

Supplementary Material

Fructooligosaccharides as Bulb-Forming Stimulants in Onion

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Table of Contents

Isolation procedure and spectral data of neokestose

Figure S1. ¹H-NMR spectrum of neokestose

Figure S2. ¹³C-NMR spectrum of neokestose

Figure S3. COSY spectrum of neokestose

Figure S4. HMQC spectrum of neokestose

Figure S5. HMBC spectrum of neokestose

Isolation procedure and spectral data of neokestose

The fraction A (31 mg) was further purified by HPLC (column: Wakosil 5SIL, 20 mm ID × 250 mm, solvent: MeCN/H₂O = 5/2; flow rate: 15.0 mL/min; retention time: 24–25 min) to afford neokestose (2.6 mg).

Neokestose: colorless oil; $R_f = 0.49$ (5/5/1 CHCl₃/MeOH/H₂O, SiO₂); $[\alpha]_D^{21} = +16.8$ ($c = 0.060$, H₂O); IR ν_{\max} (KBr): = 3442, 1628, 1385, 1088 cm⁻¹. ¹H NMR (500 MHz, D₂O, 30°C): δ (ppm) = 3.43 (1H, t, $J = 9.7$ Hz, H-4_G), 3.47 (1H, dd, $J = 3.9, 10.0$ Hz, H-2_G), 3.58 (2H, m, H-1'), 3.59 (1H, m, H-6_{Ga}), 3.62 (1H, dd, $J = 6.6, 12.4$ Hz, H-6_a), 3.67 (1H, m, H-6_{Gb}), 3.67 (1H, m, H-3_G), 3.69 (1H, m, H-6'a), 3.71 (1H, m, H-1_a), 3.73 (1H, m, H-6'b), 3.77 (1H, m, H-6), 3.78 (1H, m, H-5), 3.80 (1H, m, H-5'), 3.85 (1H, m, H-1_b), 3.86 (1H, m, H-5_G), 3.98 (1H, t, $J = 8.5$ Hz, H-4'), 4.05 (1H, dd, $J = 7.8, 8.1$ Hz, H-4), 4.10 (1H, d, $J = 8.1$ Hz, H-3), 4.13 (1H, d, $J = 8.8$ Hz, H-3'), 5.32 (1H, d, $J = 3.9$ Hz, H-1_G); ¹³C NMR (CDCl₃, 125 MHz) δ 60.3 (t, C-6_G), 60.4 (t, C-1), 61.5 (t, C-1'), 62.36 (t, C-6), 62.41 (t, C-6'), 69.2 (d, C-4_G), 71.0 (d, C-2_G), 71.6 (d, C-5_G), 72.5 (d, C-3_G), 74.0 (d, C-4'), 74.4 (d, C-4), 76.3 (d, C-3'), 76.9 (d, C-3), 81.2 (d, C-5), 81.4 (d, C-5'), 92.0 (d, C-1_G), 103.70 (s, C-2), 103.72 (s, C-2'); HRESIMS: m/z 527.1576 (calcd. 527.1588 for C₁₈H₃₂NaO₁₆).

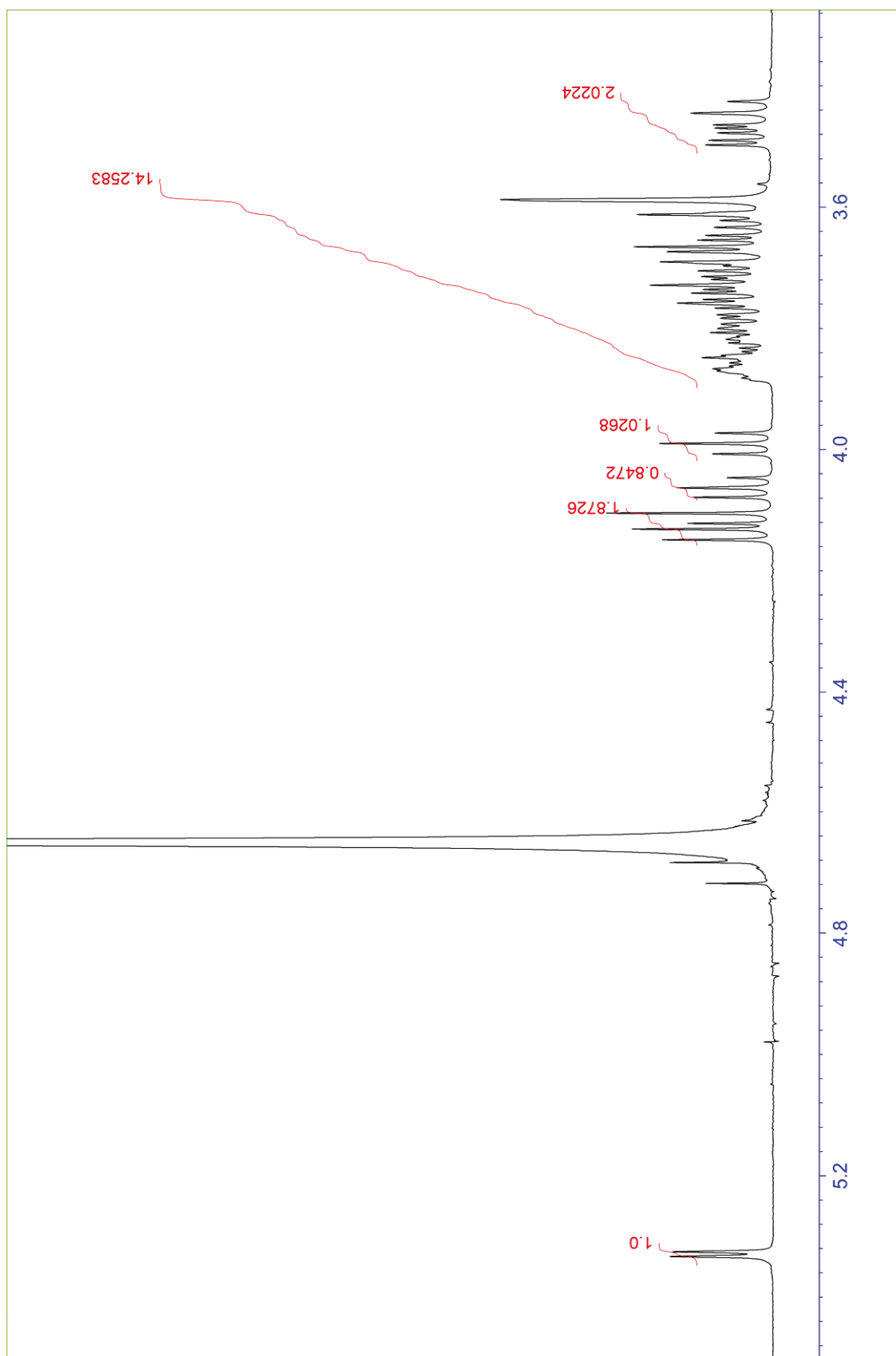


Figure S1. ¹H NMR spectrum of neokestose

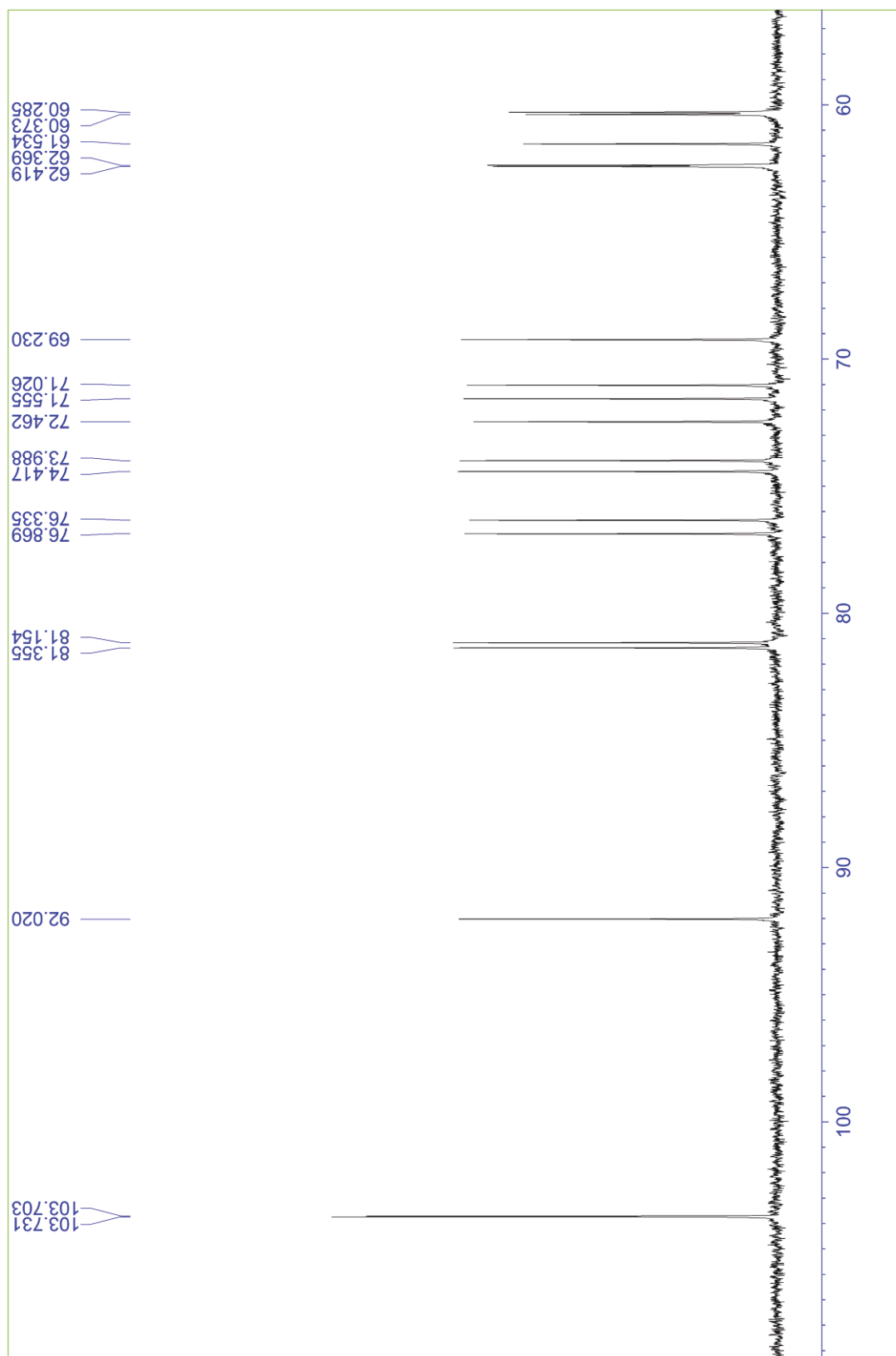


Figure S2. ^{13}C NMR spectrum of neokestose

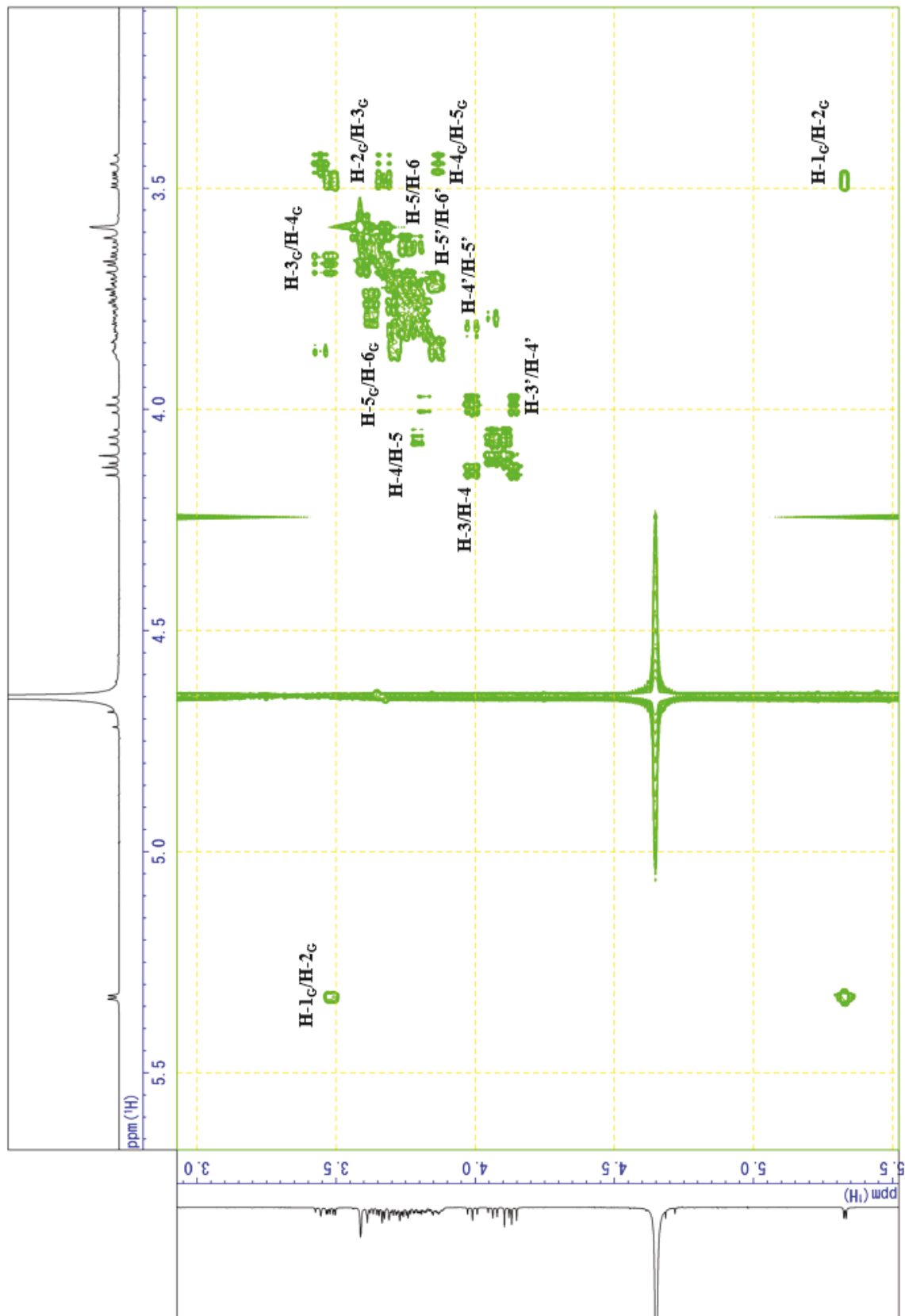


Figure S3. COSY spectrum of neokestose

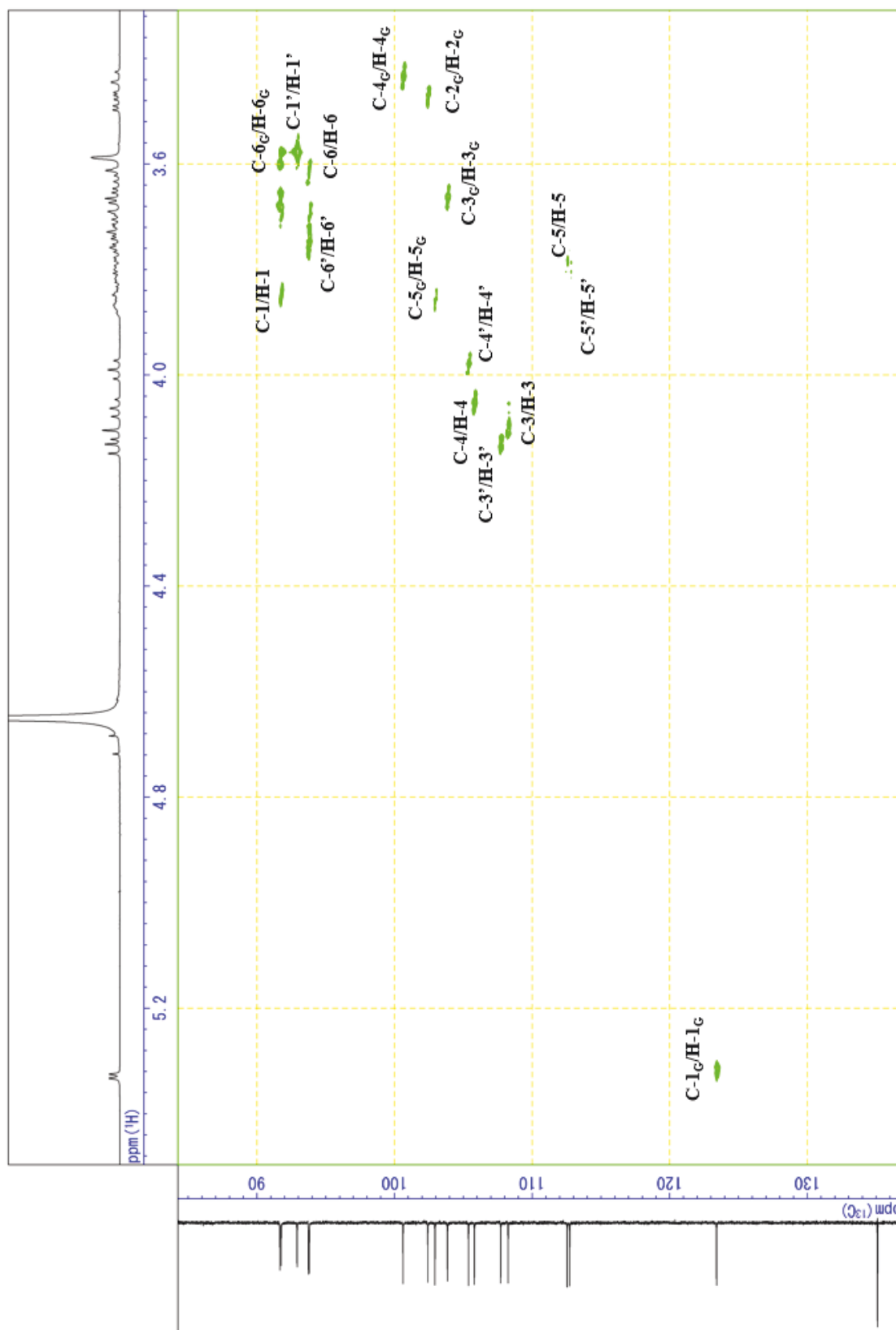


Figure S4. HMOC spectrum of neokestose

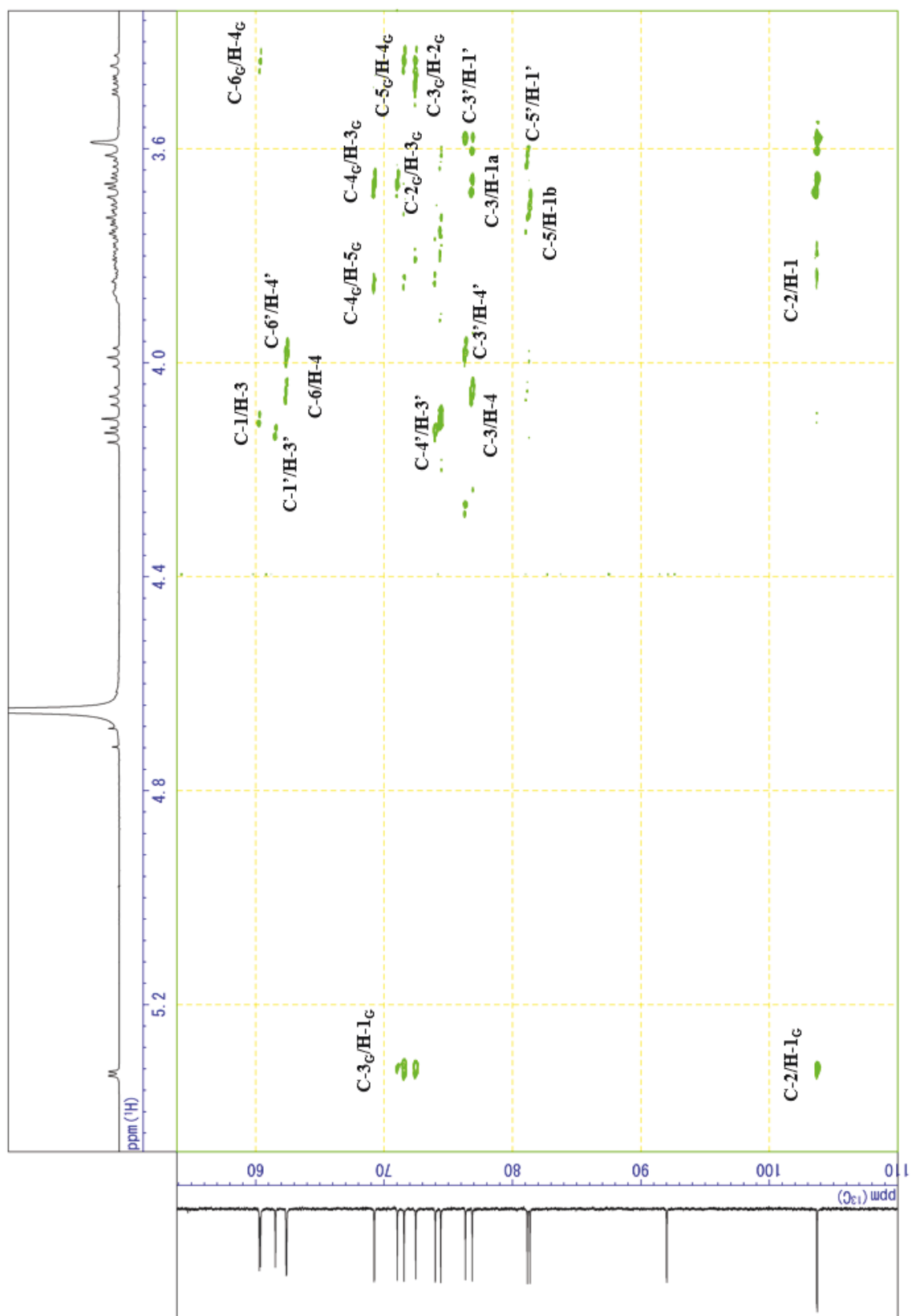


Figure S5. HMBC spectrum of neokestose