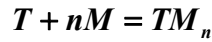


Supplementary Material

3.1.2s Interaction between GA3 and functional monomer

The process how the equation is derived is as follows. Assuming T and M represent template molecular GA3 and functional monomer, respectively, then they are combined into pre-polymer TM_n . The reaction is as follows³⁹.



The association constant $K = \frac{[TM_n]}{[T][M]^n}$, that means $K = \frac{[TM_n]}{b_0^n \times \{a_0 - [TM_n]\}}$,

$$\text{so, } [TM_n] = \frac{Kb_0^n a_0}{1 + Kb_0^n}$$

where a_0 and b_0 refer to the concentration of GA3 and functional monomer in the pre-polymerization solution respectively; n refers to the coordination molar ratio of complex compound formed.

According to Lambert-Beer's Law $\Delta A = \Delta \epsilon [TM_n] = \frac{\Delta \epsilon K b_0^n a_0}{1 + K b_0^n}$,

Where ΔA and $\Delta \epsilon$ refer to the difference of the UV absorbance and molar absorptivity of the solution before and after the addition of functional monomer; l refers to the length of light path.

The equation used for the study of the interaction between GA3 and different functional monomers can be finally derived as follows.

$$\frac{\Delta A}{b_0^n} = -K\Delta A + K\Delta \epsilon a_0$$

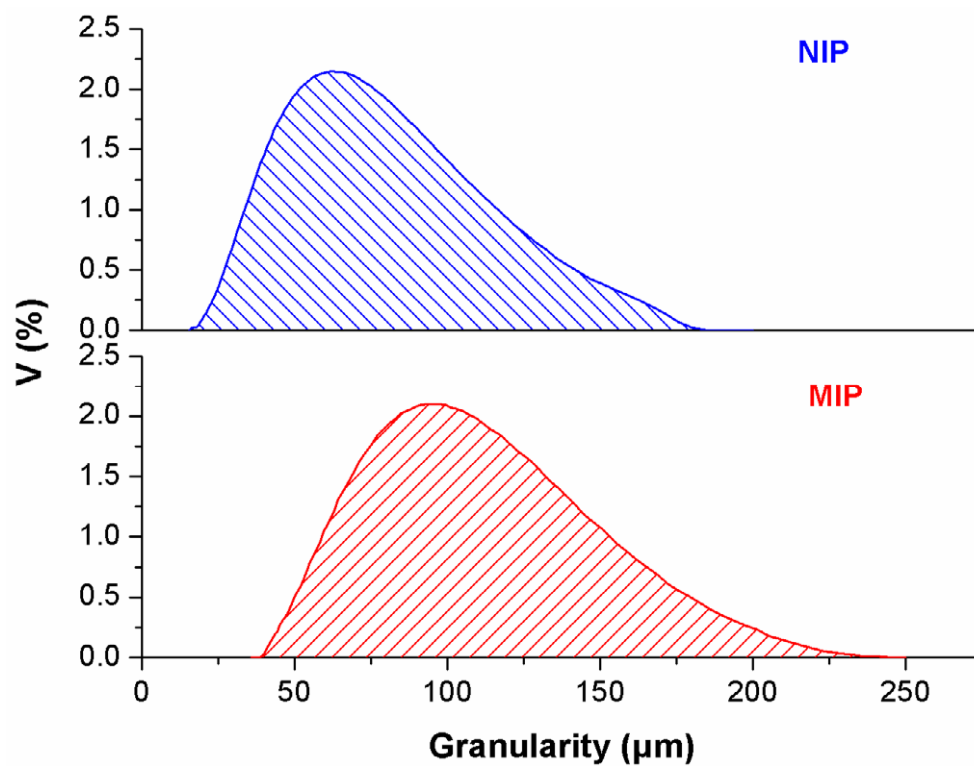


Fig. 1s Particles size analysis of GA3 mag-MIP and mag-NIP beads. Vertical axe is the percentage of the size range of the total volume.

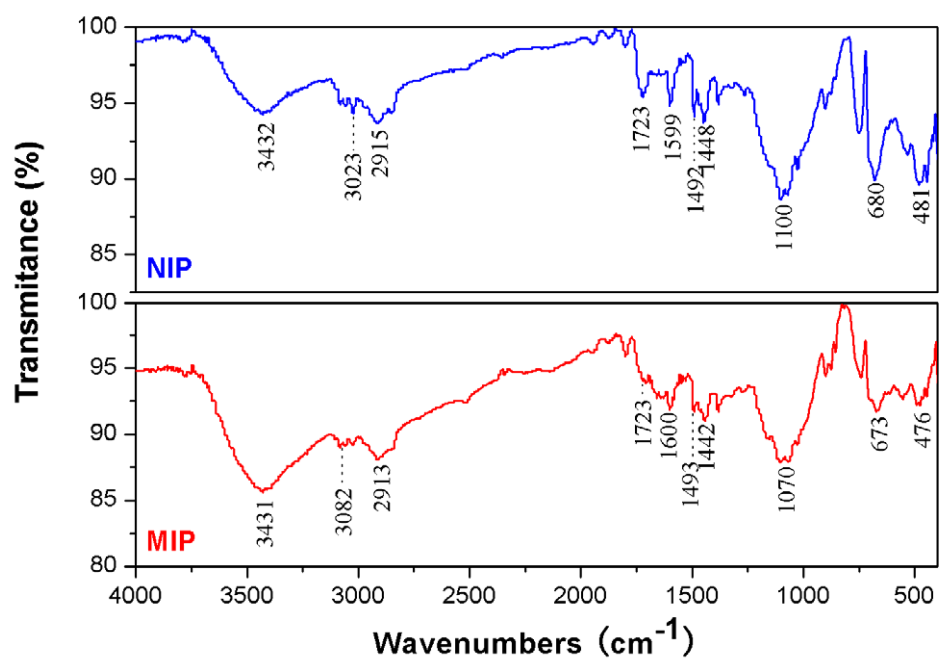


Fig. 2s Infrared spectra of GA3 mag-NIP and GA3 mag-MIP beads.

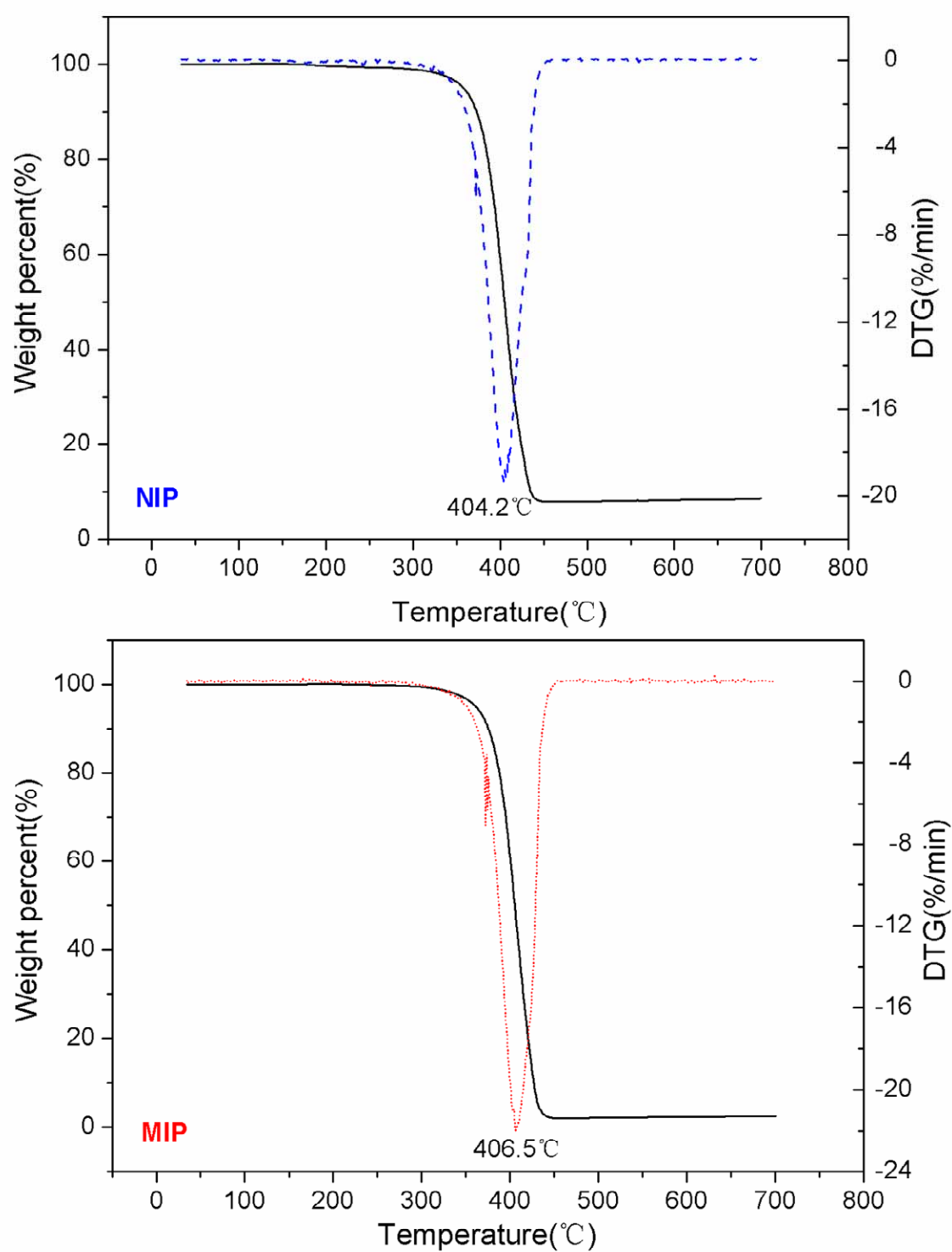


Fig. 3s TGA curves (continuous lines) and derivative of TGA curves (dotted lines) for GA3 mag-NIP beads and GA3 mag-MIP beads.

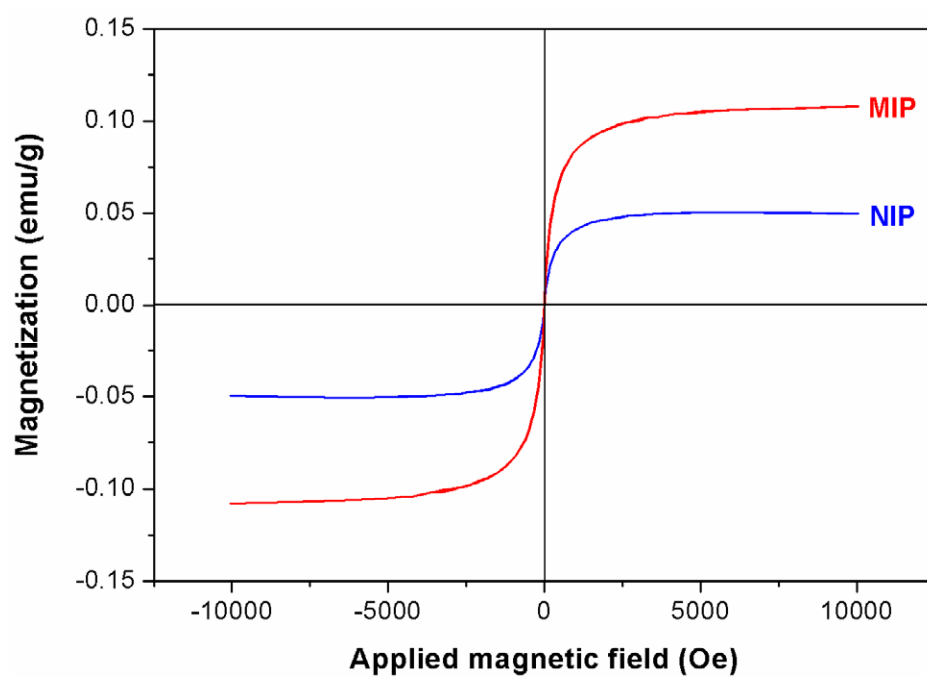


Fig. 4s Magnetization curves of GA3 mag-MIP and mag-NIP beads (saturation magnetization are 0.11 and 0.05 emu/g for GA3 mag-MIP and mag-NIP beads respectively).

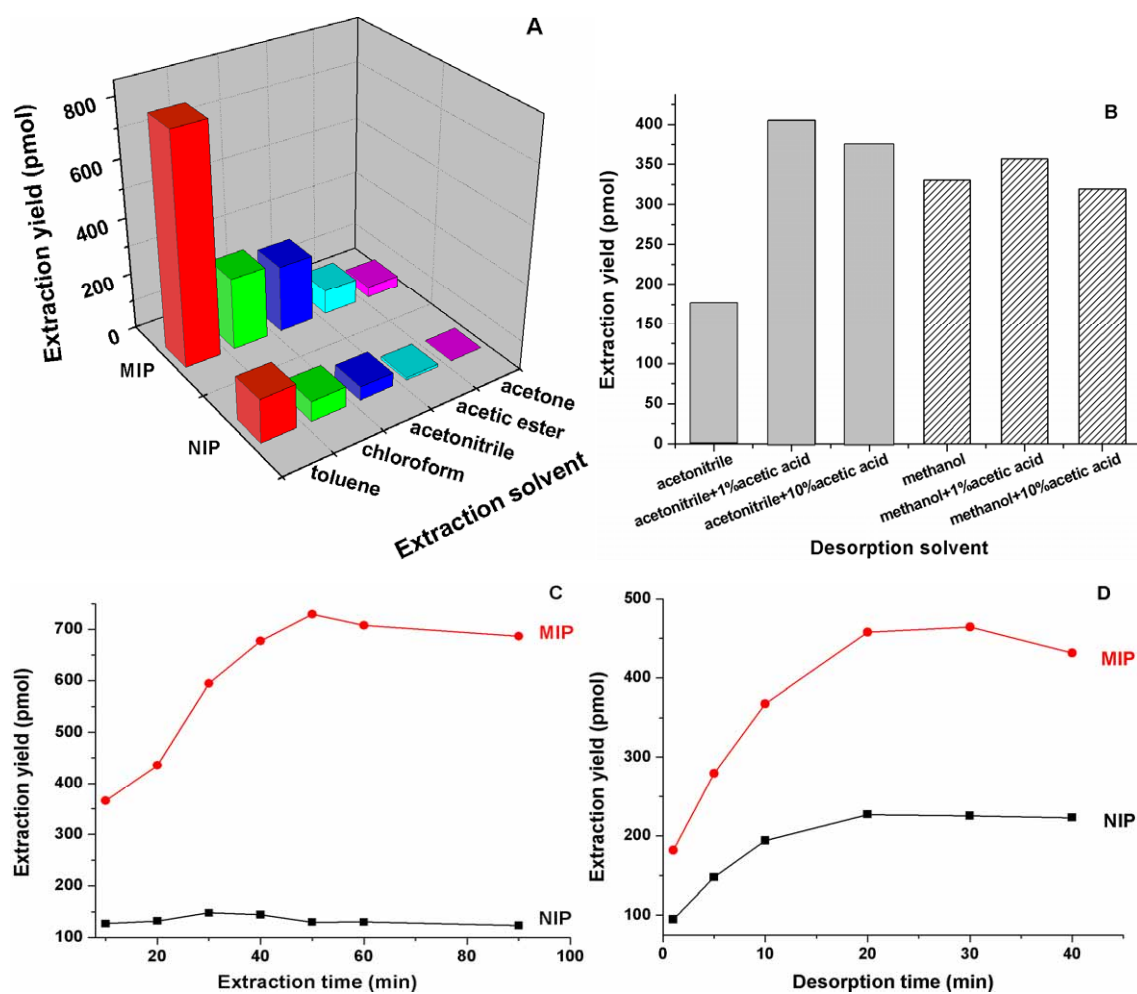


Fig. 5s Optimization of extraction conditions: extraction solvent (A), desorption solvent (B), extraction time (C), and desorption time (D). The GA3 standard solution used in the study was set at a concentration of 80.00 $\mu\text{g/L}$.

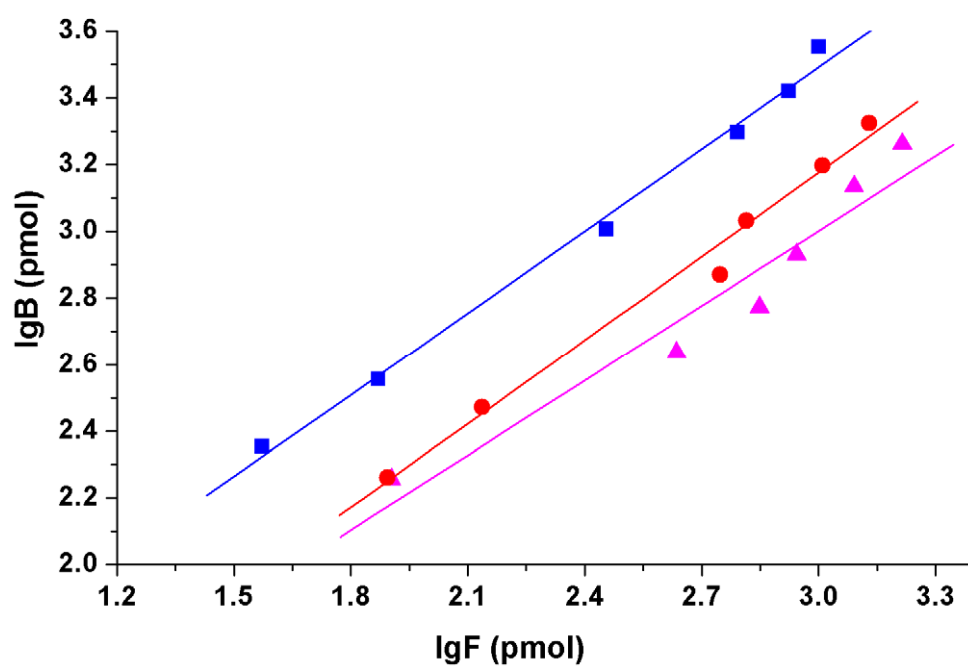


Fig. 6s Linear fits of GA3 mag MAA-MIP (■), AM-MIP (●) and 4-VP-MIP (▲) beads by FI isothermal adsorption.

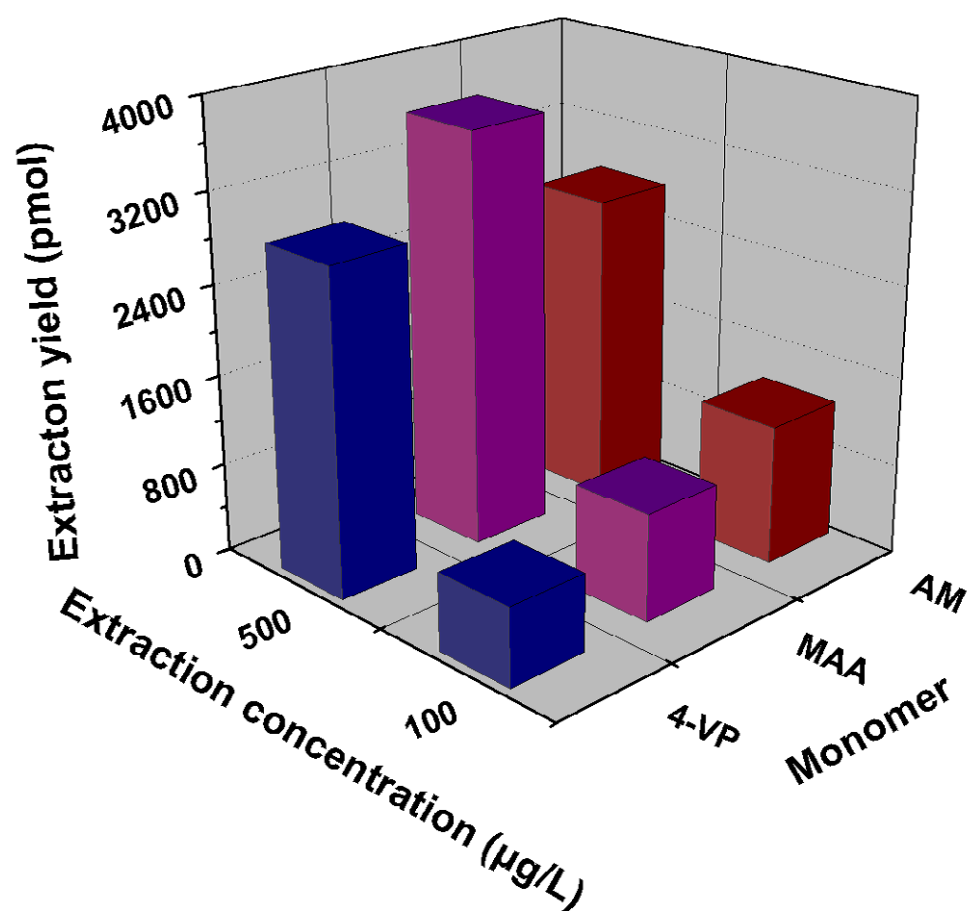


Fig. 7s Comparison of extraction amounts by GA3 mag-MAA-MIP, mag-AM-MIP and mag-4-VP-MIP beads during unsaturated and saturated extraction.

Table 1s The extraction recovery of GAs extracted with mag-MIP and mag-NIP beads.

Analyte	GA1		GA3		GA4+GA7	
	NIP	MIP	NIP	MIP	NIP	MIP
Recovery(%)	34.3	60.5	57.1	98.0	82.1	84.0