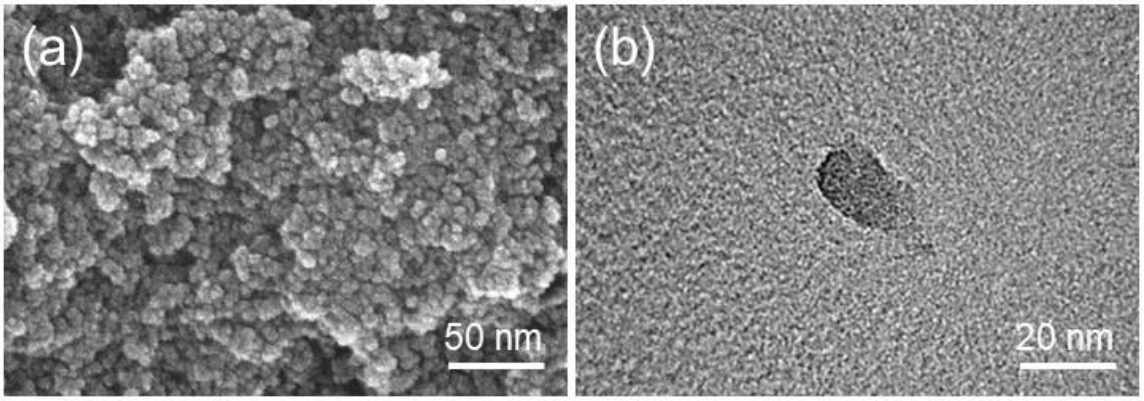

Figure S1. (**a**) SEM and (**b**) TME images of PB nanoparticles.

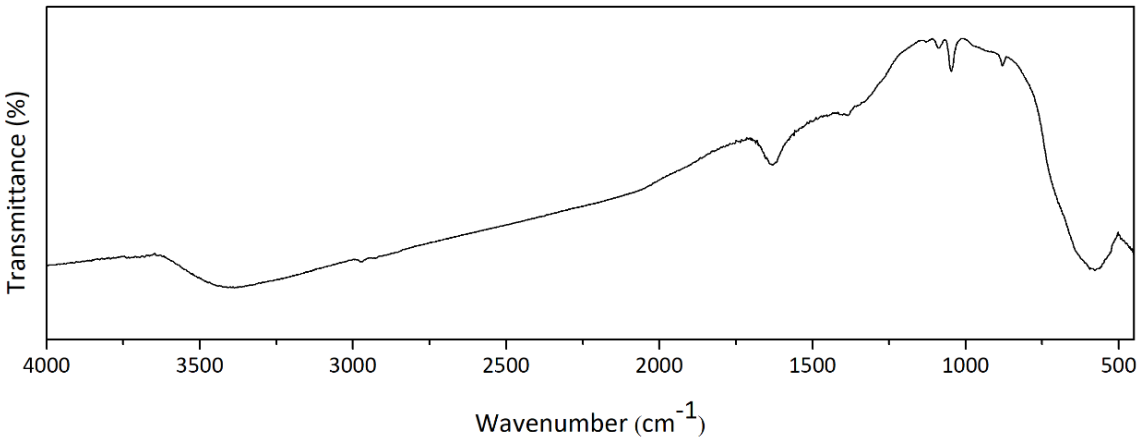

Figure S2. FTIR spectrum of iron oxide/carbon composite.

Note in Figure S2: The characteristic peaks of C=O and a broad peak of -OH disappeared, due to decreasing in various oxygen-containing functional groups [S1,S2]. The peak around 1600 cm^{-1} can be referred to the C=C band. The C≡N bond also disappeared, indicating to remove the C-N group by calcination. The strong vibration bands at 577 cm^{-1} was assigned to iron oxide (Fe_2O_3)[S3,S4], which indicates that the conversion of PB to iron oxide during the heat treatment.

Table S1. Comparison of our sample performance with the previously reported iron oxide/carbon materials composites for supercapacitors.

Composition	Electrolyte	Capacitance ($F\ g^{-1}$)	Scan rate ($mV\ s^{-1}$)	Current density ($A\ g^{-1}$)	Reference
γ-Fe_2O_3/carbon	3.0 M KOH	551.5	2.0	---	This work
γ-Fe_2O_3/carbon	3.0 M KOH	415.0	---	2.0	This work
GO/iron oxide	3.0 M KOH	91.0	20.0	---	[S5]
N-rGO/Fe_2O_3	1.0 M KOH	268.4	---	2.0	[S1]
Fe_2O_3-graphene	2.0 M KOH	151.8	---	1.0	[S1]
Fe_2O_3-rGO	1.0 M Na_2SO_4	226.0	---	1.0	[S1]
GNS/Fe_2O_3	6.0 M KOH	320.0	---	10.0	[S1]
g-C_3N_4/α-Fe_2O_3	2.5 M Li_2SO_4	260.0	---	0.5	[S1]
GS/Fe_3O_4	1.0 M KOH	368.0	---	1.0	[S6]
GS/Fe_3O_4	1.0 M KOH	245.0	---	5.0	[S6]
Fe_3O_4/graphite	0.5 M Na_2SO_4	450.0	10.0	---	[S7]
Fe_3O_4/graphite	0.5 MNa_2SO_4	327.3	---	1.5	[S7]
Fe_2O_3/GA	0.5 M Na_2SO_4	81.3	---	1.0	[S8]
Fe_3O_4 sheets/rGO	6.0 M KOH	193.4	---	0.3	[S9]

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