

SUPPLEMENTARY FIGURES

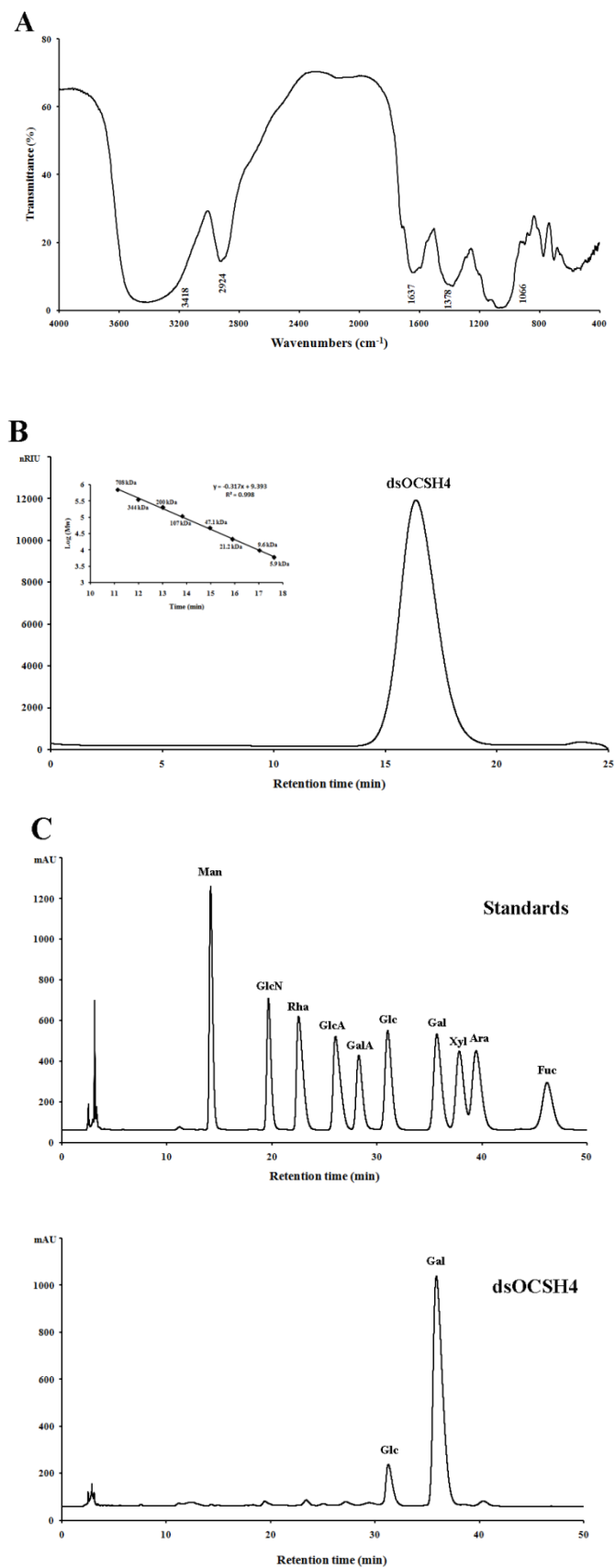
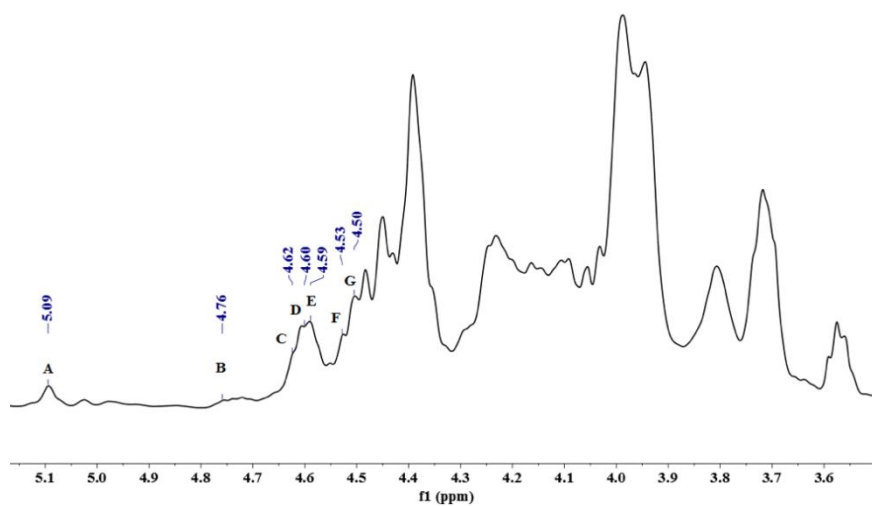


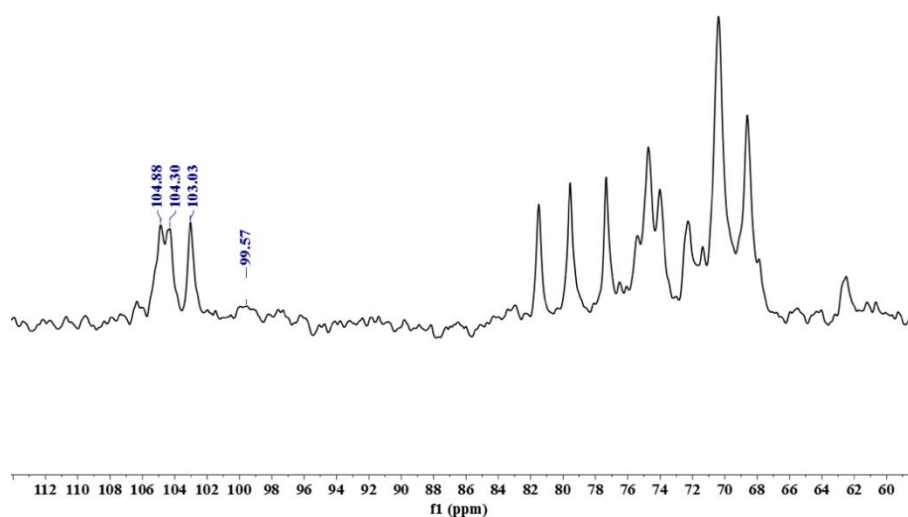
Figure S1. IR spectrum, HPGPC and HPLC chromatograms of dsOCSH4. (A) IR spectrum of dsOCSH4; (B) HPGPC chromatogram of dsOCSH4 on a Shodex OHpak SB-804 HQ

column and the standard curve of molecular weight; and **(C)** HPLC chromatogram for monosaccharide composition analysis of dsOCSH4 (Man: D-mannose, GlcN: D-glucosamine, Rha: L-rhamnose, GlcA: D-glucuronic acid, GalA: D-galacturonic acid, Glc: D-glucose, Gal: D-galactose, Xyl: D-xylose, Ara: L-arabinose, Fuc: L-fucose).

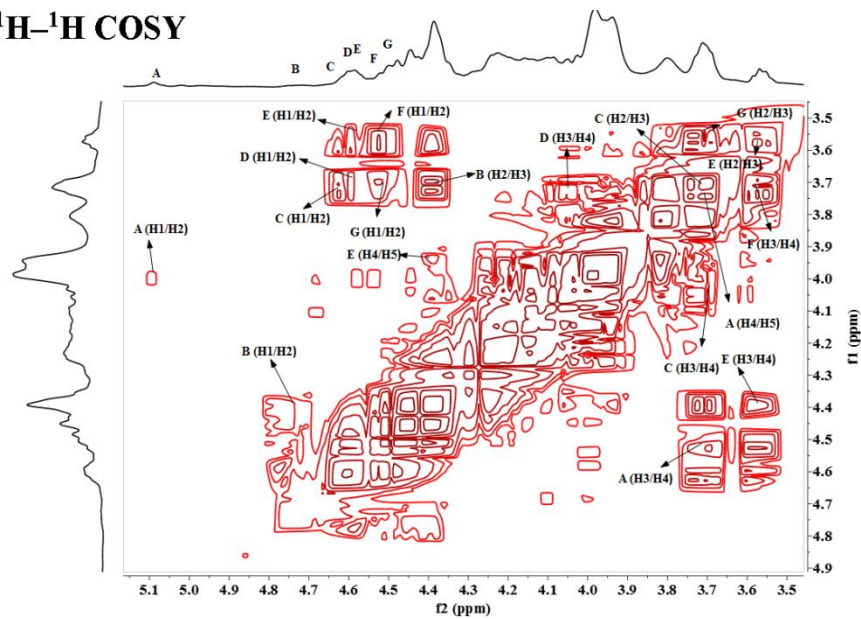
¹H NMR



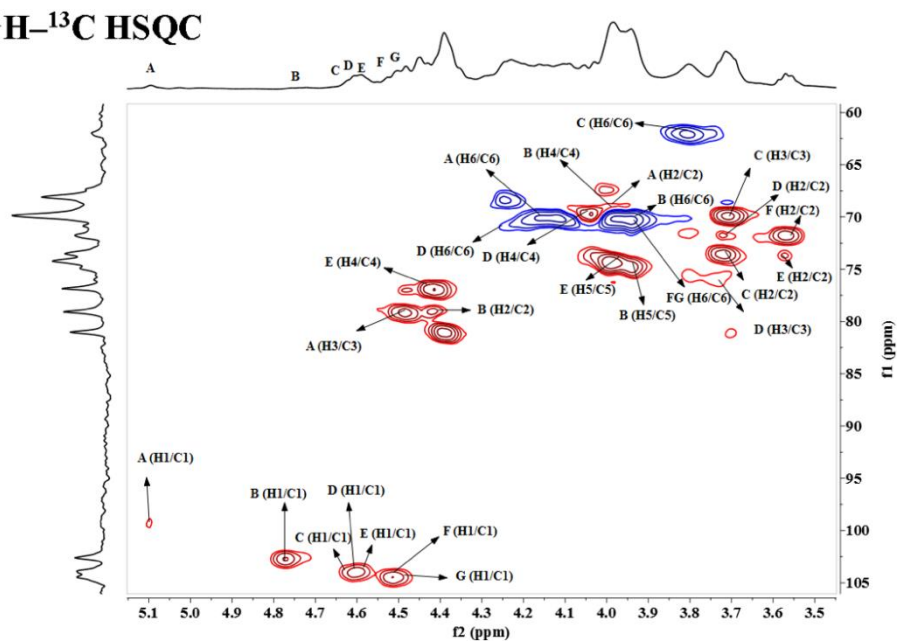
¹³C NMR



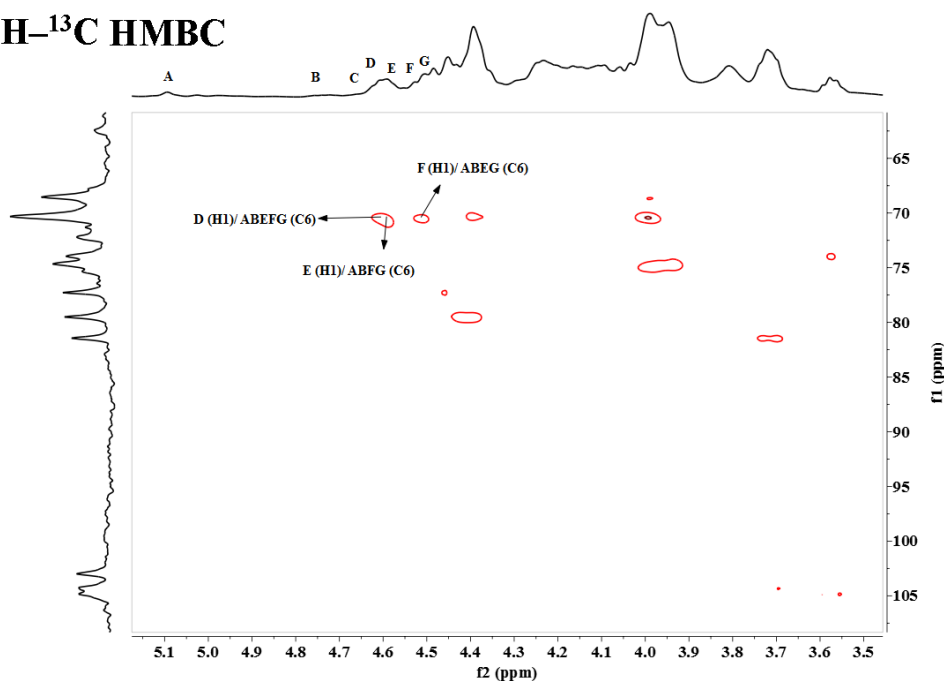
^1H - ^1H COSY



^1H - ^{13}C HSQC



^1H - ^{13}C HMBC



^1H - ^1H NOESY

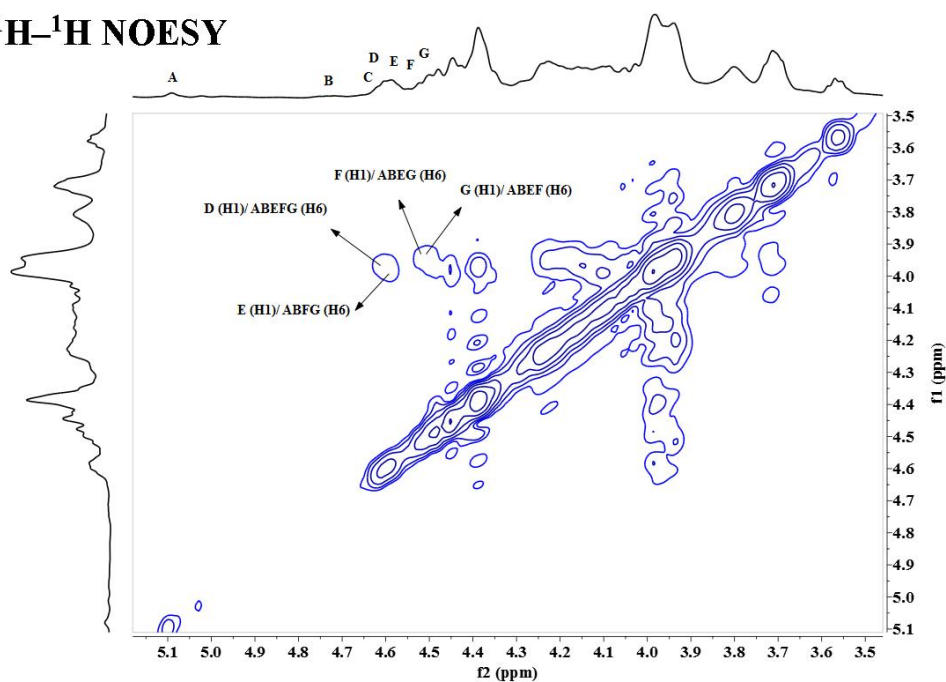


Figure S2. NMR spectra of OCSH4. Spectra were performed on an Agilent DD2 500M NMR spectrometer. Chemical shifts are referenced to internal acetone at 2.225 ppm for ^1H and 31.07 ppm for ^{13}C . A: $\rightarrow 6$)- α -D-Glcp(3SO₄)-(1 \rightarrow ; B: $\rightarrow 6$)- β -D-Galp(2SO₄)-(1 \rightarrow ; C: β -D-Galp-(1 \rightarrow ; D: $\rightarrow 3$)- β -D-Galp(6SO₄)-(1 \rightarrow ; E: $\rightarrow 6$)- β -D-Galp(4SO₄)-(1 \rightarrow ; F: $\rightarrow 3,6$)- β -D-Galp-(1 \rightarrow ; G: $\rightarrow 6$)- β -D-Galp-(1 \rightarrow . Glcp: glucopyranose, Galp: galactopyran