Supporting information

Direct electrochemistry of glucose oxidase and biosensing for glucose based on graphene

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Figure S1

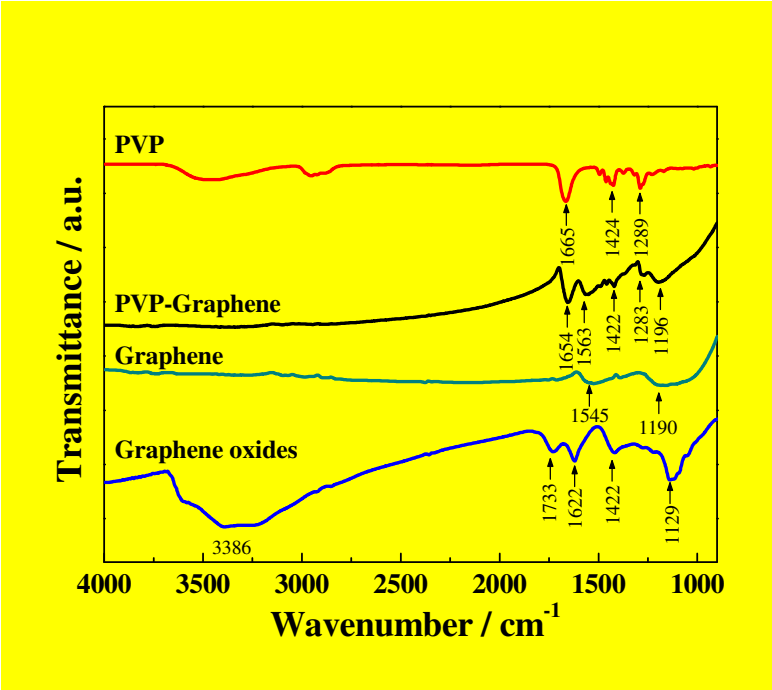

Figure 1. FTIR spectra of PVP, PVP-graphene, graphene and graphene oxides from up to down. The spectrum of graphite oxide showed the presence of O-H (ν_{O-H} at 3386 cm^{-1}), C=O ($\nu_{C=O}$ at 1733 cm^{-1} in carbonyl groups), C=C ($\nu_{C=C}$ at 1622 cm^{-1}) and C-O (ν_{C-O} at 1129 cm^{-1}). The spectra of graphene were essentially featureless except the C=C Conjugation (1545 cm^{-1}) and C-C bands (1190 cm^{-1}). In the spectra of PVP-protected graphene, The FTIR spectrum of PVP-protected graphene exhibited PVP absorption features at 1654 cm^{-1} (C=O), 1422 cm^{-1} (CH_2) and 1283 cm^{-1} (C-N).

Figure S2

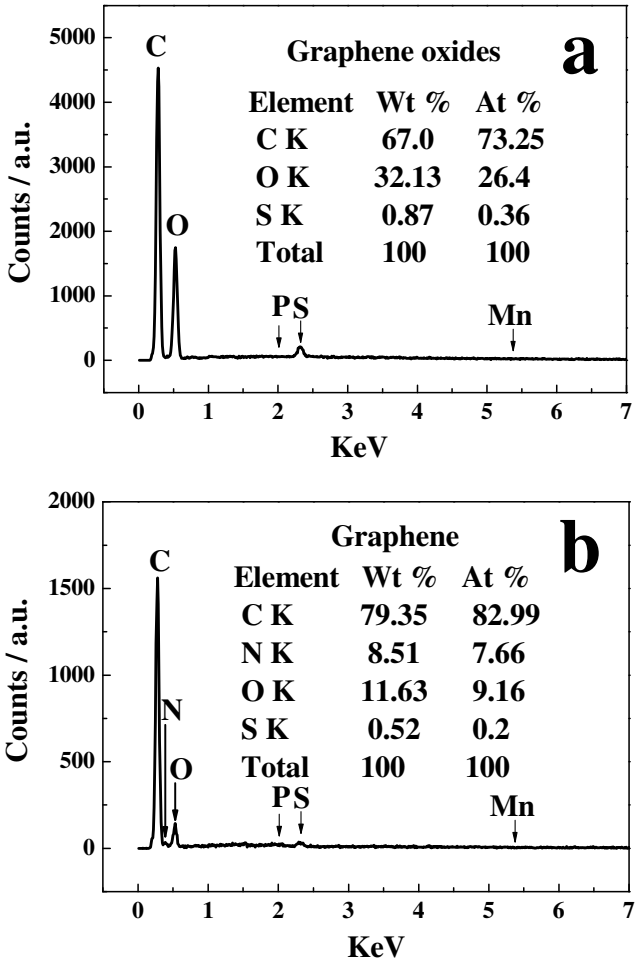

Figure S2. Energy dispersive X-ray (EDX) spectra of graphene oxides (a) and graphene (b). The main components of graphene oxidse are Carbon and Oxygen with a very small amount of sulfur (0.36 At%). The total content of Carbon and Oxygen in the graphene oxides is 99.65 At%. It indicates that the graphene oxides are highly pury. In addition, the content of Oxygen in graphene is much lower than that in the graphene oxides.

Figure S3

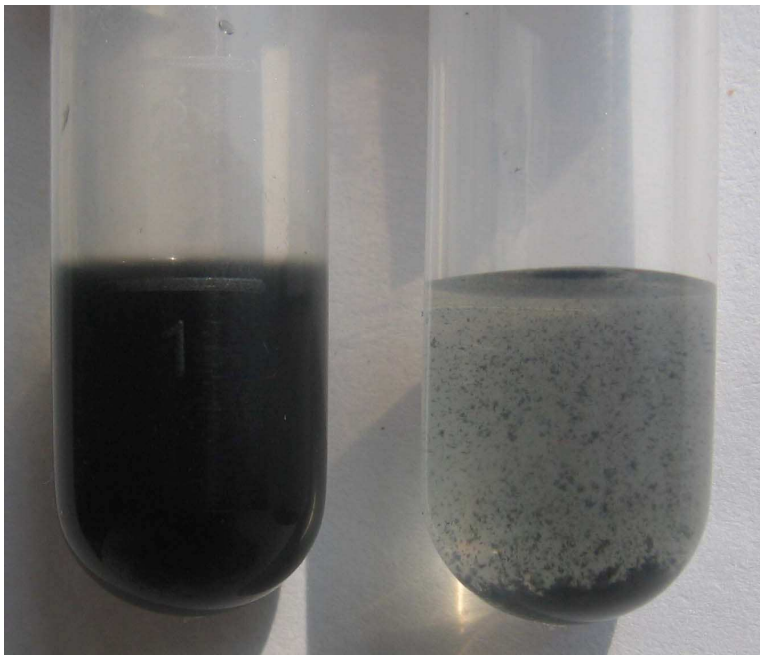

Figure S3 Photograph of PVP-protected graphene (left) and pure graphene (right) dispersed in water.