

Supplementary Materials

Table S1. Methylation analysis data of GNP.

Main methylation sugar	Type of linkage	Molar ratio (%)
2,3,5-Me3-Araf	→1)-Araf	8.5
2,3,4,6-Me-Glcp	→1)-Glcp	13.1
2,3-Me2-Araf	→1)-Araf-(5→	14.1
3,4,6-Me3-Manp	→1)-Manp-(2→	9.6
3,4,6-Me3-Glcp	→1)-Glcp-(2→	13.8
2,3,6-Me3-Galp	→1)-Galp-(4→	16.7
2,3,6-Me3-Glcp	→1)-Glcp-(4→	6.2

Table S2. Methylation analysis data of GAP.

Main methylation sugar	Type of linkage	Molar ratio (%)
2,3,5-Me3-Araf	→1)-Araf	8.78
3,4-Me2-Rhap	→1)-Xylp-(2→	4.93
2,3,4,6-Me4-Glcp	→1)-Glcp	9.9
2,3,4,6-Me4-Galp	→1)-Galp	9.41
2,3-Me2-Araf	→1)-Araf-(5→	6.76
2,3,6-Me3-Galp	→1)-Galp-(4→	18.94
2,3,6-Me3-Galp	→1)-Galp-(4→	4.74
2,4-Me2-Galp	→1)-Galp-(3,6→	5.16

Table S3. The ^1H -NMR (600 MHz, DMSO) and ^{13}C -NMR (150 MHz, DMSO) chemical shifts of GNP

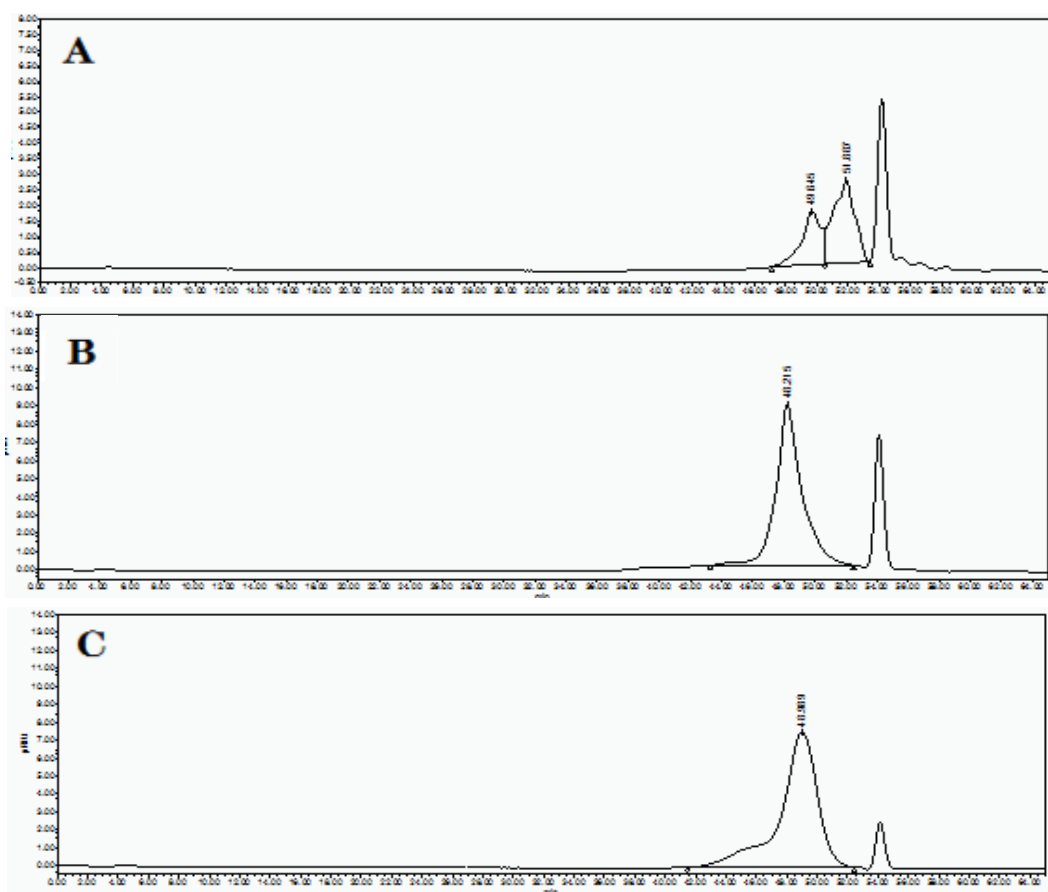
Residue of GNP	Chemical shifts (ppm)					
	H1/C1	H2/C2	H3/C3	H4/C4	H5/C5	H6/C6
A: $\rightarrow 1$)- α -D-Galp-(4 \rightarrow	4.44/103.0	3.78/69.4	3.50/77.2	4.10/76.5	3.61/73.0	3.32/61.0
B: α -D-Glcp	5.19/92.1	3.80/74.2	3.51/74.3	3.24/71.1	3.66/73.0	3.35/61.1
C: $\rightarrow 1$)- α -D-Araf	4.76/-	4.03/81.3	3.81/77.3	3.52/82.0	3.26/62.7	
D: $\rightarrow 1$)- β -D-Glcp	4.68/98.9	4.04/72.4	4.30/-	3.79/69.9	3.52/74.0	3.43/61.5
E: $\rightarrow 1$)- β -D-Glcp-(4 \rightarrow	4.48/-	3.16/73.5	3.62/72.9	3.45/81.7	-/74.3	3.77/61.4
F: $\rightarrow 1$)- α -D-Araf-(5 \rightarrow	5.10/-	4.59/-	3.98/76.4	4.28/79.1	3.77/69.2	

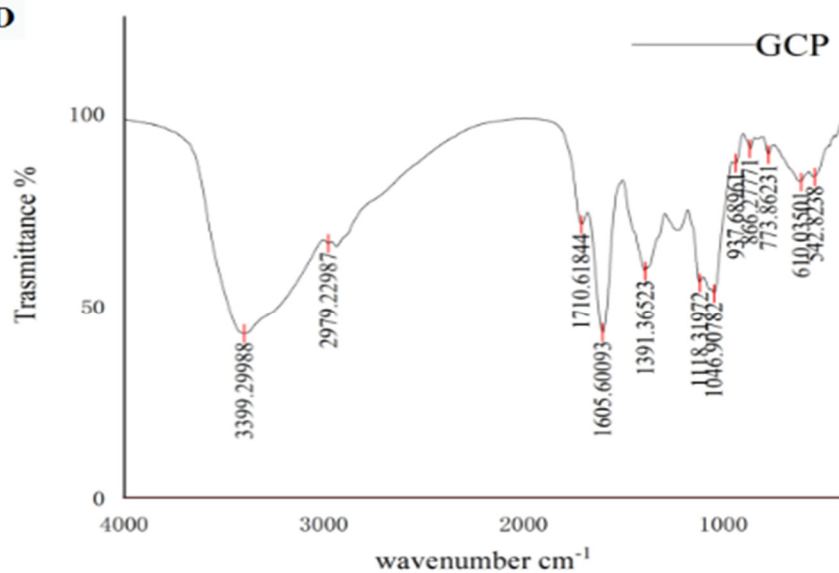
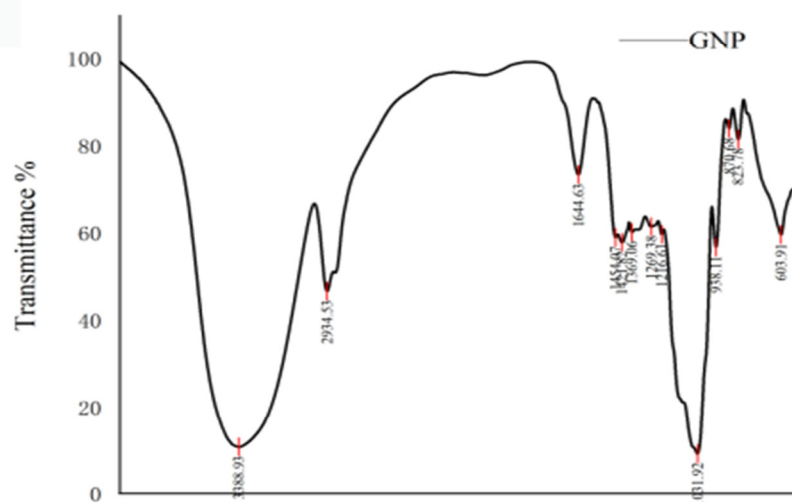
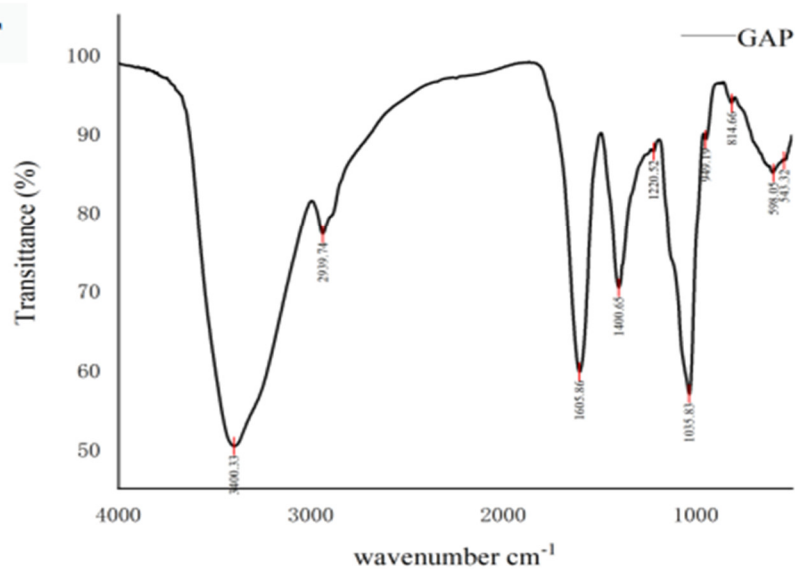
-, not assigned

Table S4. The ^1H -NMR (600 MHz, DMSO) and ^{13}C -NMR (150 MHz, DMSO) chemical shifts of GAP

Residue of GAP	Chemical shifts (ppm)					
	H1/C1	H2/C2	H3/C3	H4/C4	H5/C5	H6/C6
A': $\rightarrow 1$)- β -D-Glcp	4.33/103.6	3.32/74.3	3.53/76.7	3.72/72.5	3.57/74.3	3.70/61.0
B': $\rightarrow 1$)- α -D-Araf	5.00/107.0	3.94/81.5	3.80/76.0	3.58/80.7	3.44/61.6	
C': $\rightarrow 1$)- β -D-Galp-(4 \rightarrow	4.94/107.4	3.93/73.5	3.79/76.4	3.98/80.6	3.74/76.5	-/-

-, not assigned



D**E****F**

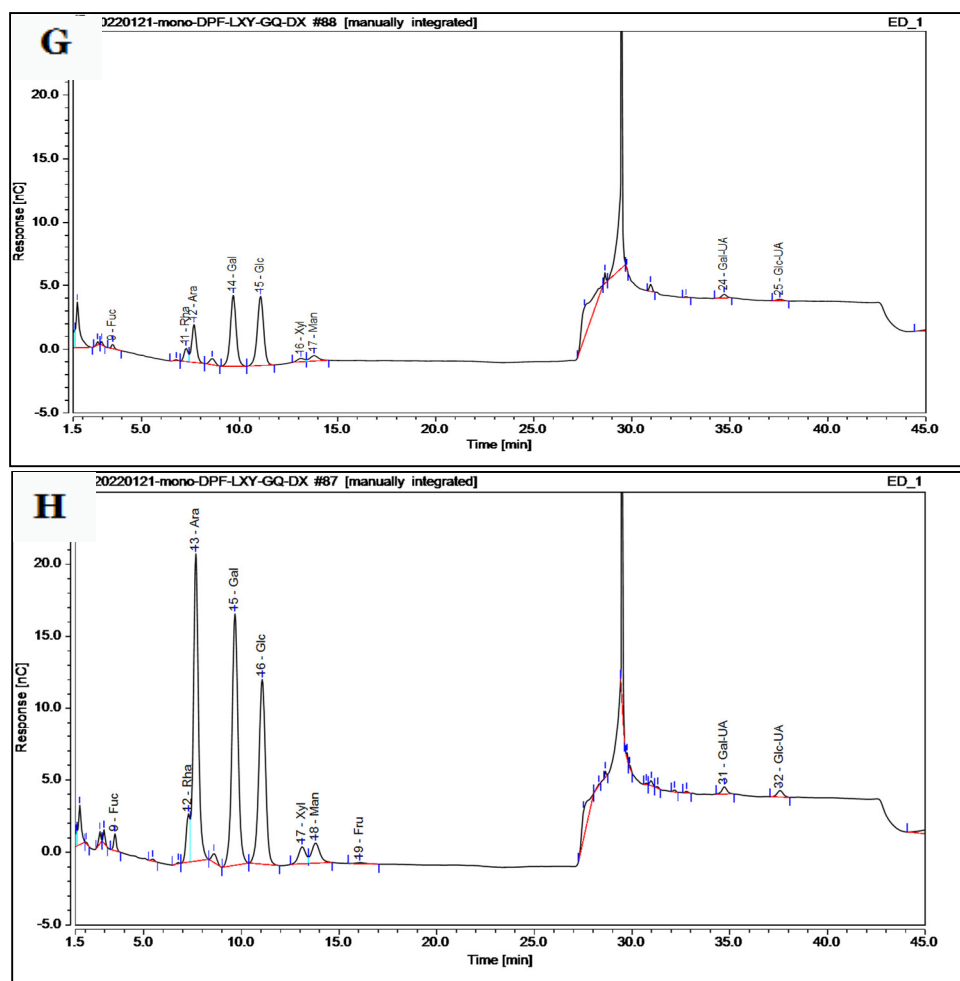


Figure S1. HPGPC chromatogram of GCP(A), GNP(B) and GAP(C), 54min is the solvent peak; The data of FT-IR on GCP(D), GNP(E) and GAP(F); Total ion chromatograms of GNP(G) and GAP(H).

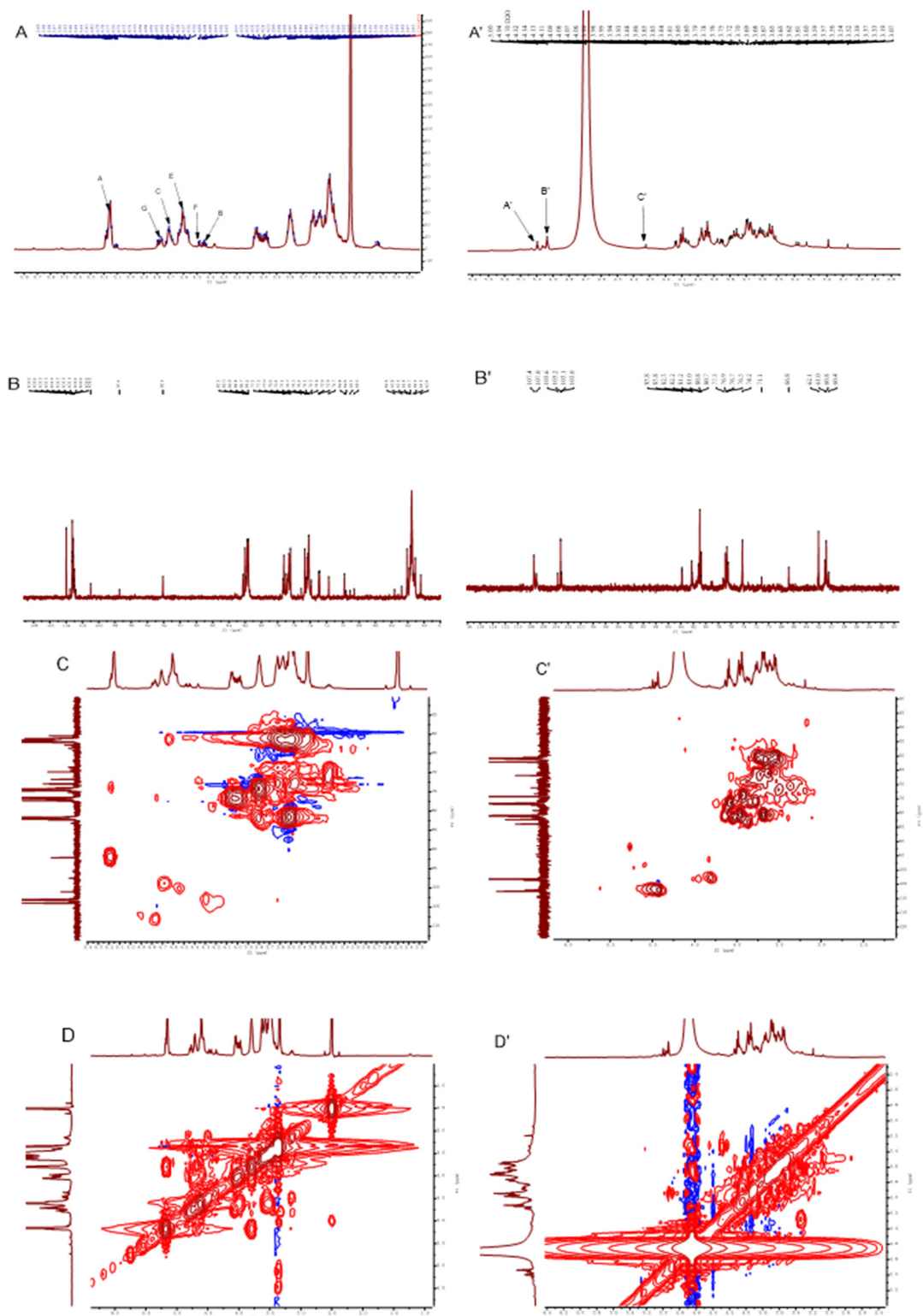


Figure S2. (A) ^1H -NMR spectrum (600 MHz, DMSO, 30°C); (A') ^1H -NMR spectrum (600 MHz, D_2O , 30°C); (B) ^{13}C -NMR spectrum (150 MHz, DMSO, 30°C); (B') ^{13}C -NMR spectrum (150 MHz, D_2O , 30°C); (C,C') $^1\text{H}/^{13}\text{C}$ HSQC correlation spectrum; (D,D') ^1H - ^1H COSY correlation spectrum.