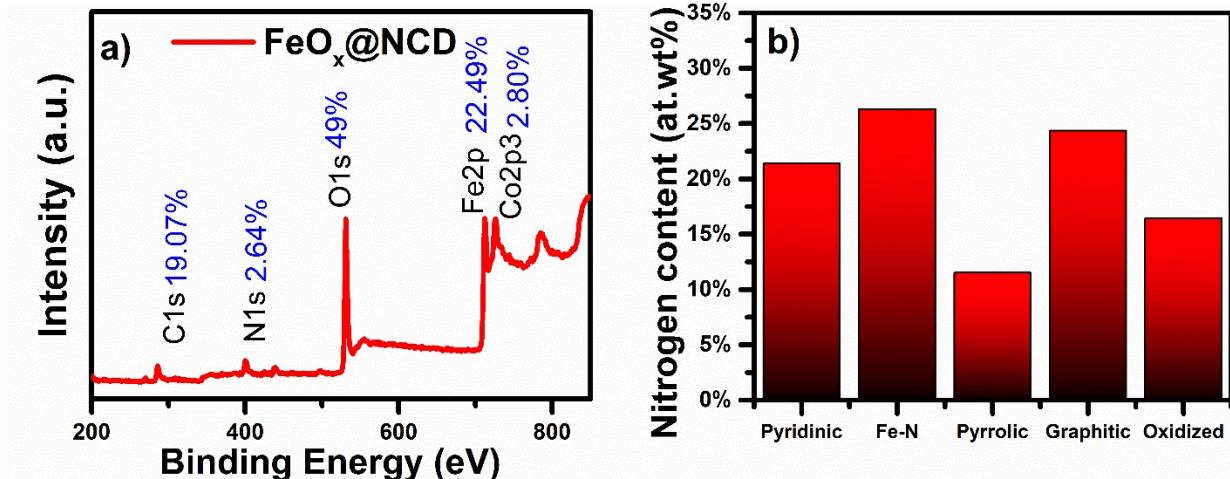
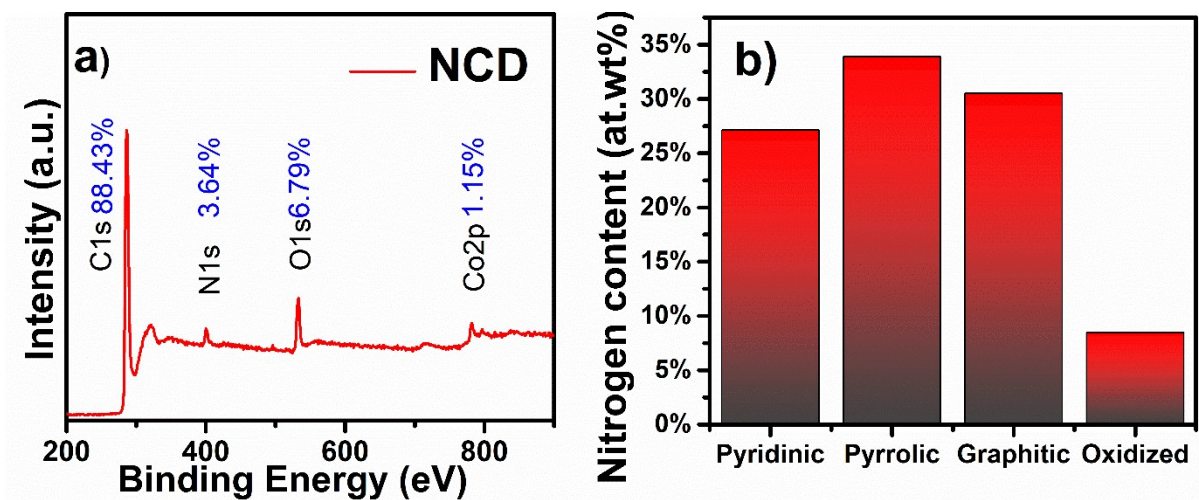


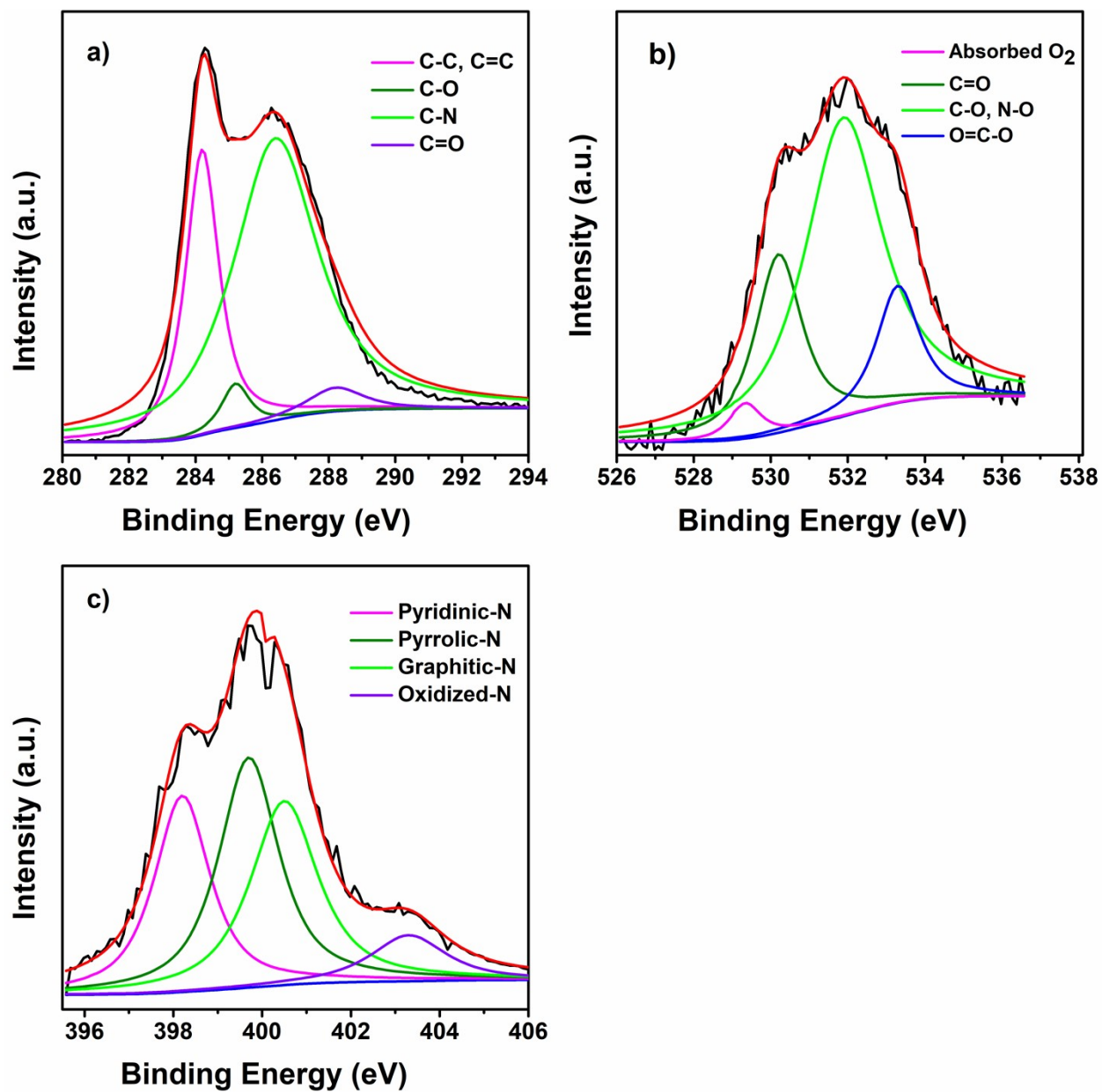
**Figure S1** (a) Top SEM images of the FeO<sub>x</sub>@NCD with arrow pointed to impregnated FeO<sub>x</sub> in carbon matrix. (b) SEM images of FeO<sub>x</sub>@NCD with corresponding elemental mapping images for iron (c), carbon (d), oxygen (e), and nitrogen (f).



**Figure S2.** (a) XPS survey spectrum of the FeO<sub>x</sub>@NCD, (b) the contents of different types of nitrogen in the FeO<sub>x</sub>@NCD.



**Figure S3.** (a) XPS survey spectrum of the NCD, (b) the contents of different types of nitrogen in the NCD.



**Figure S4.** High resolution XPS spectra of C 1s (a), O 1s (b), and N 1s (c) of NCD.

