Towards a protein-selective Raman enhancement by glycopolymer-based composite surface

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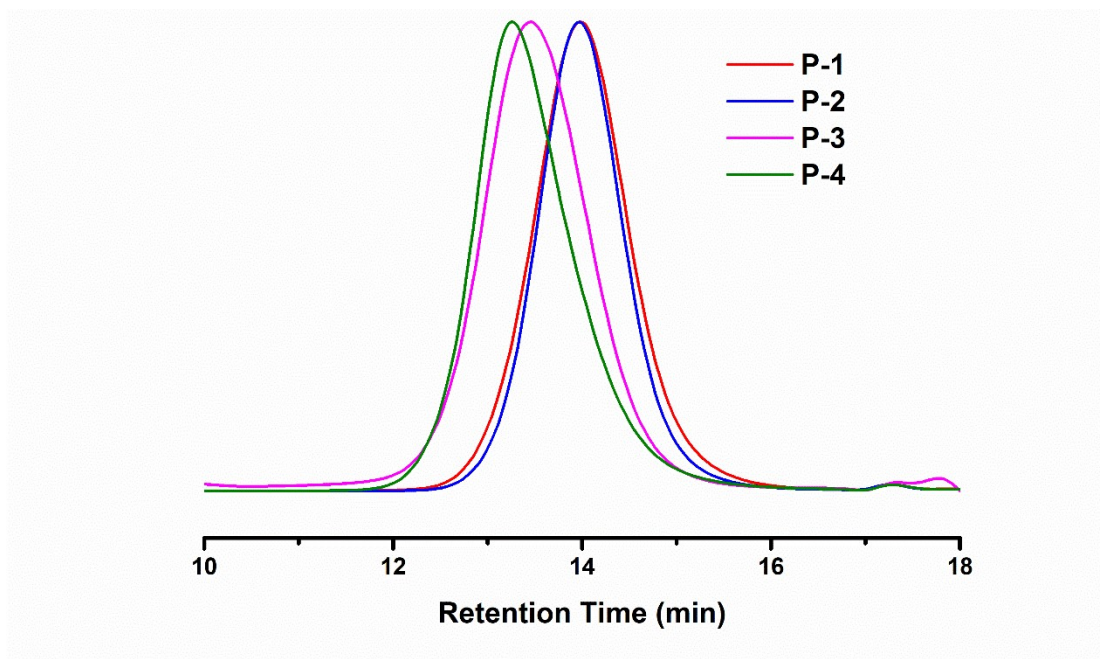

Fig. S1 Size-exclusion chromatography (SEC) spectra of glycopolymers.
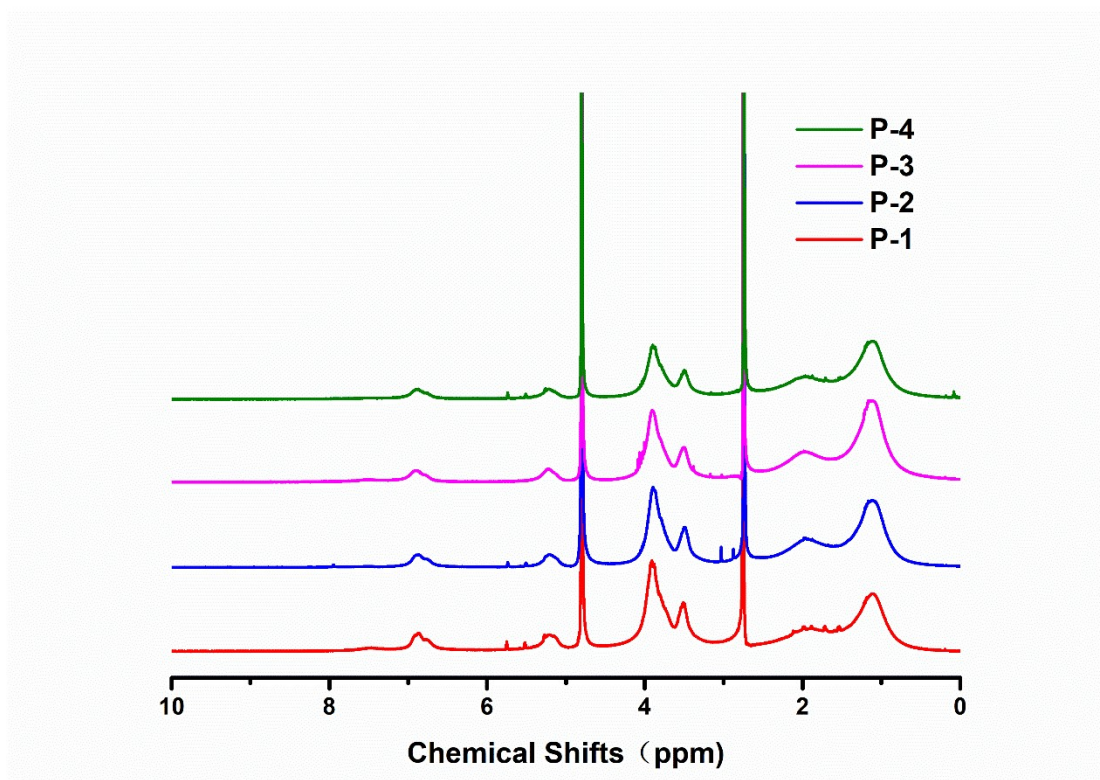

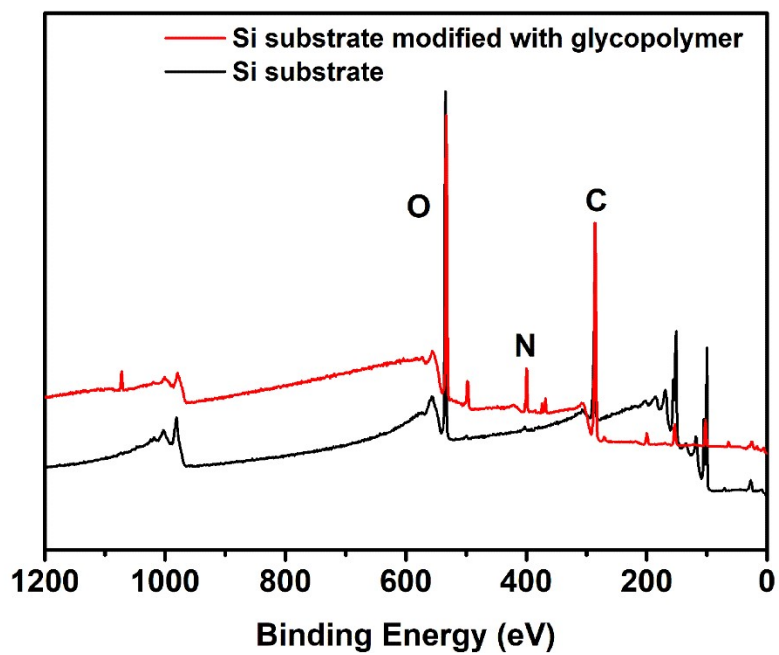**Fig. S2** ^{1}H NMR spectra of glycopolymers in D_2O.

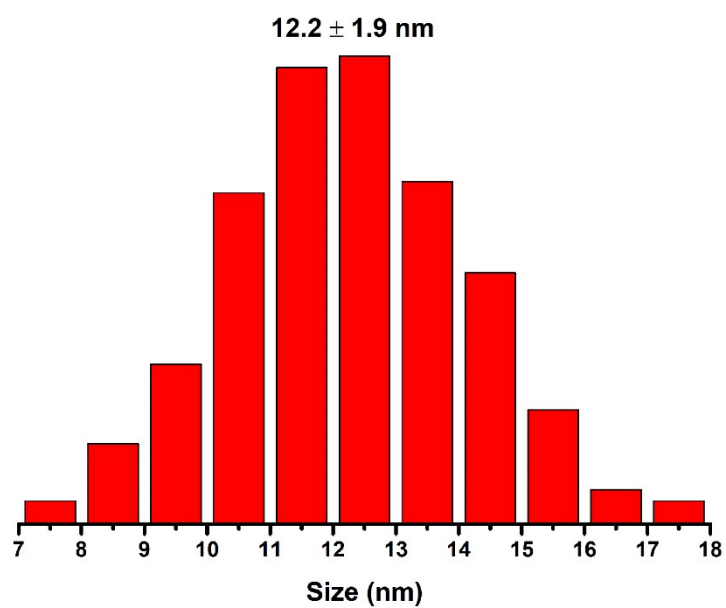**Fig. S3** XPS spectra of the silicon without and with glycopolymer modification.

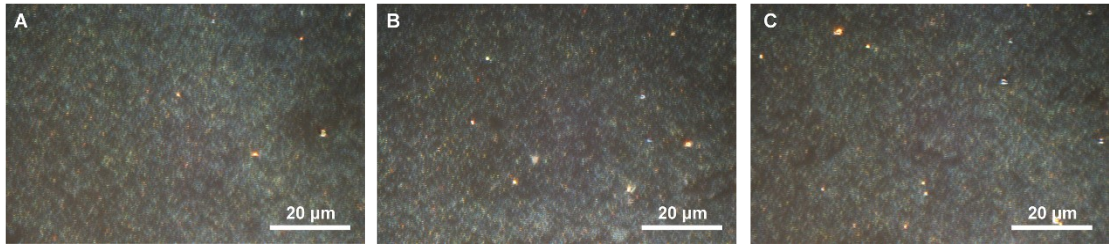**Fig. S4** Statistics of AgNPs particle sizes from SEM image.

Fig. S5 Polarized optical microscope images of the SERS substrate soaked in different solutions for 24 h. (A) the control group, (B) water, (C) HEPES buffer solution (pH = 7.5).
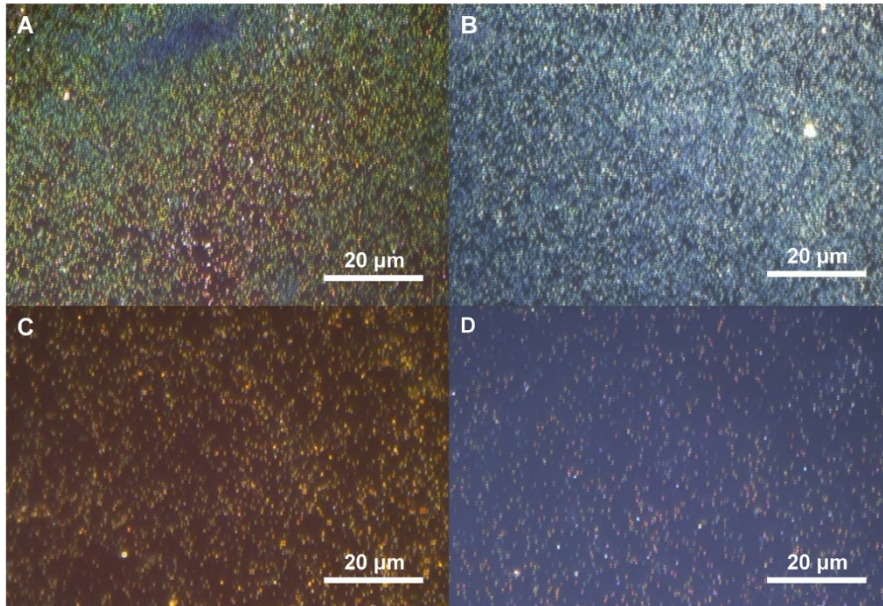

Fig. S6 Polarized optical microscope images of the SERS substrate prepared by P-1 (A), P-2 (B), P-3 (C) and P-4 (D).
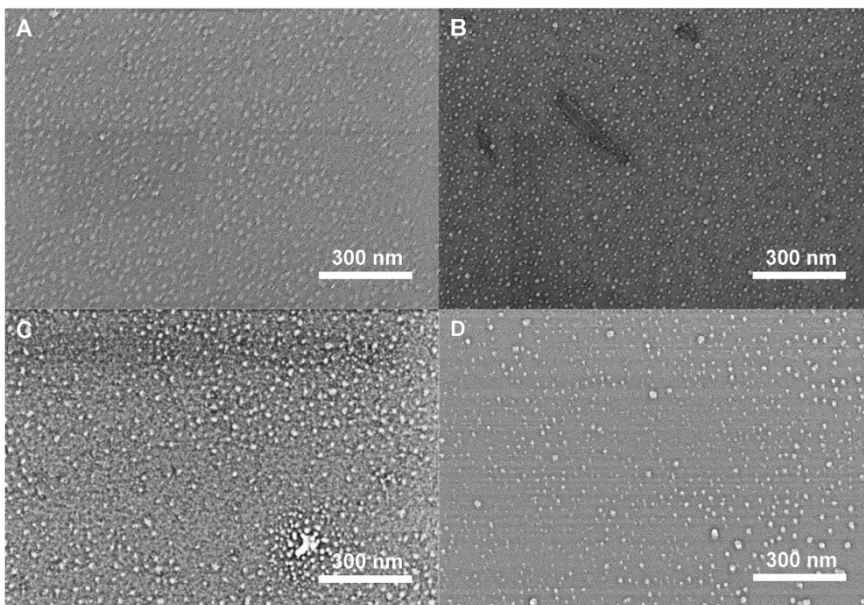

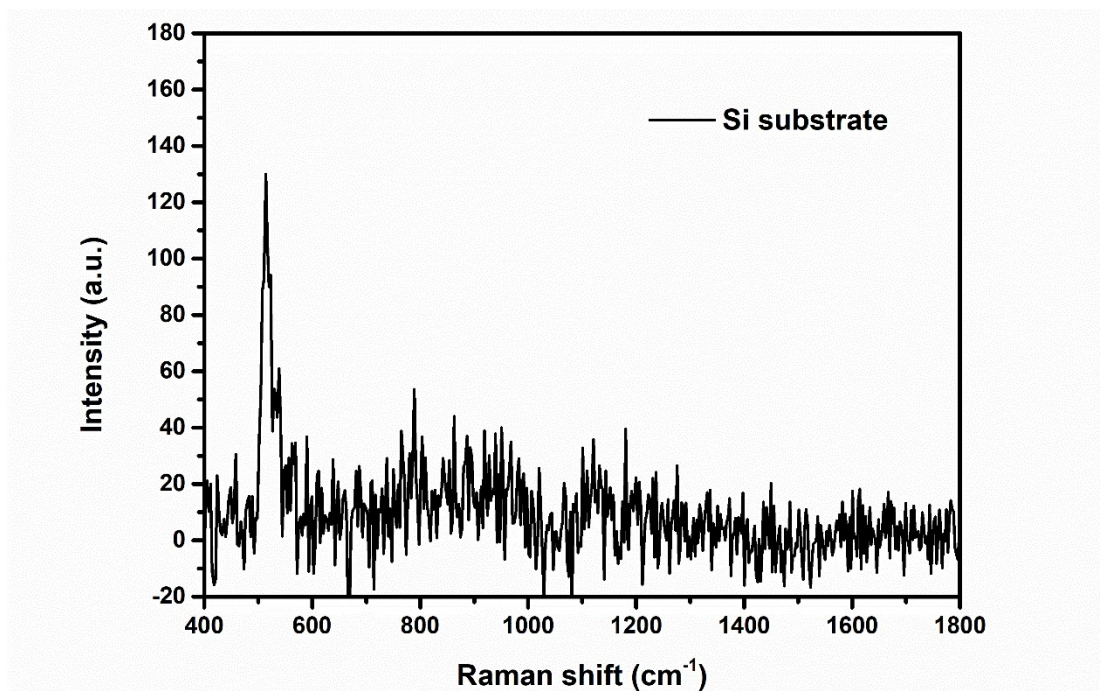**Fig. S7** SEM images of the SERS substrate prepared by P-1 (A), P-2 (B), P-3 (C) and P-4 (D).

Fig. S8 Raman spectra of Si substrate (characteristic peak shifted from original 520 cm^{-1} to 514 cm^{-1}).
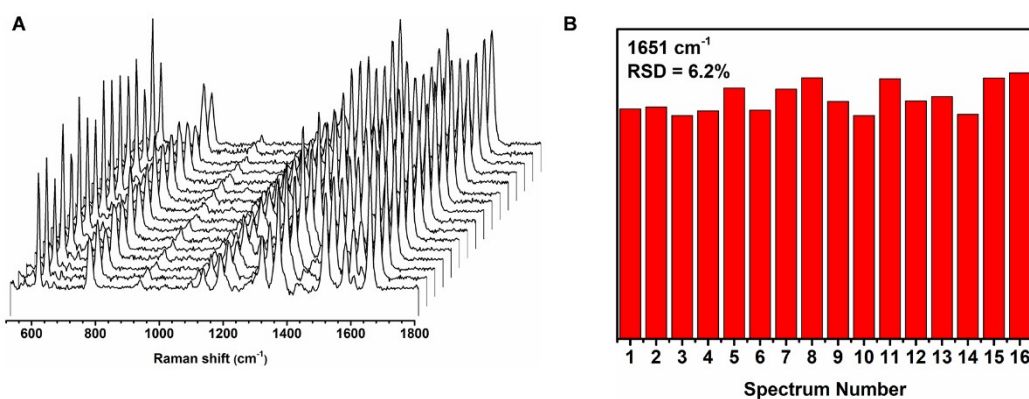

Fig. S9 (A) Raman spectra of R6G from 16 randomly selected spots on the SERS substrate. (B) Peak intensities of R6G at 1651 cm^{-1} with RSD of 6.2%.
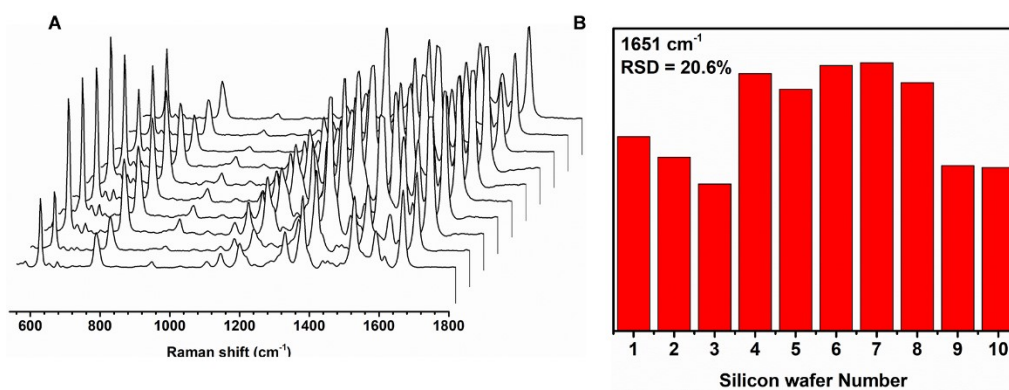

Fig. S10 (A) Raman spectra of R6G from 10 different SERS substrates. (B) Peak intensities

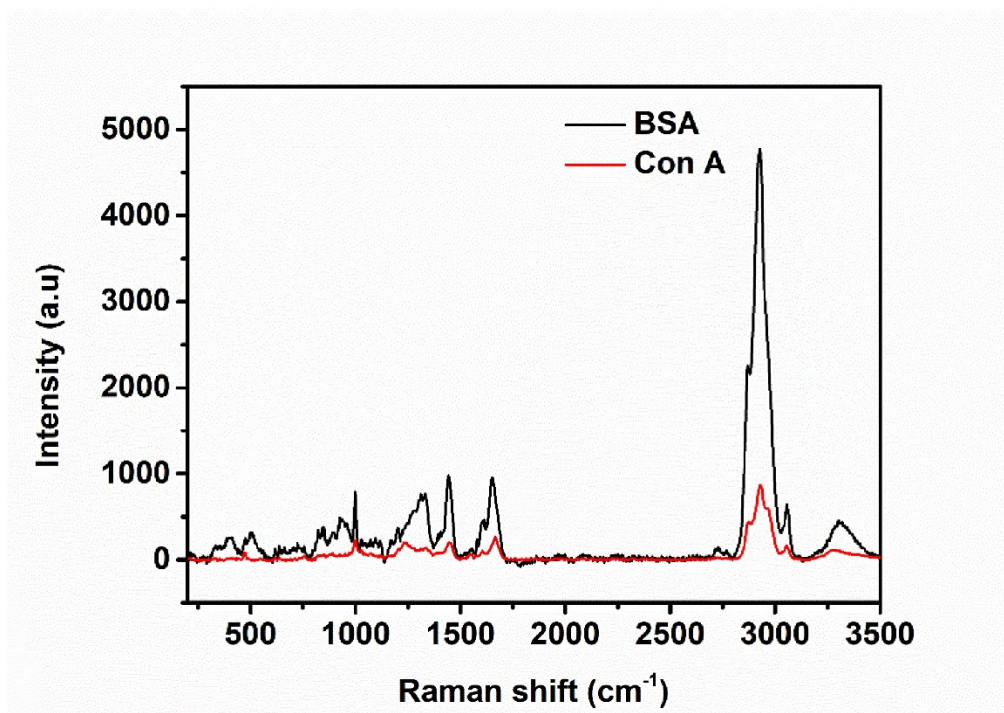of R6G at 1651 cm^{-1} with RSD of 20.6%.

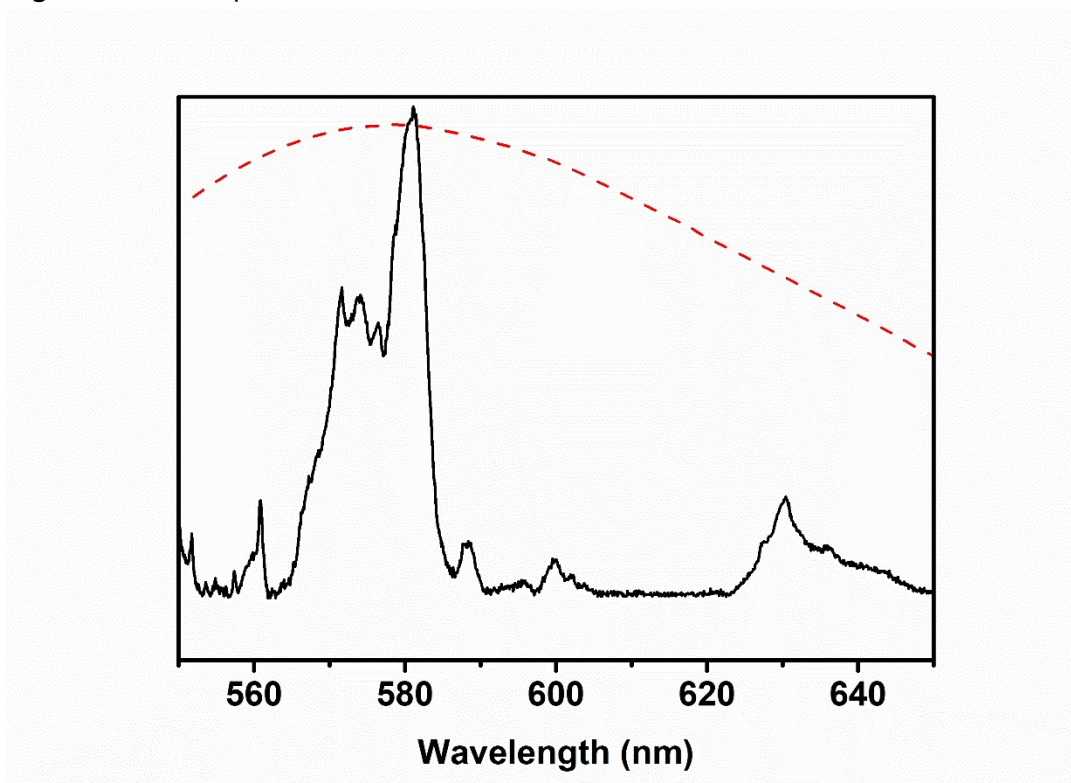**Fig. S11** Raman spectra of solid Con A and BSA.

Fig. S12 Raman spectrum of Con A dropped directly onto the SERS substrate (black solid line) and fluorescence spectrum of Con A (red dash line). The unit of Raman spectrum is uniformly converted to nm by LabSpec software.
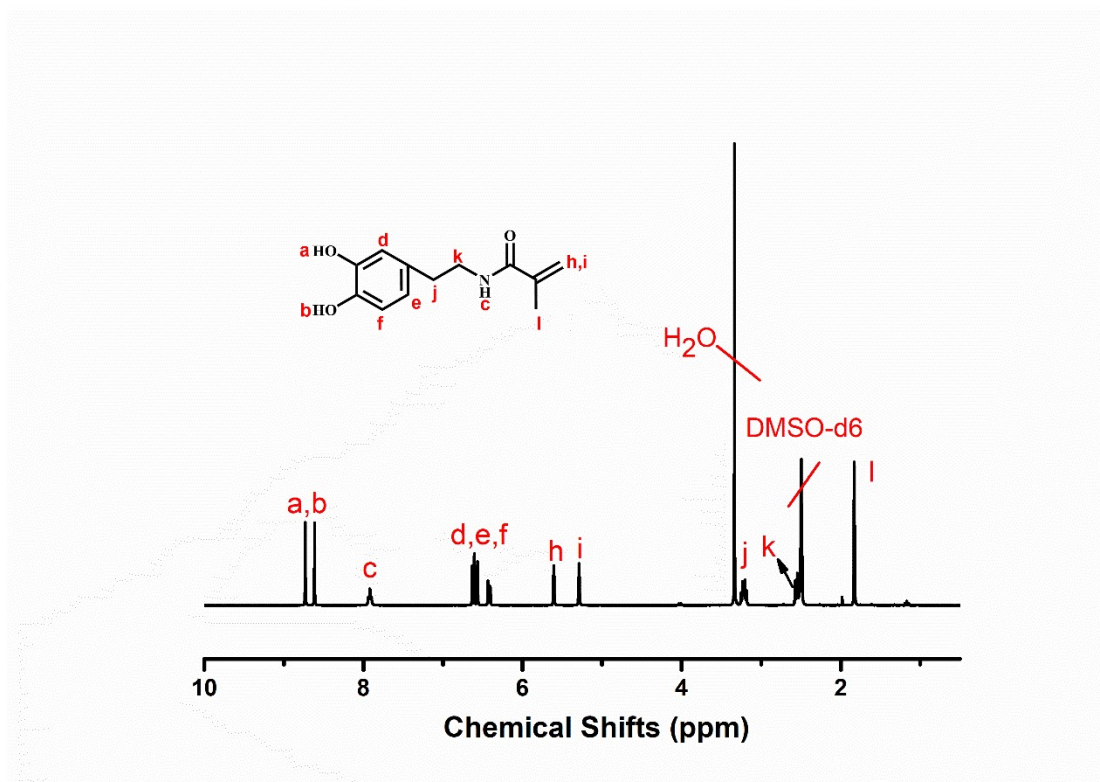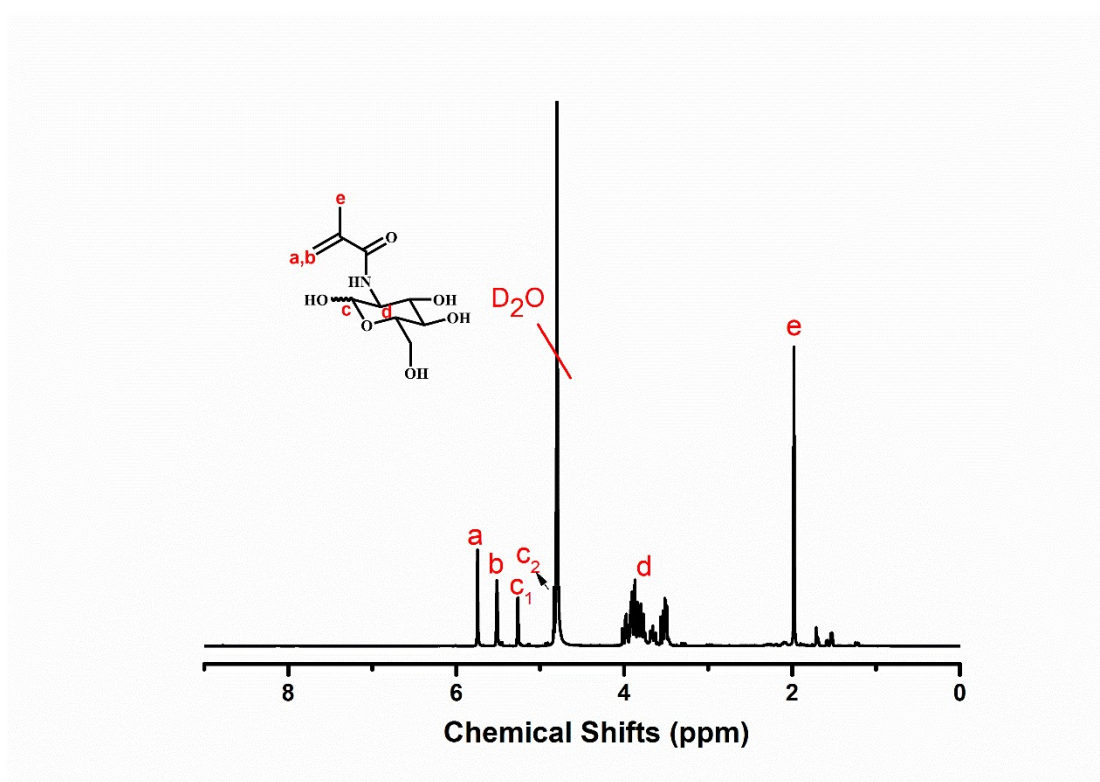
Fig. S13 ^{1}H NMR spectra of DMA in DMSO-*d6*.

Fig. S14 ^{1}H NMR spectra of MAG in D_2O.