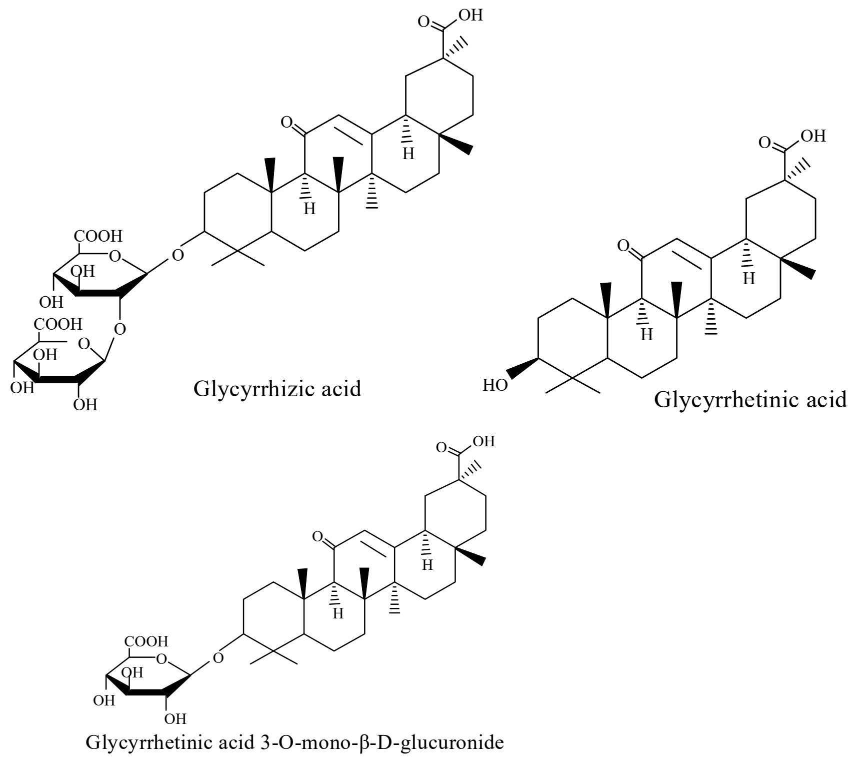


**Fig. S1** The structures of GL, GAMG and GA.

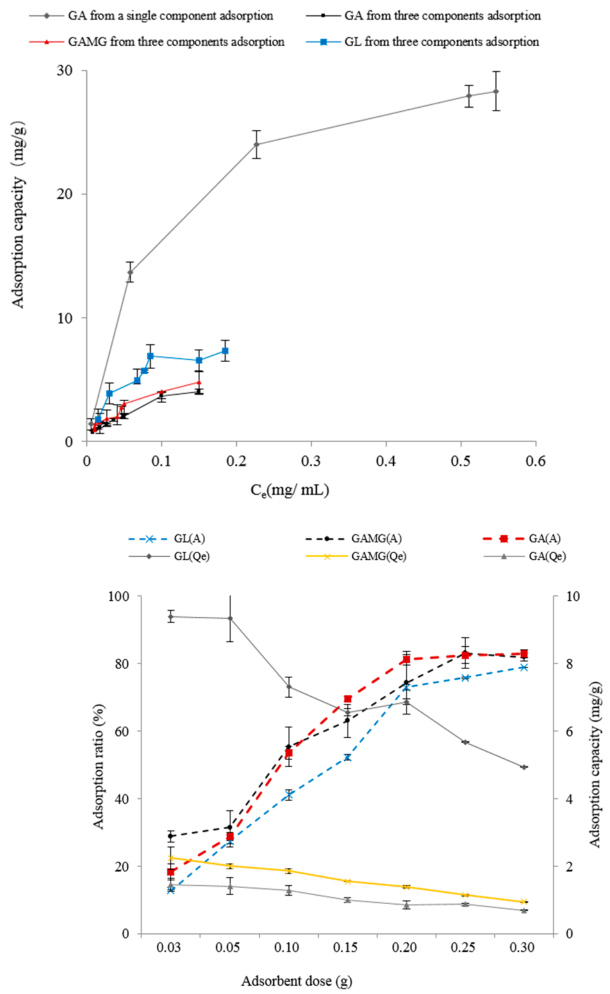


**Fig. S2** The effects of the initial concentration of GA and adsorbent dosage on the static adsorption efficiency;

## *1S. The effect of GA initial concentration on the adsorption efficiency*

The initial concentration of adsorbate was a critical parameter in the adsorption process, the influence of GA initial concentration on the adsorption efficiency was evaluated in present study (Fig.S2). It could be found that the adsorption capacity increased sharply with the rise of GA concentration and then kept a gradually increase. This phenomenon might be interpreted by the fact that the concentration gradient at high GA concentration solution induced higher driving force for mass transfer (Ding et al., 2012), and then the slight increase might be due to the adsorption saturation.

## *2S. The effect of adsorbent dosage on the adsorption efficiency*

The effect of varying dosage of the adsorbent was investigated, the adsorption capacity and adsorption ratio as the function of resin dosage are presented in Fig. S2. It showed an increase in the adsorption ratio (A) of GL, GAMG and GA with the rise in dosage of the resin up to certain limit and then the increase became negligible. In addition, the adsorption capacity ($Q_e$) was decreased with the increase in the dosage of the resin. The increase in the adsorption with raising dosage of the resin was likely due to the rise in adsorbent surface area and availability of more adsorption sites (Barkakati et al., 2010). Therefore, the dosage of 0.2 g EXA50 resin was selected for further adsorption experiments .

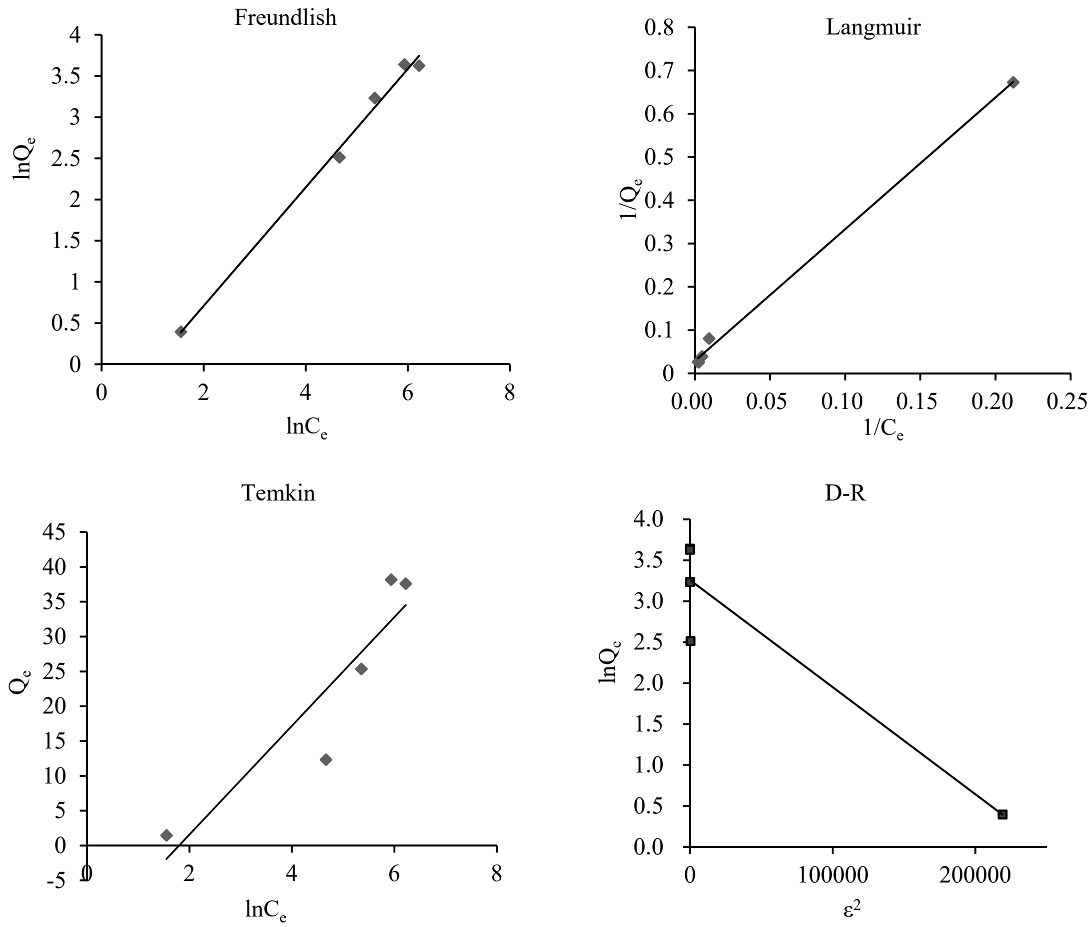


**Fig. S3** The isothermals model of GL, GAMG and GA.

Table S1 Adsorption capability and desorption rate of different resins

| Resin | GL | | GAMG | | GA | |
|---|---|---|---|---|---|---|
| | Adsorption capacity (mg/g) | Elution rate (%) | Adsorption capacity (mg/g) | Elution rate (%) | Adsorption capacity (mg/g) | Elution rate (%) |
| XDA4 | 15.72±0.8$^{d}$ | 74.09±6.0$^{b'}$ | 5.12±0.2$^{k}$ | 19.95±5.6$^{i'j'}$ | 4.30±0.2$^{qr}$ | 5.44±0.8$^{p'q'r'}$ |
| HZ803 | 8.70±1.2$^{b}$ | 91.51±2.3$^{f'g'}$ | 3.57±0.4$^{i}$ | 31.83±8.8$^{l'm'}$ | 3.06±0.3$^{p}$ | 7.54±1.3$^{r's'}$ |
| HP700 | 16.92±2.0$^{de}$ | 78.74±5.5$^{b'c'd'}$ | 5.47±0.2$^{kl}$ | 32.36±6.0$^{m'}$ | 4.31±0.1$^{qr}$ | 8.20±0.9$^{s'}$ |
| SP70 | 18.68±0.8$^{fg}$ | 59.74±3.6$^{a'}$ | 5.71±0.3$^{lmn}$ | 19.01±3.5$^{i'}$ | 4.38±0.2$^{r}$ | 8.26±1.6$^{s'}$ |
| SP207 | 17.62±0.5$^{ef}$ | 83.36±5.9$^{b'c'd'}$ | 5.50±0.1$^{kl}$ | 28.68±3.5$^{k'l'm'}$ | 4.23±0.1$^{qr}$ | 5.42±0.3$^{p'q'r'}$ |
| XDA1180 | 17.74±1.8$^{ef}$ | 76.51±8.6$^{b'c'}$ | 5.56±0.4$^{klm}$ | 31.97±4.4$^{l'm'}$ | 4.34±0.$^{3r}$ | 7.00±1.2$^{q'r's'}$ |
| HP100 | 20.34±0.5$^{g}$ | 79.18±6.8$^{b'c'd'}$ | 6.00±0.1$^{mn}$ | 25.98±5.9$^{k'l'}$ | 4.68±0.1$^{s}$ | 5.17±0.9$^{p'q'}$ |
| XDA7HP | 13.80±0.2$^{c}$ | 93.66±2.4$^{g'}$ | 5.69±0.1$^{lmn}$ | 44.13±0.7$^{n'}$ | 4.72±0.1$^{t}$ | 14.38±2.2$^{t'}$ |
| HP2MGL | 5.12±0.6$^{a}$ | 80.22±6.7$^{b'c'd'}$ | 4.07±01$^{j}$ | 53.14±1.0$^{o'}$ | 4.06±0.1$^{q}$ | 16.04±1.7$^{t'}$ |
| EXA45 | 18.10±3.0$^{ef}$ | 82.80±4.7$^{c'd'e'}$ | 5.51±1.0$^{kl}$ | 25.18±6.8$^{j'k'}$ | 4.44±0.5$^{rs}$ | 4.59±0.3$^{p'}$ |
| EXA50 | 22.17±0.5$^{h}$ | 85.54±2.7$^{d'e'f'}$ | 6.53±0.1$^{o}$ | 26.54±1.8$^{k'l'm'}$ | 4.75±0.1$^{t}$ | 8.29±1.2s' |
| SP207 | 19.79±1.0$^{g}$ | 89.06±1.2$^{e'f'g'}$ | 6.06±0.2$^{n}$ | 28.00±1.3$^{k'l'm'}$ | 4.75±0.1$^{t}$ | 4.48±0.6$^{p'}$ |
| SP825 | 20.34±0.3$^{g}$ | 85.28±6.4$^{d'e'f'}$ | 6.07±0.1$^{n}$ | 25.32±1.5$^{j'k'}$ | 4.79±0.1$^{t}$ | 7.37±1.2$^{q'r's'}$ |
| EXA118 | 20.25±0.2$^{g}$ | 83.00±7.5$^{c'd'e'}$ | 6.09±0.1$^{n}$ | 30.81±1.6k$^{'l'm'}$ | 4.76±0.1$^{t}$ | 5.66±0.2$^{p'q'r'}$ |

Note: The results were expressed as mean±standard deviation (n=3), with the different letters marked that was significant ($P < 0.05$).

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