**Dopamine modified on magnetic graphene oxide as a recoverable absorbent for preconcentration of metal ions by an**

**effervescent-assisted dispersive micro solid-phase extraction procedure**

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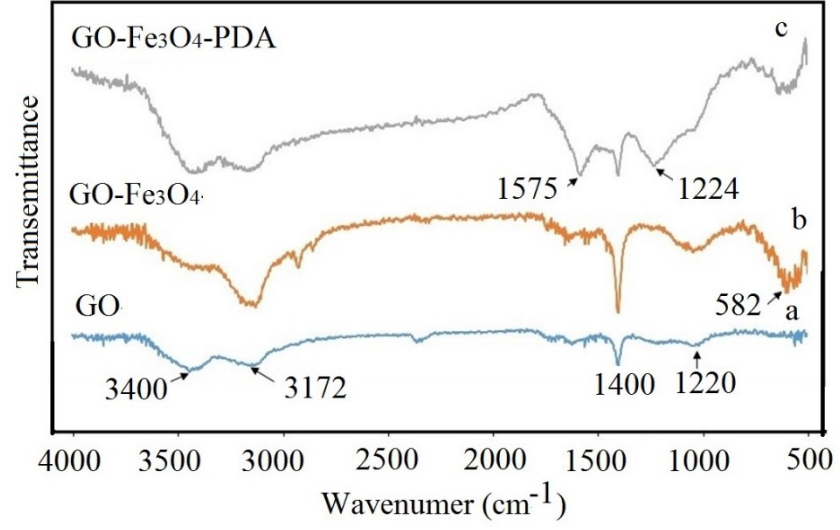E-mail address: mrajabi@semnan.ac.ir

Fax: +98-23-33654110

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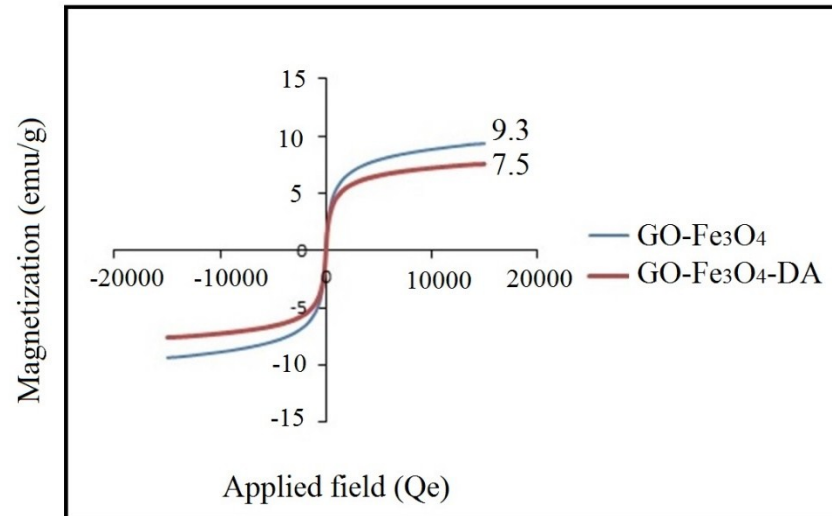Fig. 1S. FT-IR spectra of GO, GO-Fe$_3$O$_4$ and GO-Fe$_3$O$_4$-DA

Fig. 2S. Magnetic hysteresis loops of GO-$Fe_3O_4$ and GO-$Fe_3O_4$-DA
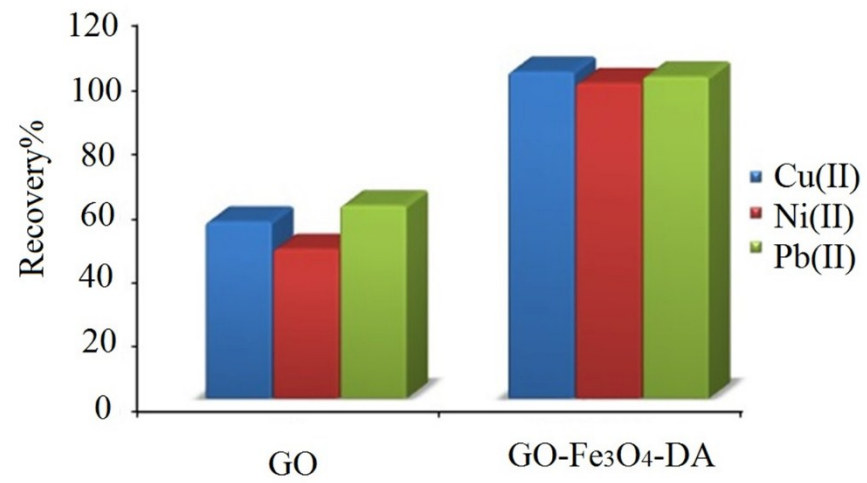
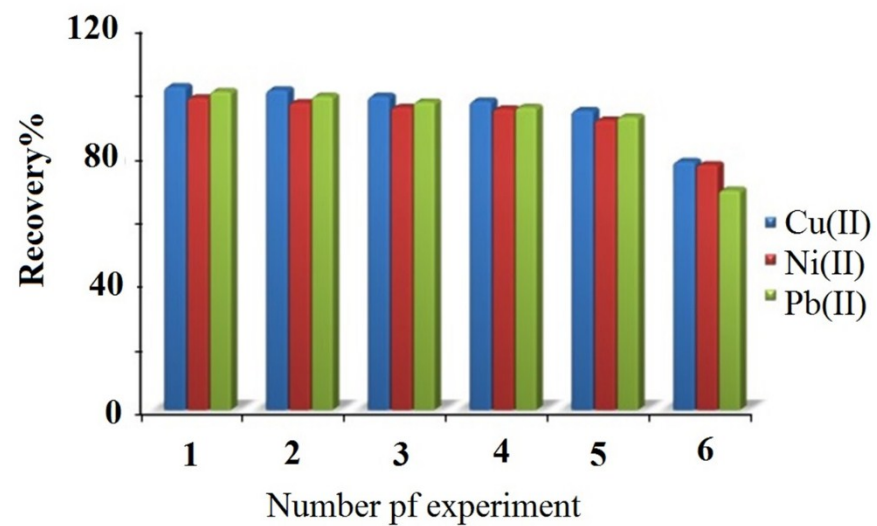Fig. 3S Comparison of the adsorbents

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Fig. 4S Results acquired from repeated usage of GO-Fe$_3$O$_4$-DA after cyclic regeneration.

Table 1S. Influence of potentially interfering ions on recovery of metal ions.

(Conditions: 10 mg of adsorbent, pH 8. Desorption conditions: 300 μL of $HNO_3$ with concentration of 3 mol $L^{-1}$.

| Ions | Limit concentration (Interfering ion concentration / analyte ion concentration) | | |
|---|---|---|---|
| | Pb(II) | Cu(II) | Ni(II) |
| $Mg^{2+}$ | 1000 | 1000 | 1000 |
| $Mn^{2+}$ | 900 | 800 | 900 |
| $Zn^{2+}$ | 800 | 900 | 900 |
| $NH^{4+}$ | 1000 | 800 | 1000 |

| | | | |
|---|---|---|---|
| $Al^{3+}$ | 1000 | 1000 | 900 |
| $Na^+$ | 1000 | 1000 | 1000 |
| $Ba^+$ | 1000 | 1000 | 1000 |
| $SO_4^{2-}$ | 1000 | 1000 | 1000 |