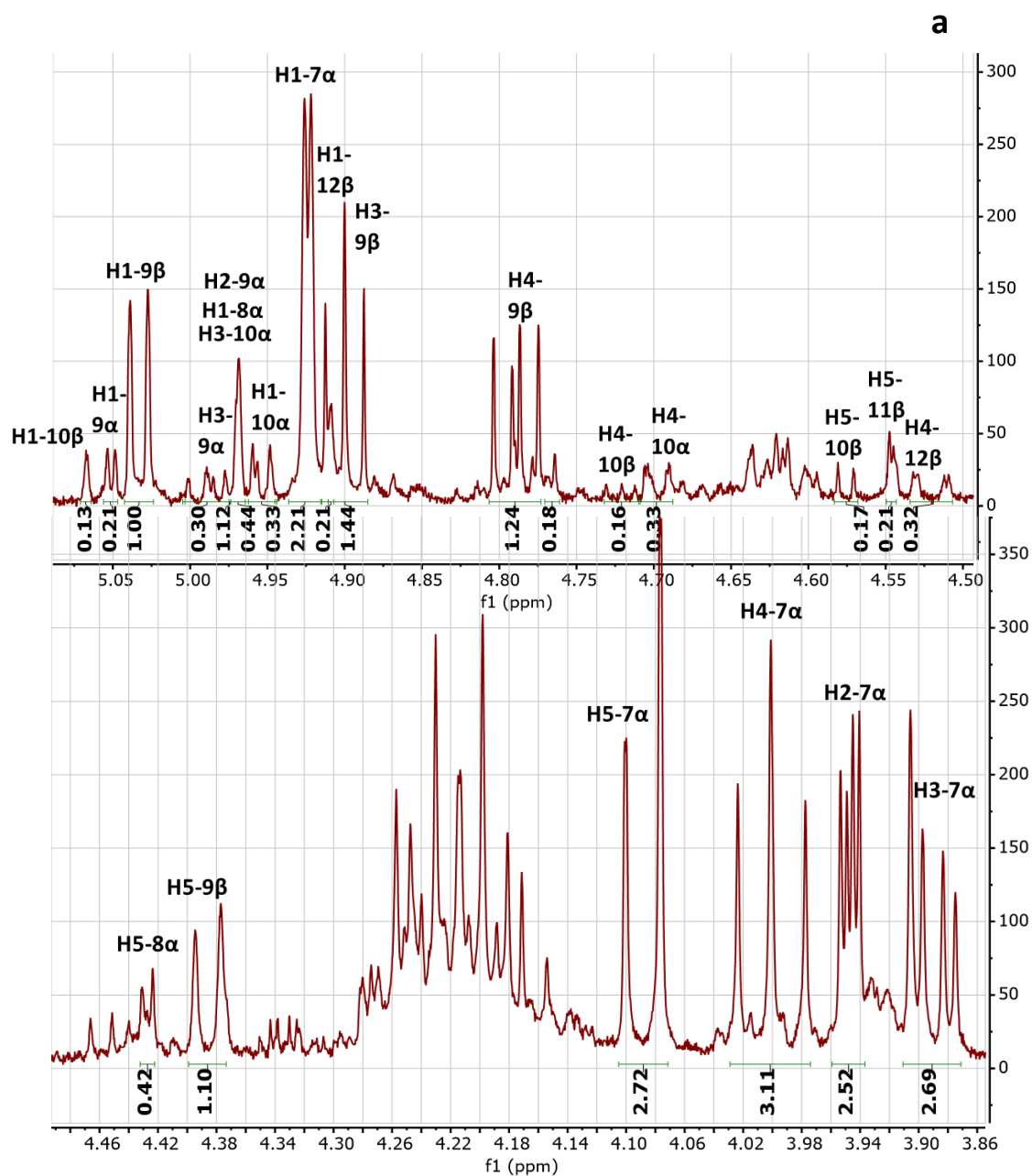


Figure S6: Zooms of ^1H NMR spectrum of $\text{C}_{12}\text{-C}_{12}$ **Man** from OM in the zones: (a) 5.15-4.50 ppm; (b) 4.50-3.86 ppm (400 MHz, CDCl_3).

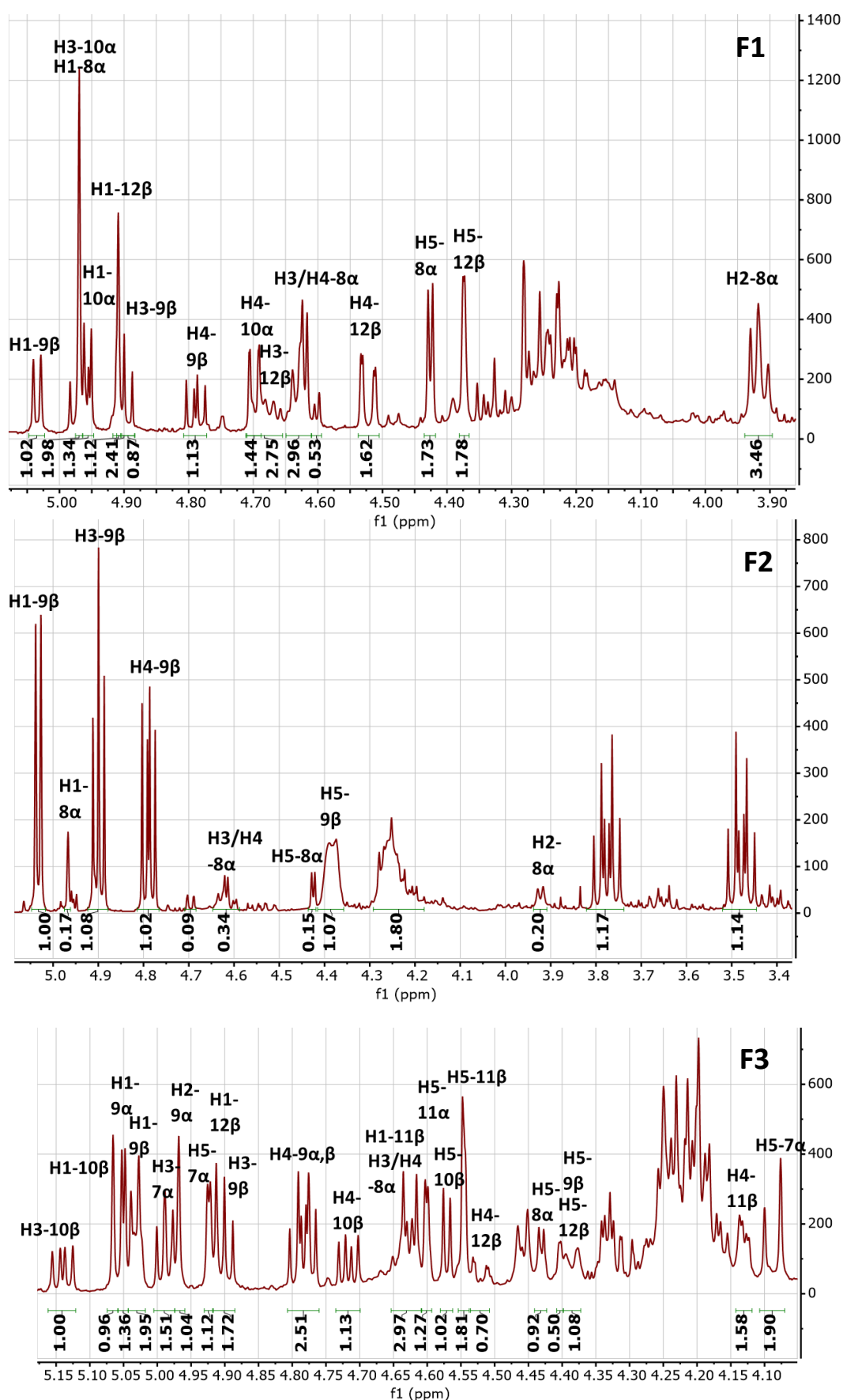


Figure S7: Zooms of ^1H NMR spectra of fractions **F1**, **F2** and **F3** isolated after the second column chromatography of **C₁₂-C₁₂ Man** from OM (400 MHz, CDCl_3).

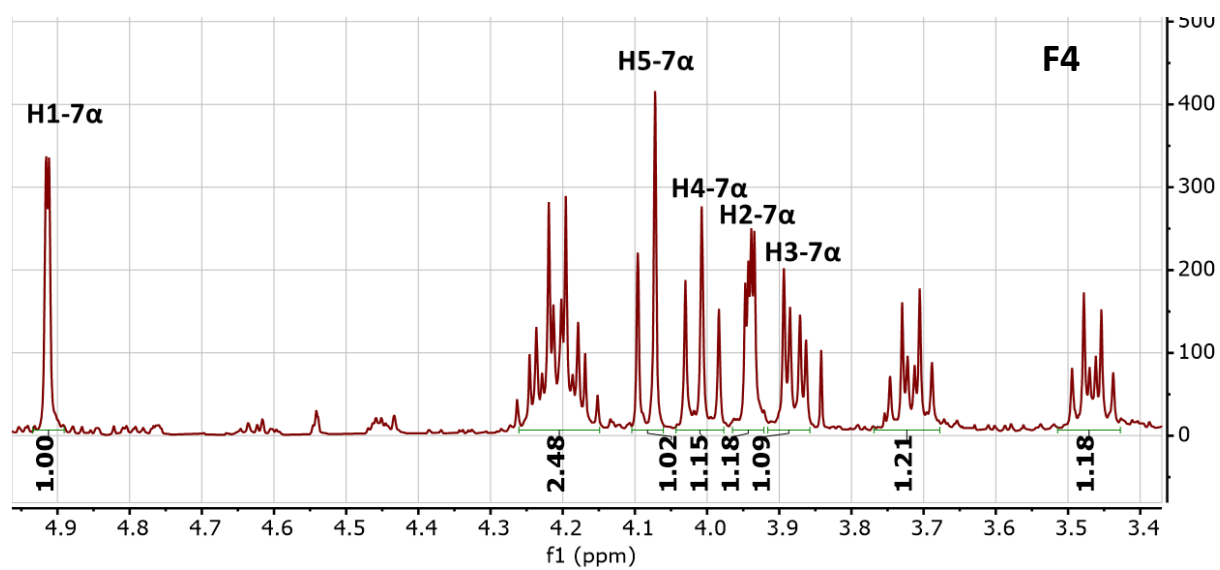


Figure S8: Zoom of ^1H NMR spectrum of **fraction F4** isolated after column chromatography of **C₁₂-C₁₂ Man** from OM (400 MHz, CDCl_3).

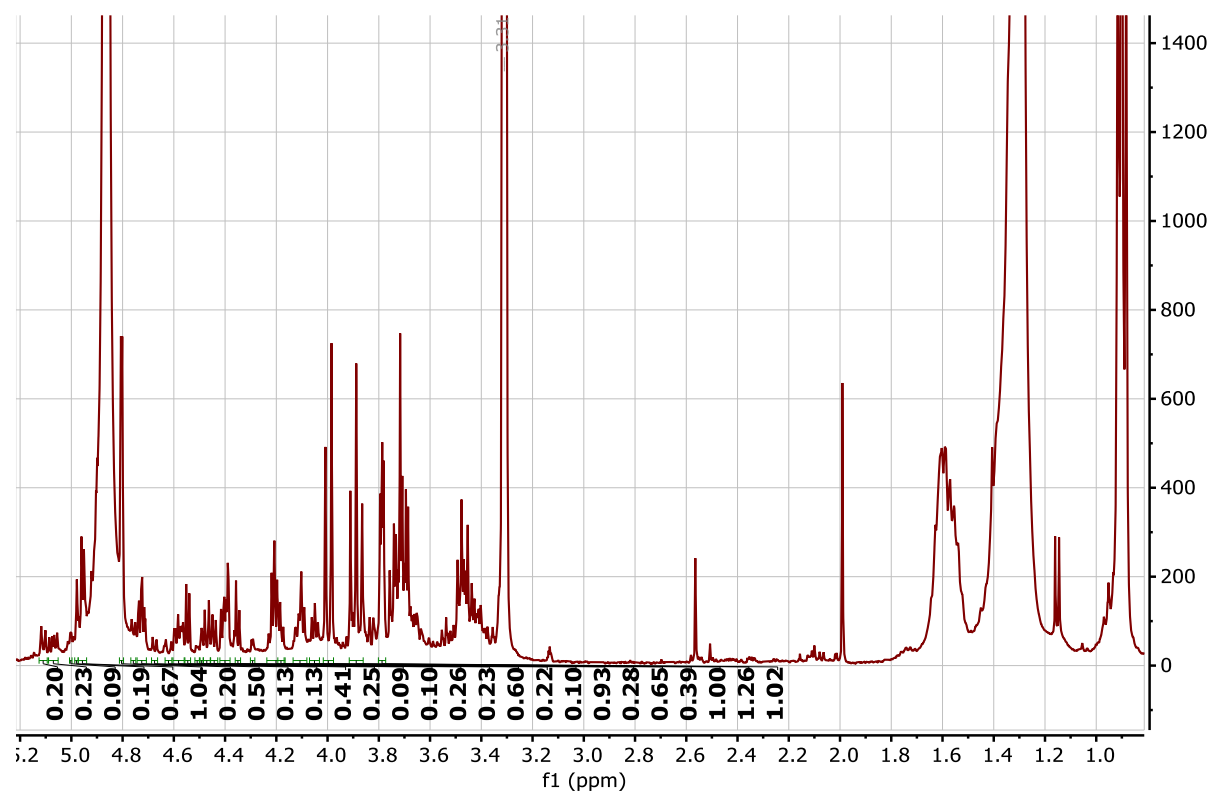


Figure S9: ^1H NMR spectrum of H-C₁₂ Man from OM (δ : 5.2-0.6 ppm) (400 MHz, CD₃OD).

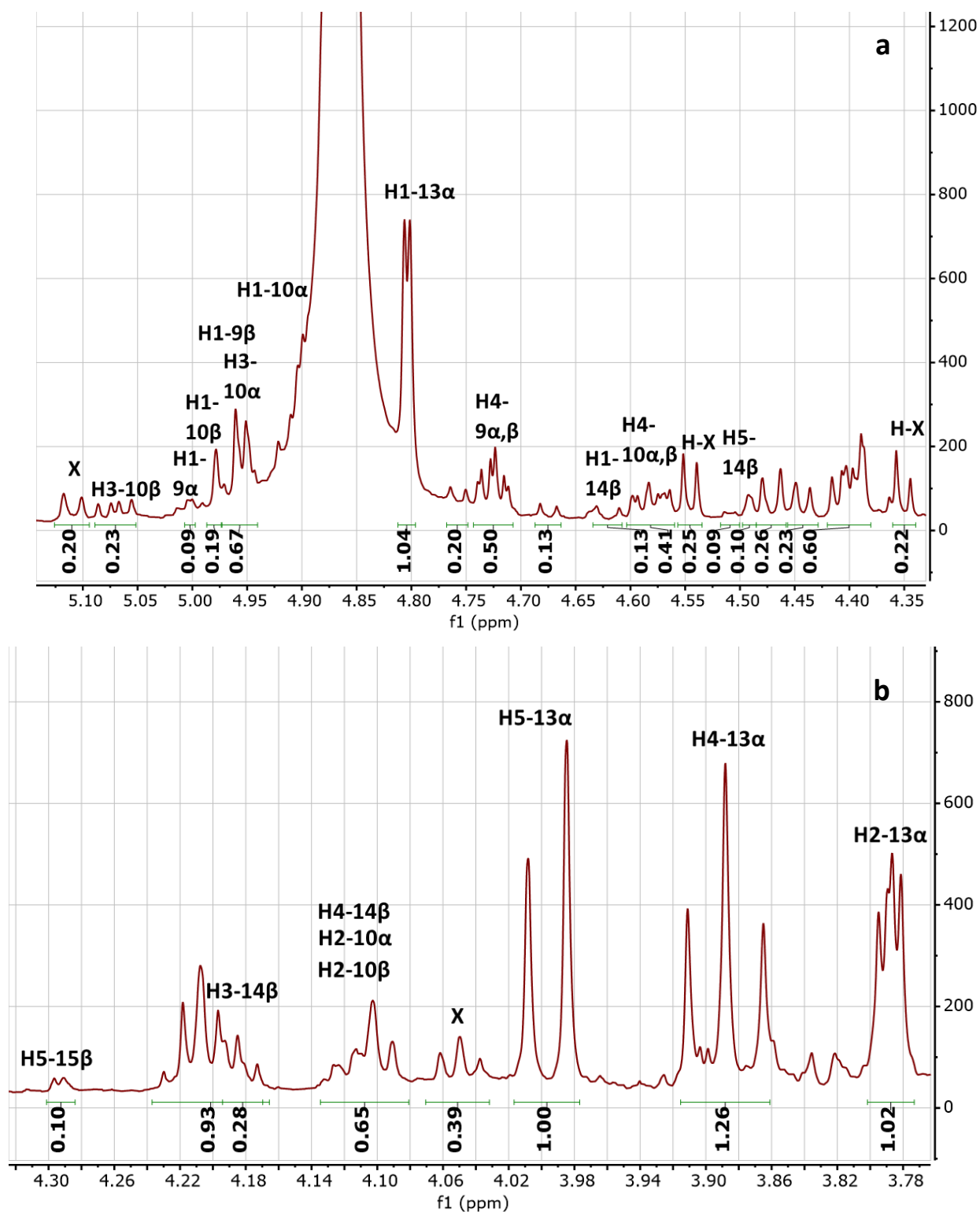


Figure S10: Zooms of ^1H NMR spectrum of **H-C₁₂ Man** from OM in the zones: (a) 5.15-4.35 ppm; (b) 4.35-3.77 ppm (400 MHz, CD_3OD).

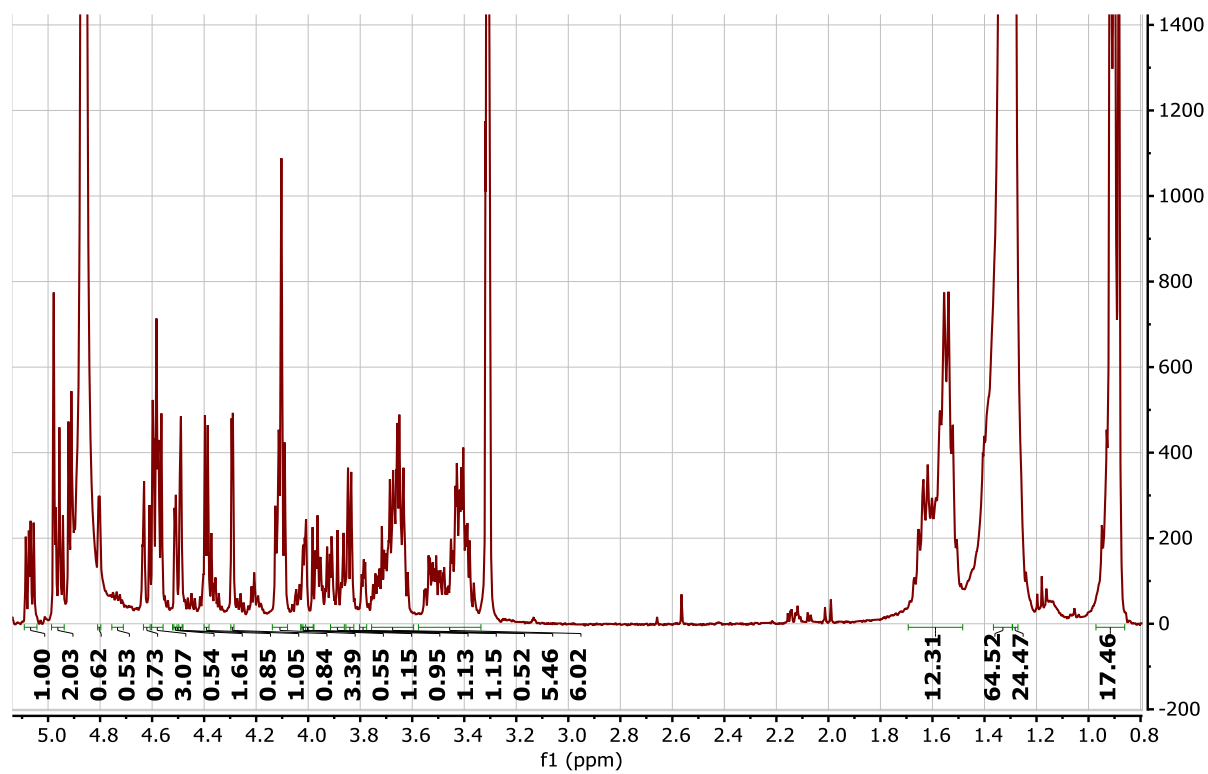


Figure S11: ^1H NMR spectrum of **H-C₁₂ Gul** from OG (δ : 5.2-0.6 ppm) (400 MHz, CD_3OD).

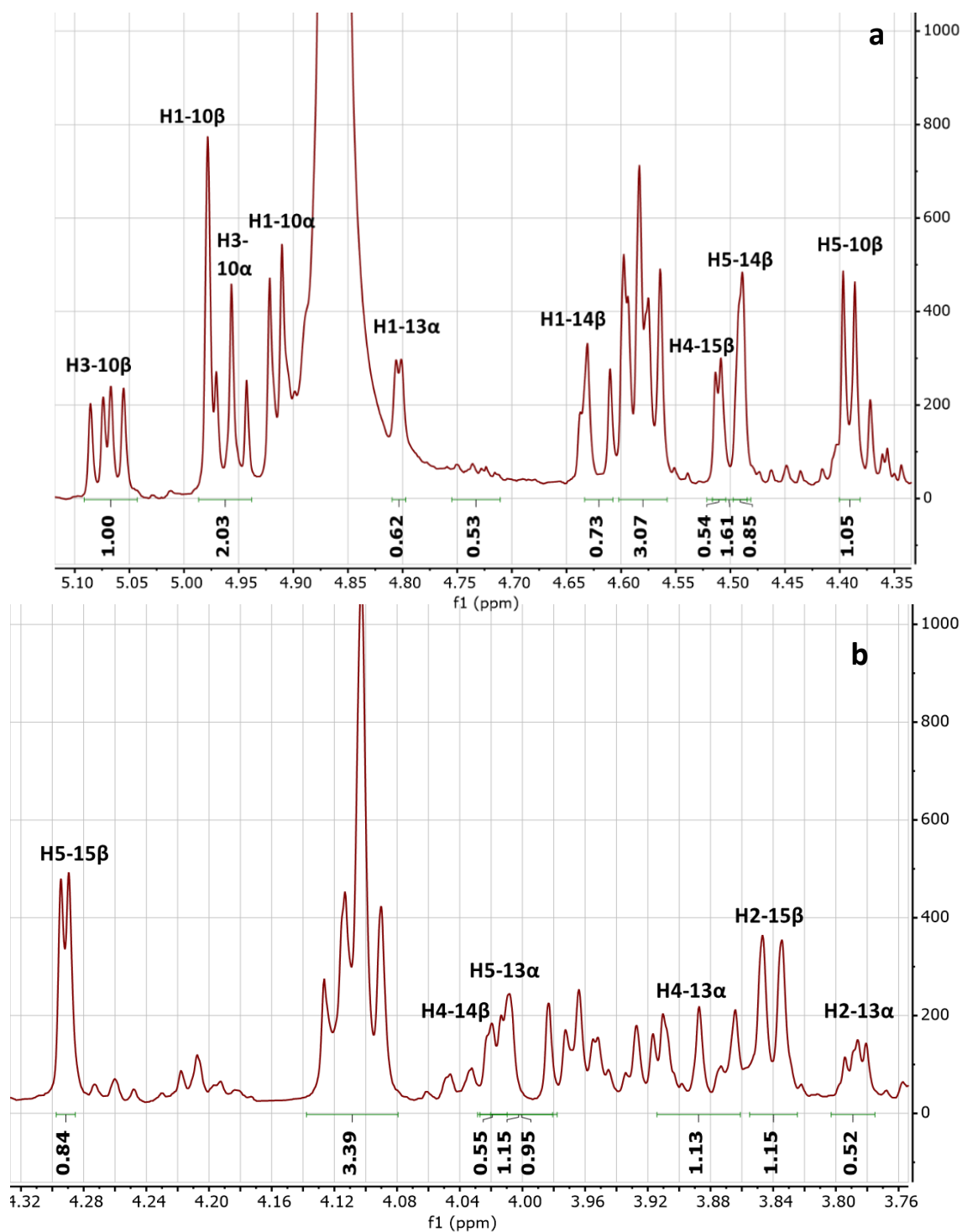


Figure S12: Zooms of ^1H NMR spectrum of **H-C₁₂ Gul** from OG in the zones: (a) 5.15-4.35 ppm; (b) 4.32-3.76 ppm (400 MHz, CD_3OD).

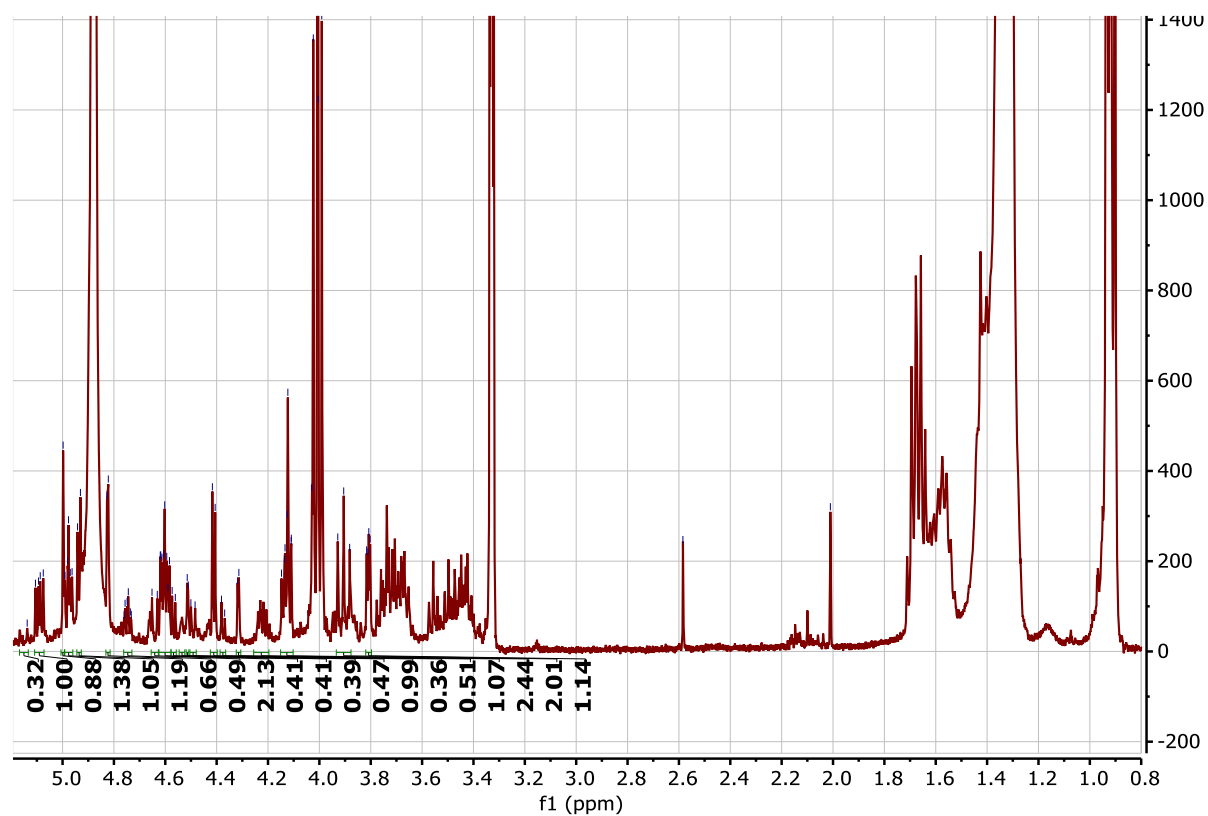


Figure S13: ^1H NMR spectrum of H-C₁₂ OAlg from OAlg (δ : 5.2-0.6 ppm) (400 MHz, CD₃OD).

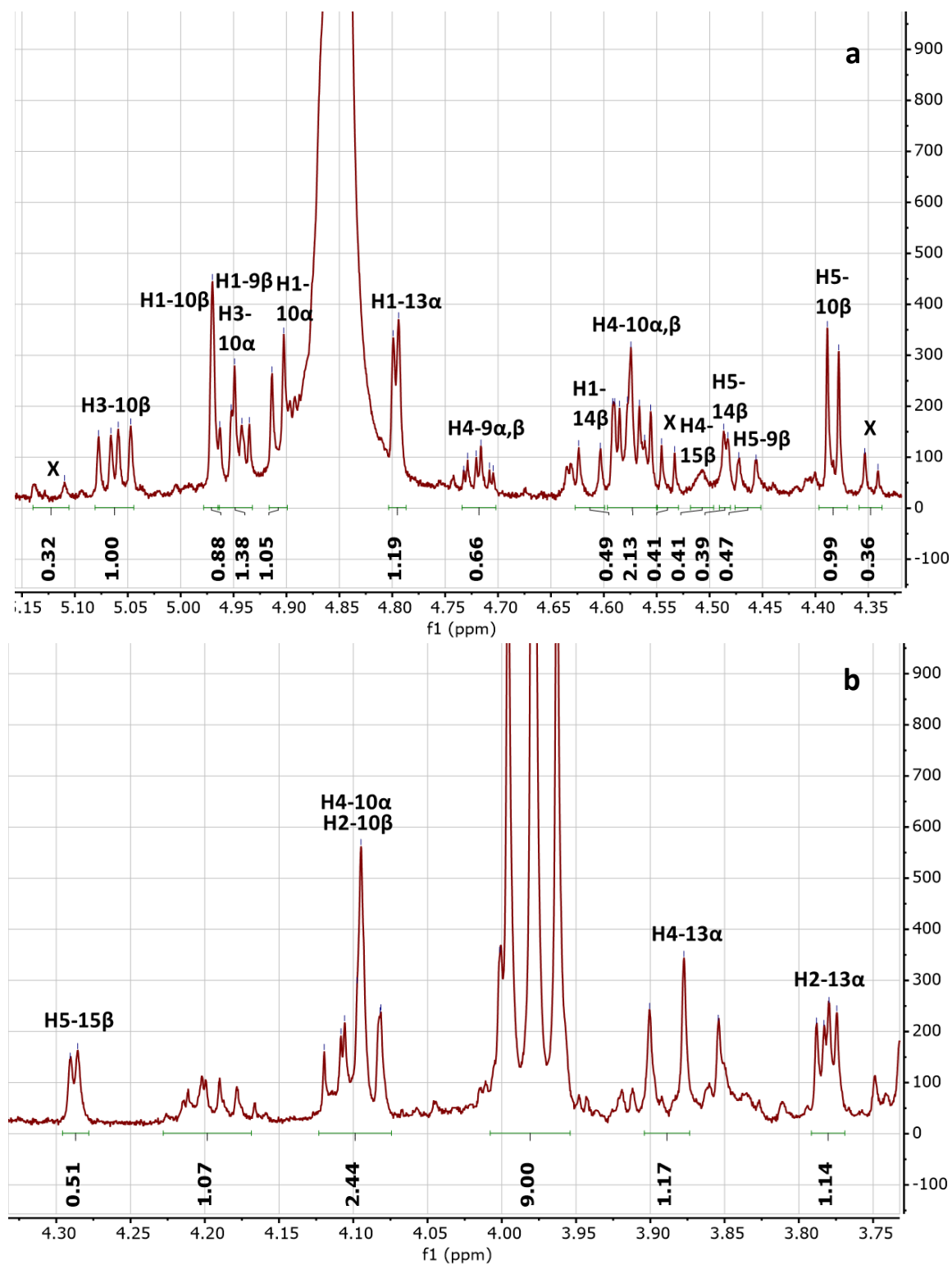


Figure S14: Zooms of ^1H NMR spectrum of **H-C₁₂ OAlg** from OAlg in the zones: (a) 5.15-4.35 ppm; (b) 4.32-3.74 ppm (400 MHz, CD_3OD).

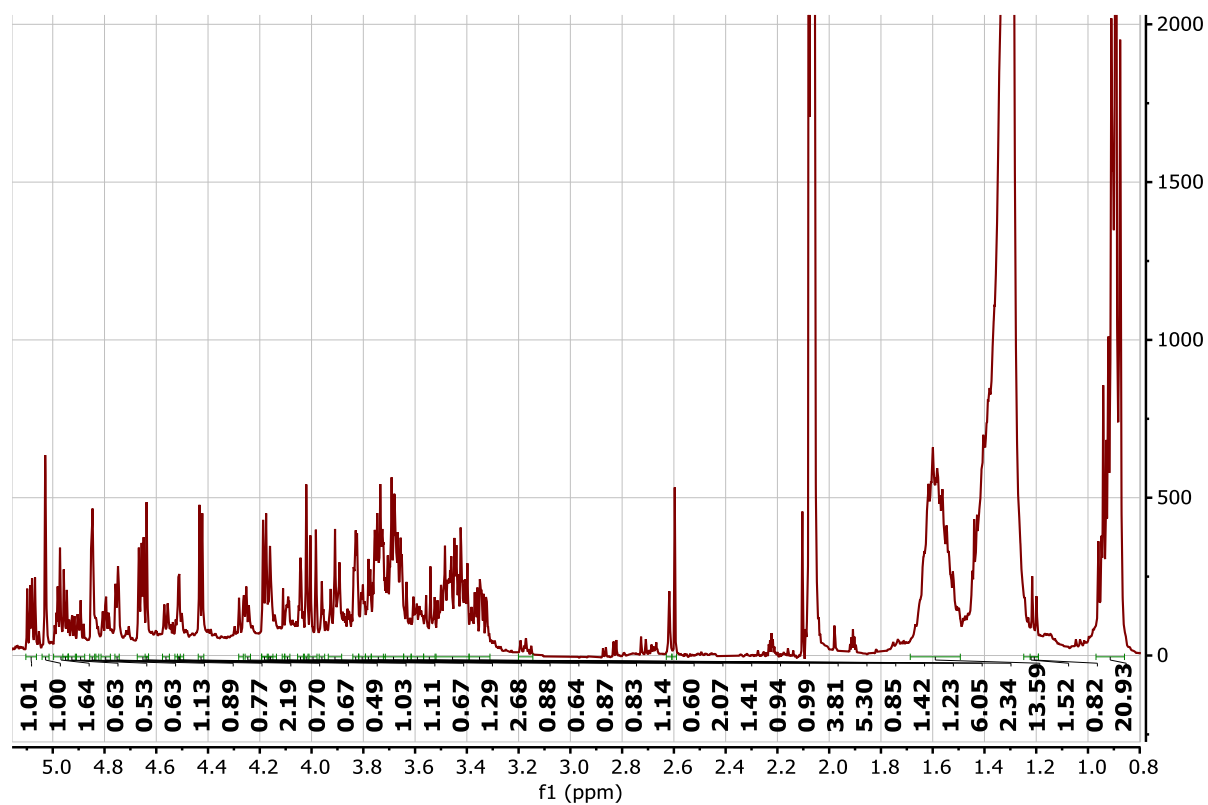


Figure S15: ^1H NMR spectrum of H-C_{12} s-r Alg from s-r Alg (δ : 5.2-0.6 ppm) (400 MHz, acetone-d_6).

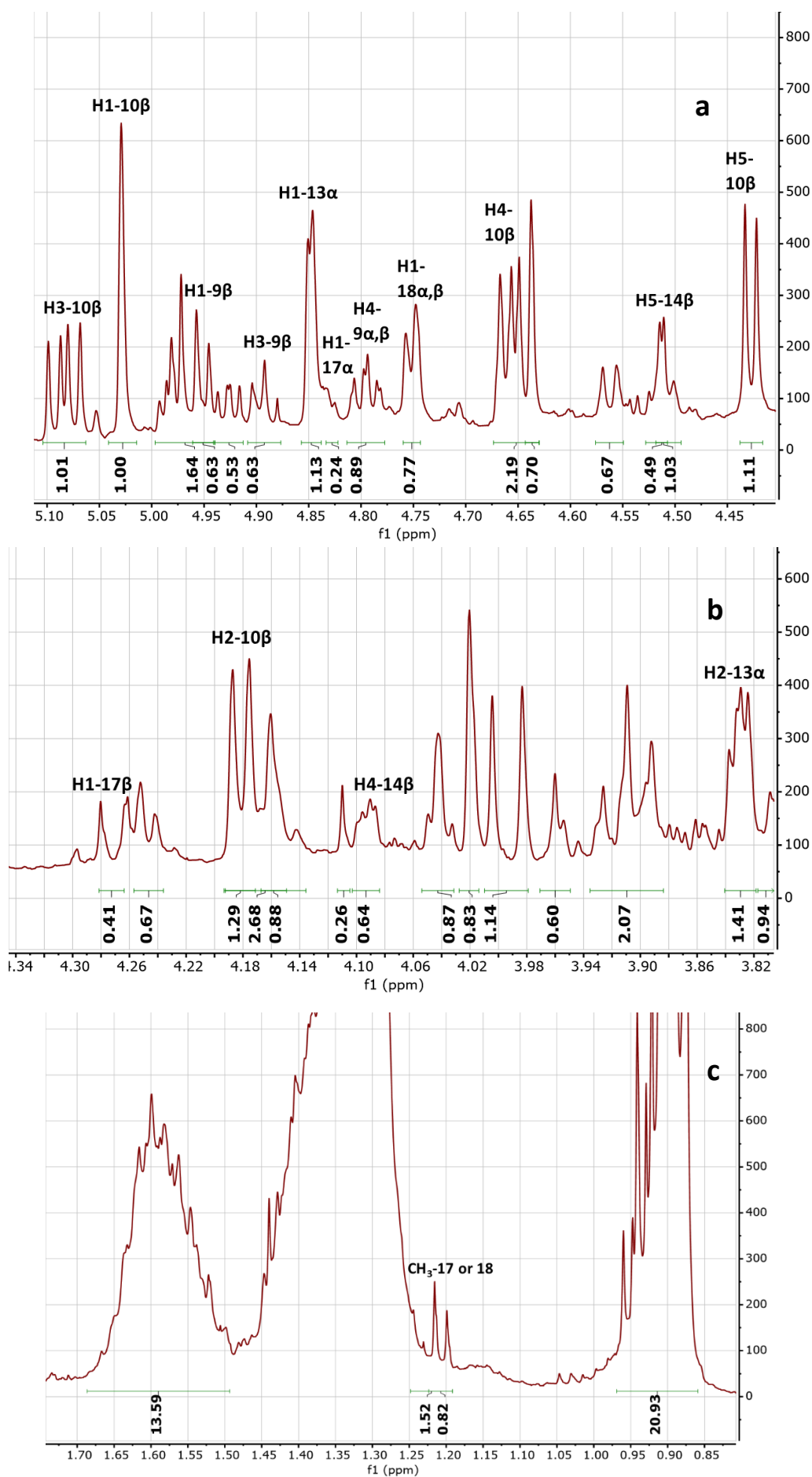


Figure S16: Zooms of ^1H NMR spectrum of **H-C₁₂ s-r Alg** from s-r Alg in the zones: (a) 5.10-4.40 ppm; (b) 4.34-3.81 ppm; (c) 1.75-0.80 ppm (400 MHz, acetone- d_6).

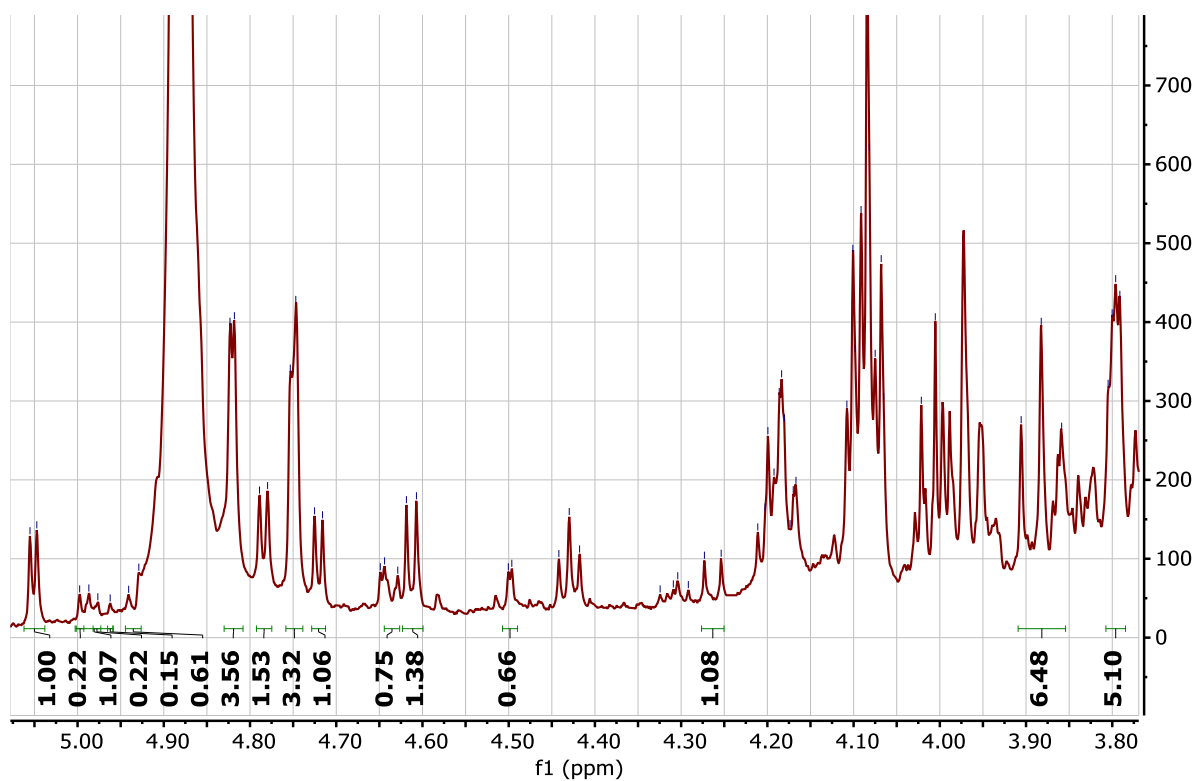


Figure S17: ^1H NMR spectrum of **H-C₈ crude Alg** from crude Alg (δ : 5.20-3.80 ppm) (400 MHz, CD_3OD).

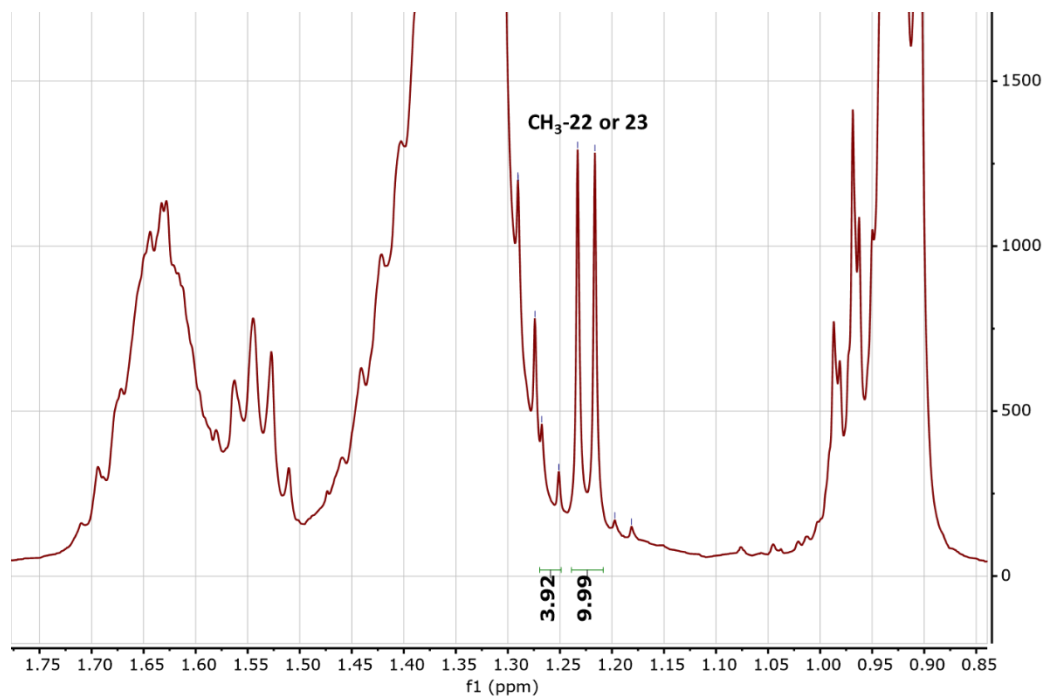


Figure S18: Zoom of ^1H NMR spectrum of **H-C₈ crude Alg** from crude Alg in the zone 1.76-0.85 (400 MHz, CD_3OD).

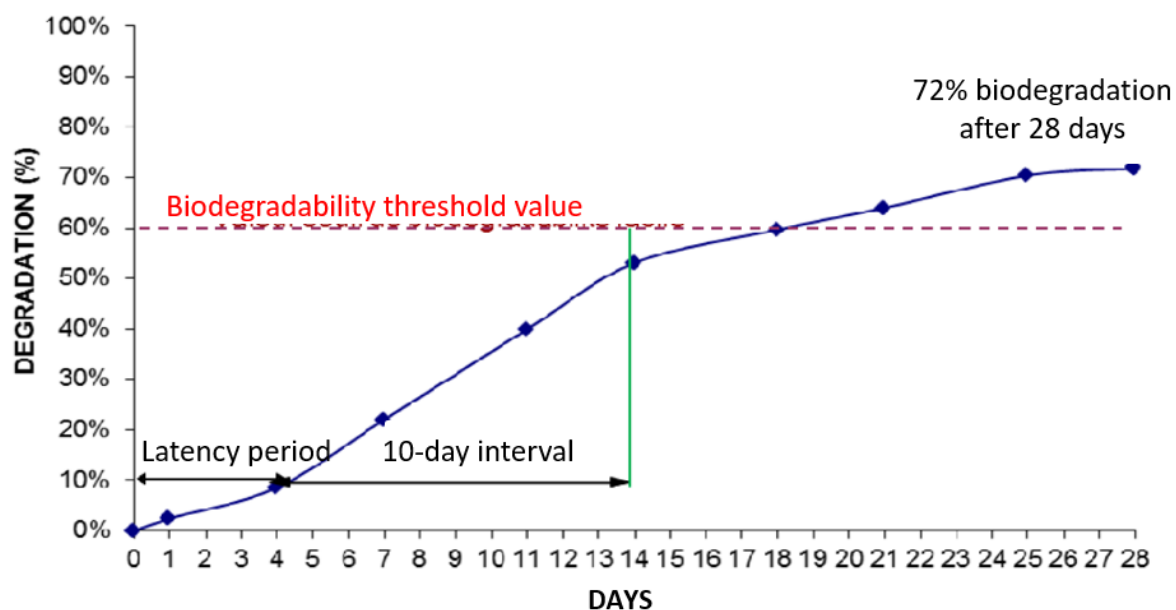


Figure S19: Biodegradability results (H-C12 s-r Alg) according to the OCDE 301 B method.

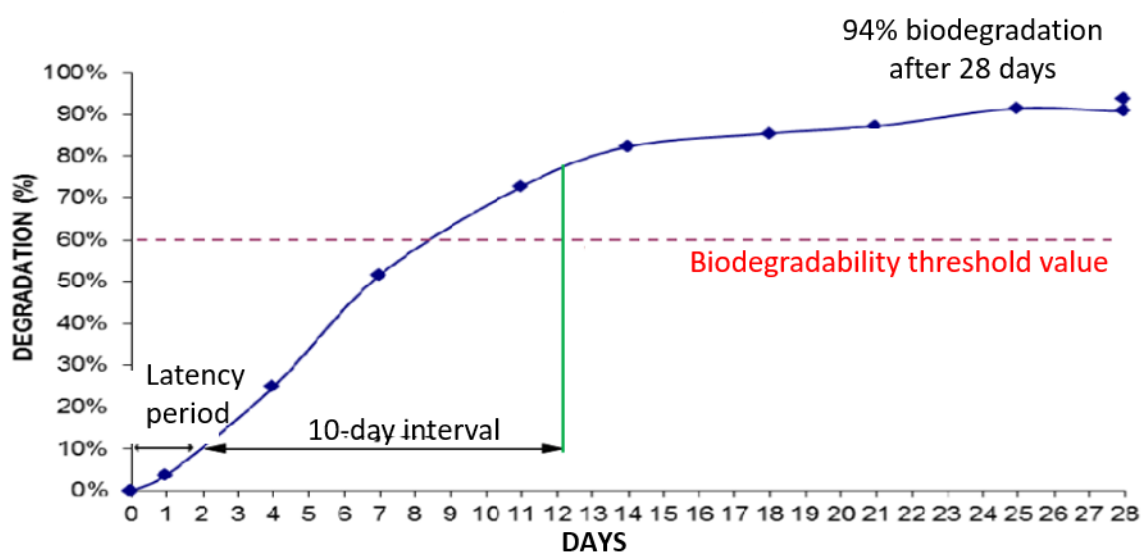


Figure S20: Biodegradability results (SLES) according to the OCDE 301 B method.