



*Supplementary Material*

# Fabrication of Stabilized Fe–Mn Binary Oxide Nanoparticles: Effective Adsorption of 17 $\beta$ -Estradiol and Influencing Factors

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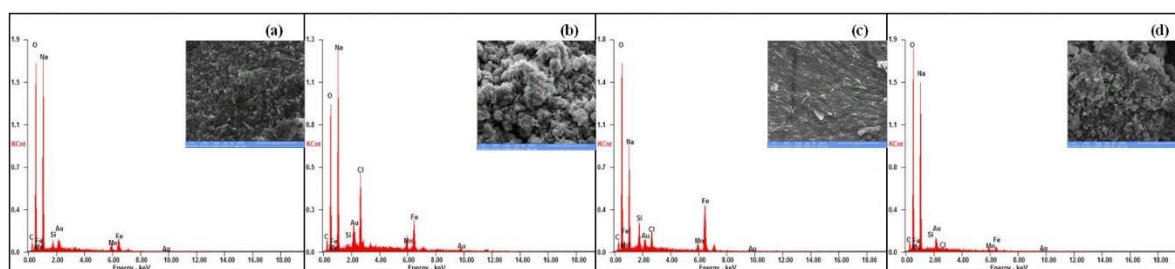
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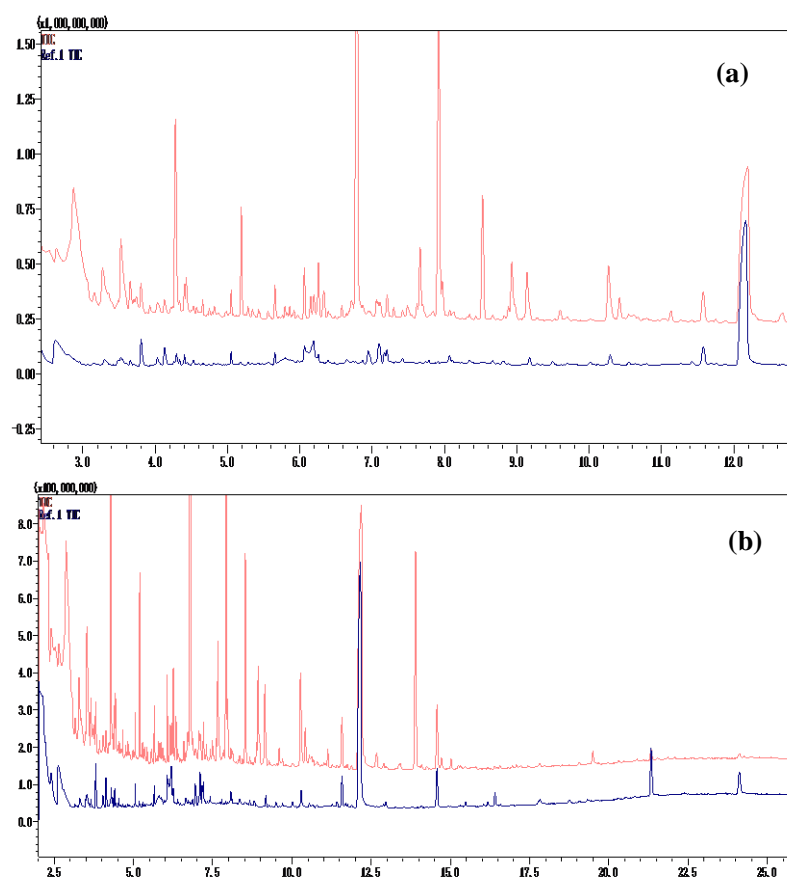
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## 17 $\beta$ -estradiol detection:

The E2 concentration was determined using a fluorescence quenching method via an F-4500 fluorescence spectrophotometer (Hitachi, Japan). A xenon lamp (450 W) was chosen as the excitation source, and the slits of excitation (Ex) and emission (Em) were remained at 5 nm. The fluorescence intensity of E2 was set to Ex/Em=280 nm/310 nm [1]. The calibration curve was measured by using E2 dissolved in truly dissolved solution at concentrations of 0.05–8.0 mg/L. Meanwhile, the background fluorescence intensities of 0.01 M NaCl solution were measured and subtracted under the same conditions.



**Figure S1.** EDX spectra of (a) FMBON (b) CMC-FMBON (c) E2 adsorbed FMBON (d) E2 adsorbed CMC-FMBON.



**Figure S2.** The representative chromatogram before (a) and after (b) reaction of 15 h.

[1] L.H. Jiang, Y.G. Liu, G.M. Zeng, F.Y. Xiao, X.J. Hu, X. Hu, H. Wang, T.T. Li, L. Zhou, X.F. Tan, Removal of 17 $\beta$ -estradiol by few-layered graphene oxide nanosheets from aqueous solutions: External influence and adsorption mechanism, *Chem. Eng. J.* **2016**, 284, 93–102.



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