

**Electronic supplementary information**

**Preparation and characterization of a composite hydrogel with graphene oxide as an acid catalyst**

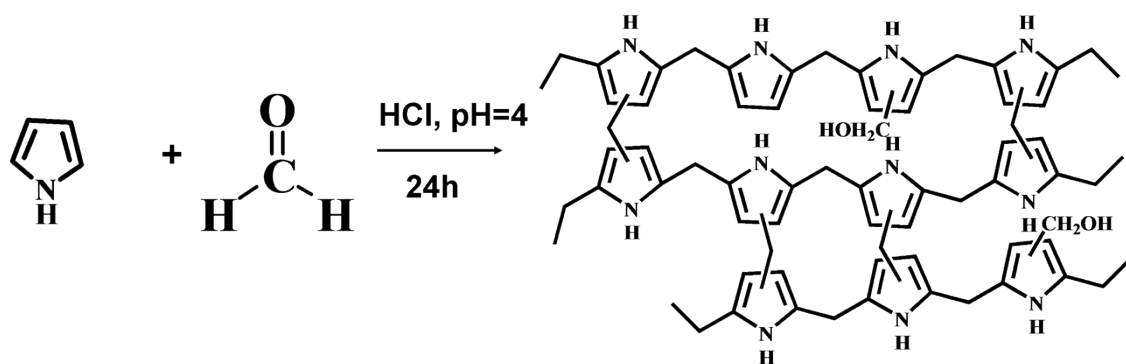
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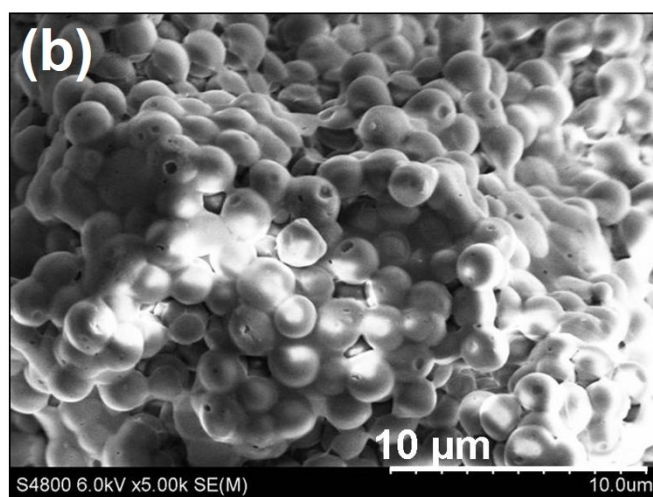
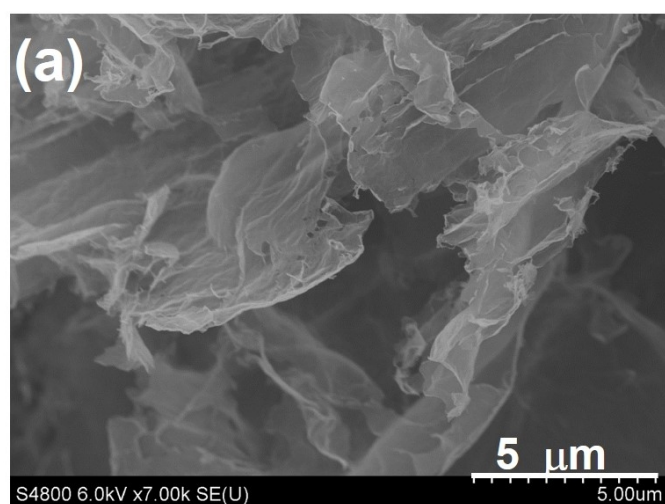
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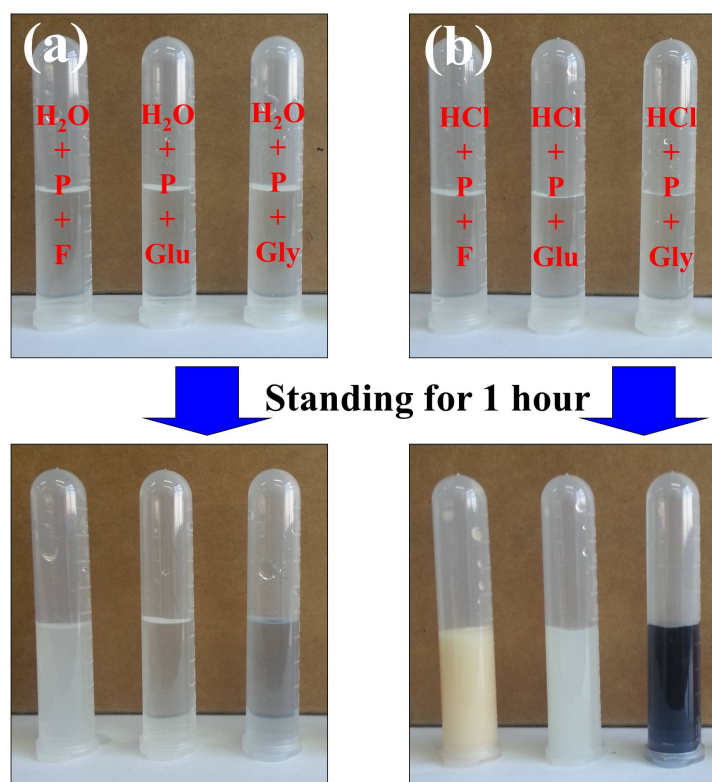
Tel: +86 10 6891 8591. E-mail: [zhangxtchina@yahoo.com](mailto:zhangxtchina@yahoo.com).



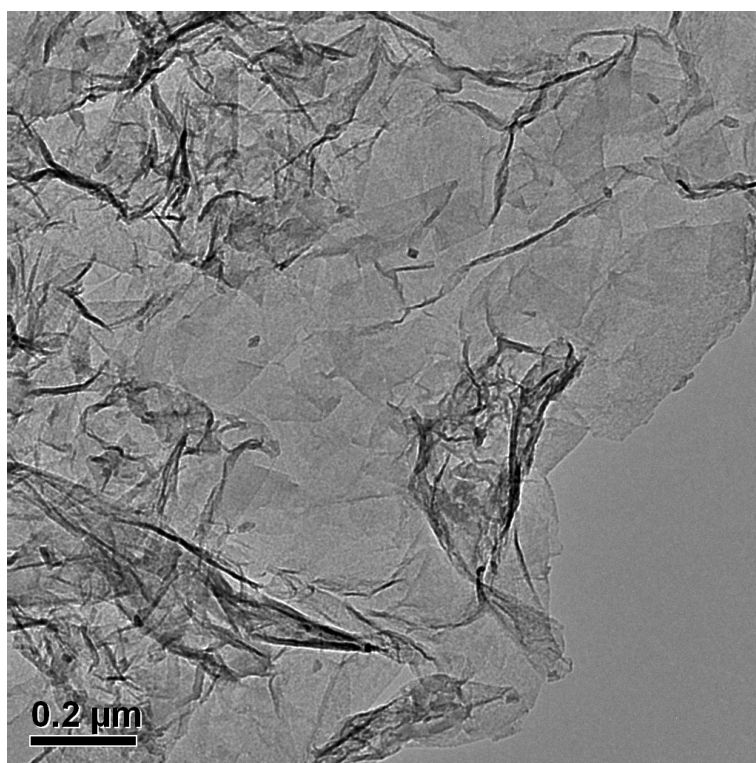
**Fig. S1** Formation mechanism of PF.



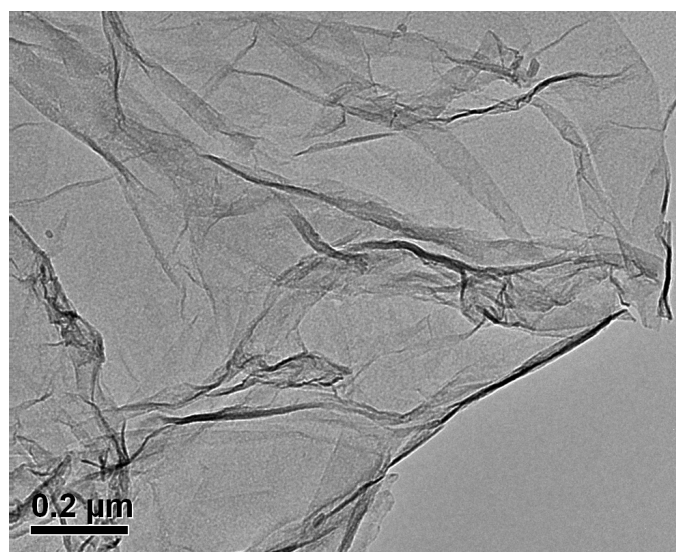
**Fig. S2** SEM image of GO (a) and PF (b).



**Fig. S3** Comparison of polymerization process of pyrrole and three different aldehydes in (a) water and (b) HCl (pH=4).



**Fig. S4** TEM image of GOP-1.



**Fig. S5** TEM image of GO.

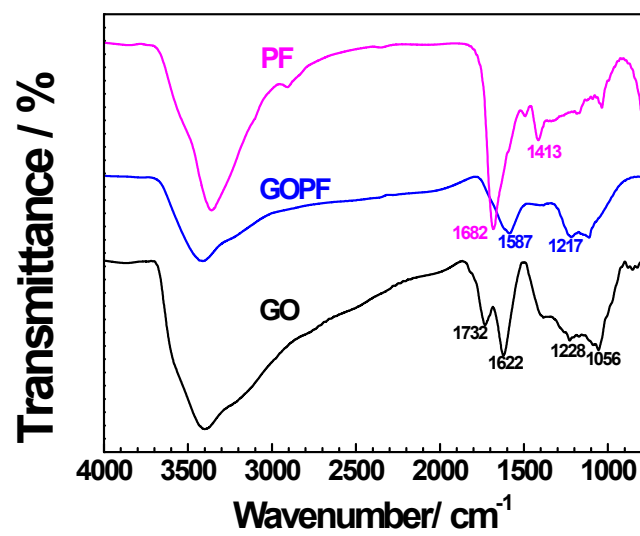


Fig. S6 IR spectra of GO, GOP-1, and PF.