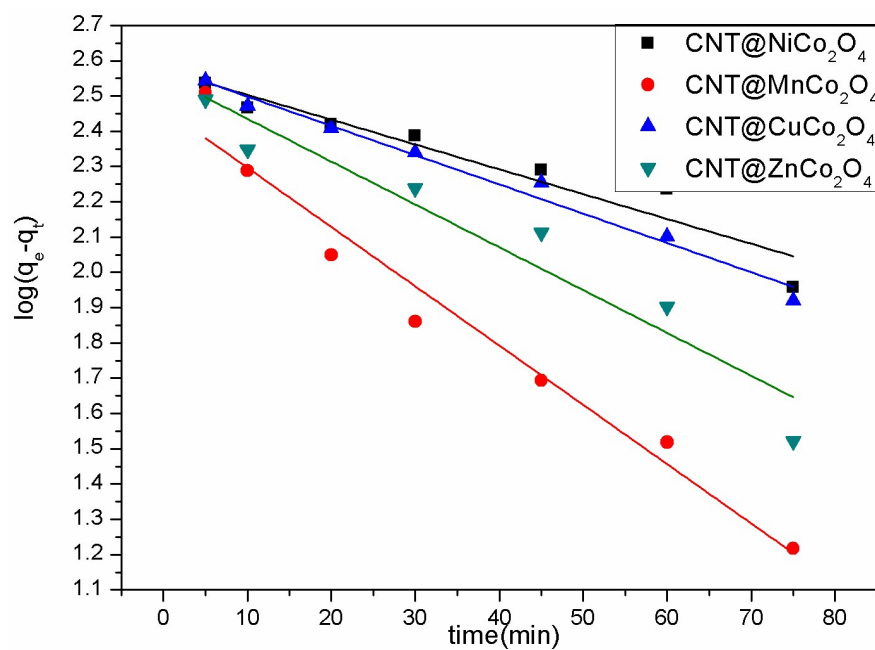


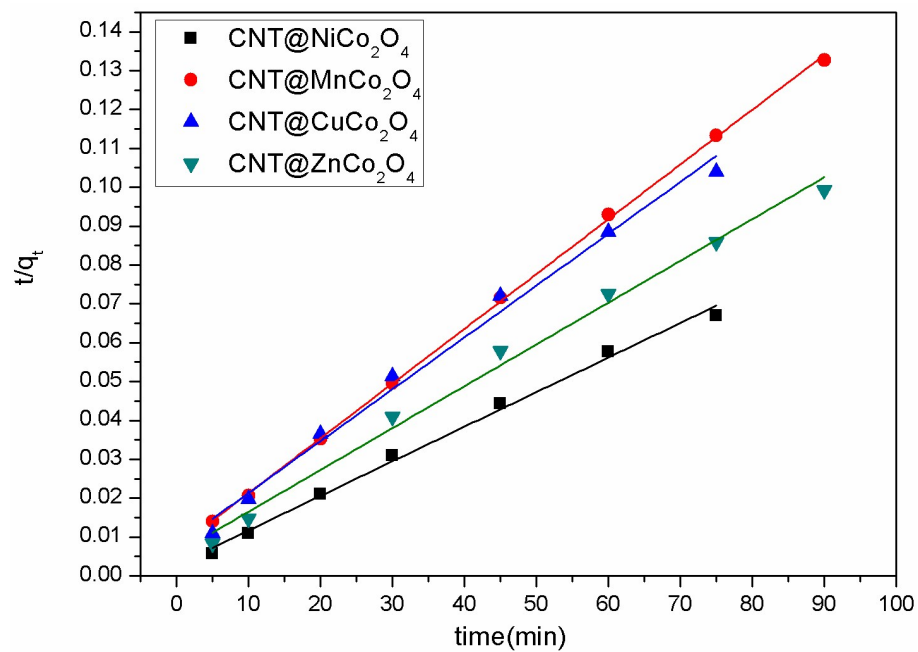
## Supplementary Material

### Adsorption kinetics, isotherms and thermodynamic

#### 1. Adsorption Kinetics

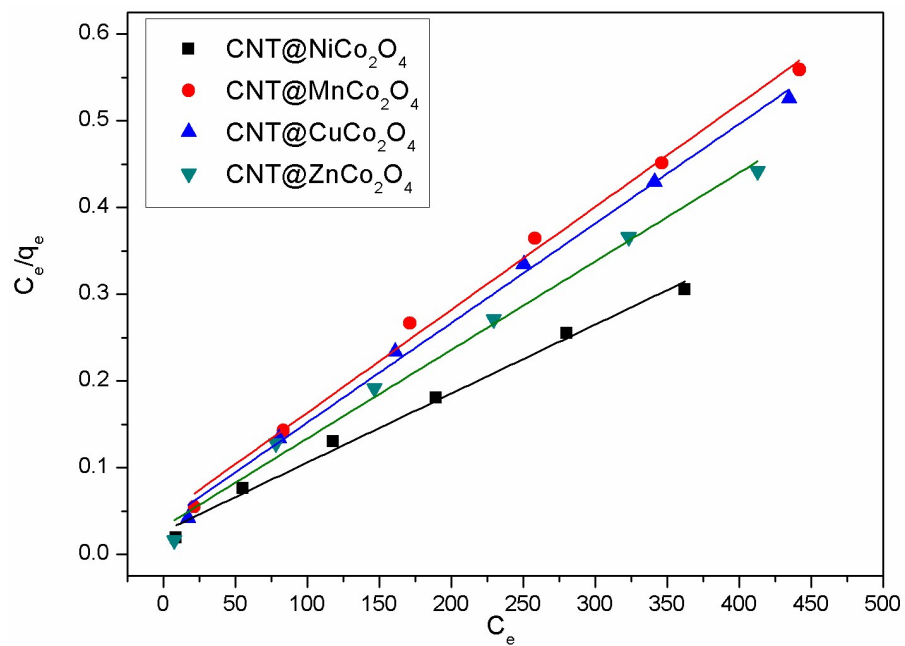


**Fig.S1.** Plot of the pseudo-first-order kinetic model for MO on CNT@MCo<sub>2</sub>O<sub>4</sub> at the initial solution concentration of 600mg/L.



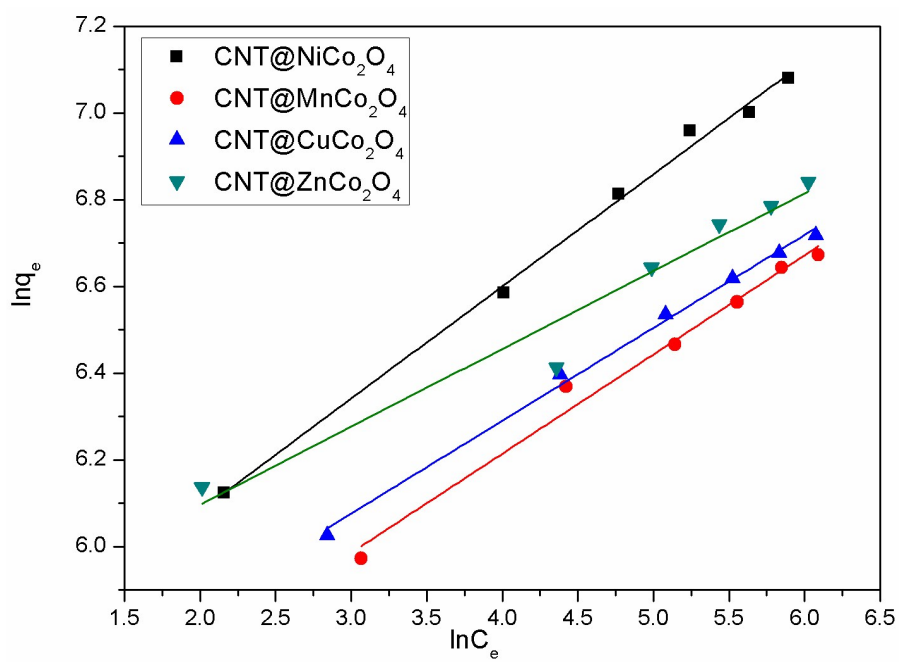
**Fig.S2.** Plot of the pseudo-second-order kinetic model for MO on CNT@MCo<sub>2</sub>O<sub>4</sub> at the initial solution concentration of 600mg/L.

## 2. Adsorption Isotherms



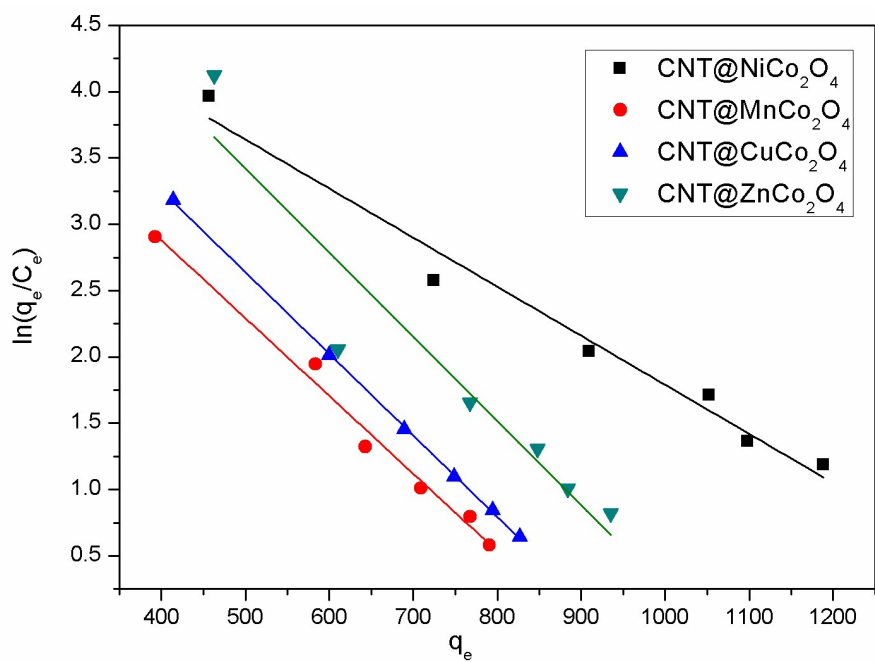
**Fig.S3** Langmuir adsorption isotherm plots for MO adsorption onto CNT@MCo<sub>2</sub>O<sub>4</sub>

at 293K



**Fig.S4** Freundlich adsorption isotherm plots for MO adsorption onto CNT@MCo<sub>2</sub>O<sub>4</sub>

at 293K



**Fig.S5.** Plots of  $\ln q_e/C_e$  versus  $q_e$  of CNT@MCo<sub>2</sub>O<sub>4</sub> at 293K