

## SUPPORTING INFORMATION

### Gold nanoparticle-composite nanofibers for enzymatic electrochemical sensing of hydrogen peroxide

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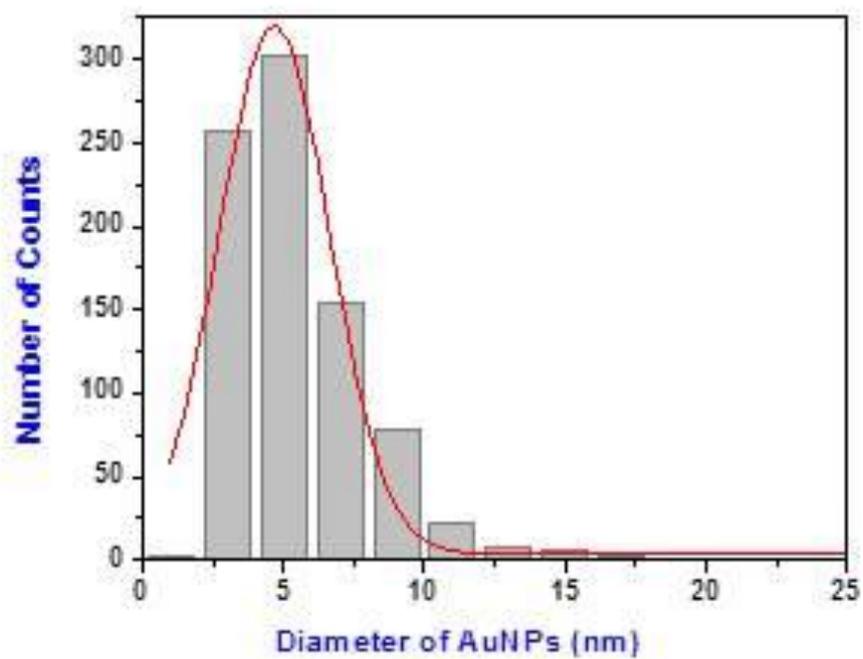
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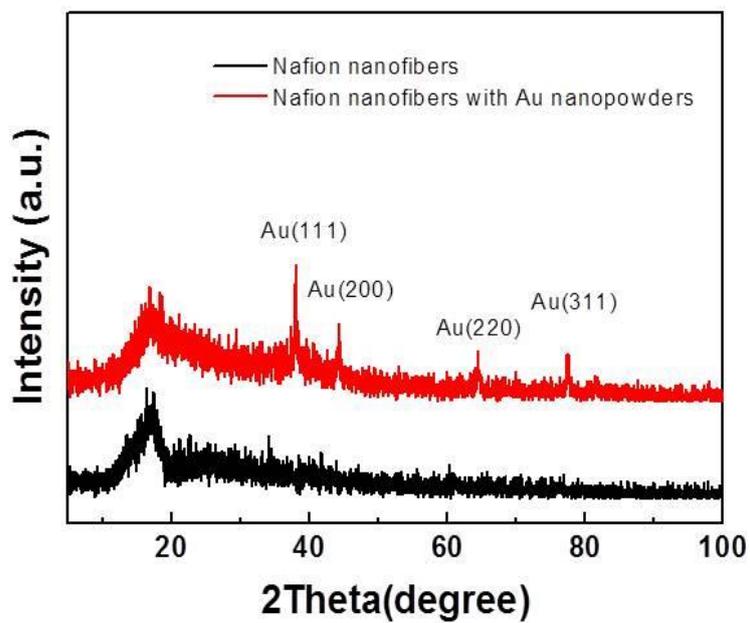
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**Fig. S1**



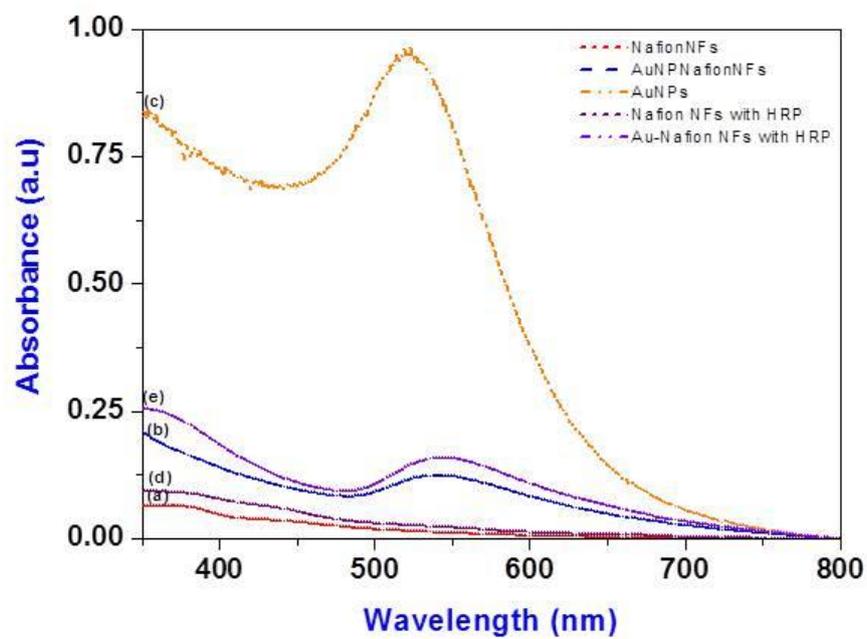
**Fig. S1:** Particle size distribution of DMAP-protected Au NPs in water.

**Fig. S2**



**Figure S2:** XRD patterns for Nafion NFs and Au NP-composite NFs.

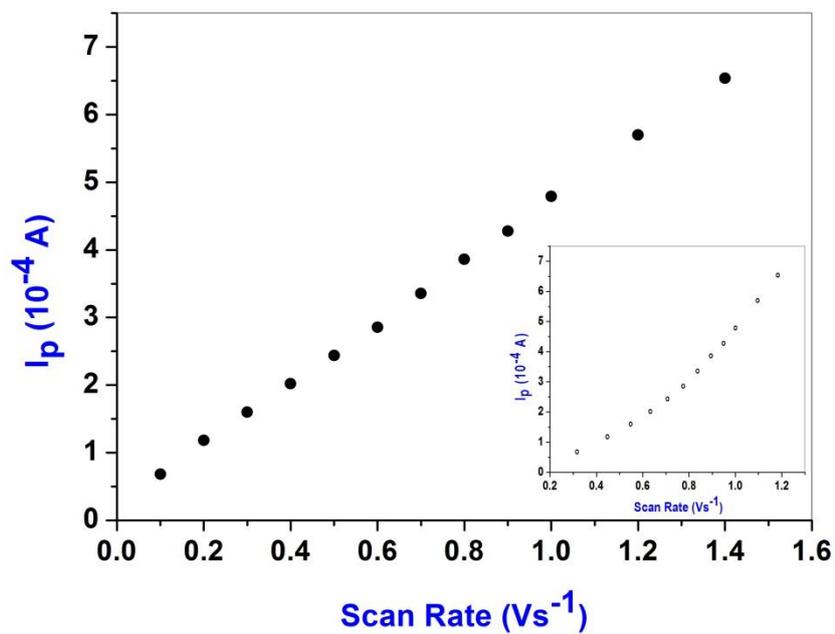
**Fig. S3**



**Figure S3:** UV-Vis-NIR spectra for (a) Nafion NFs, (b) Au NP-composite NFs, (c) DMAP-protected Au NPs, (d) Nafion NFs-HRP and (e) Au NP-composite NFs-HRP.

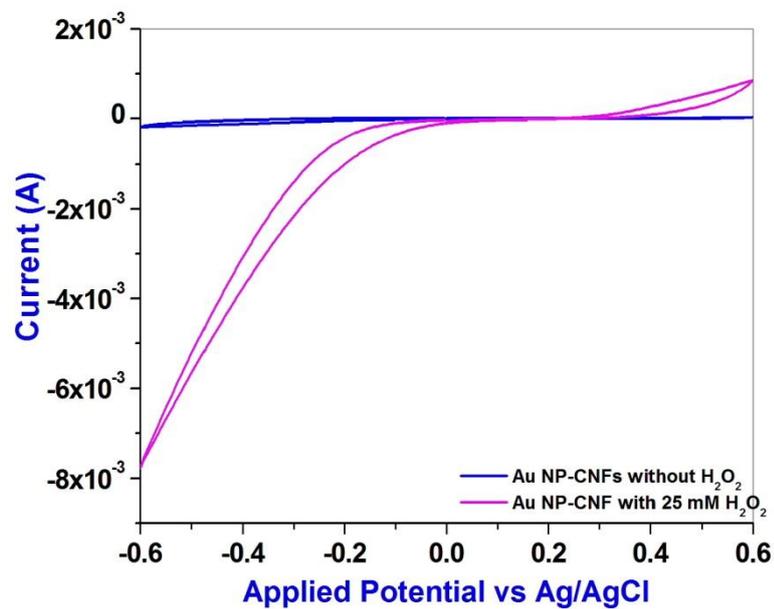


**Fig. S4**



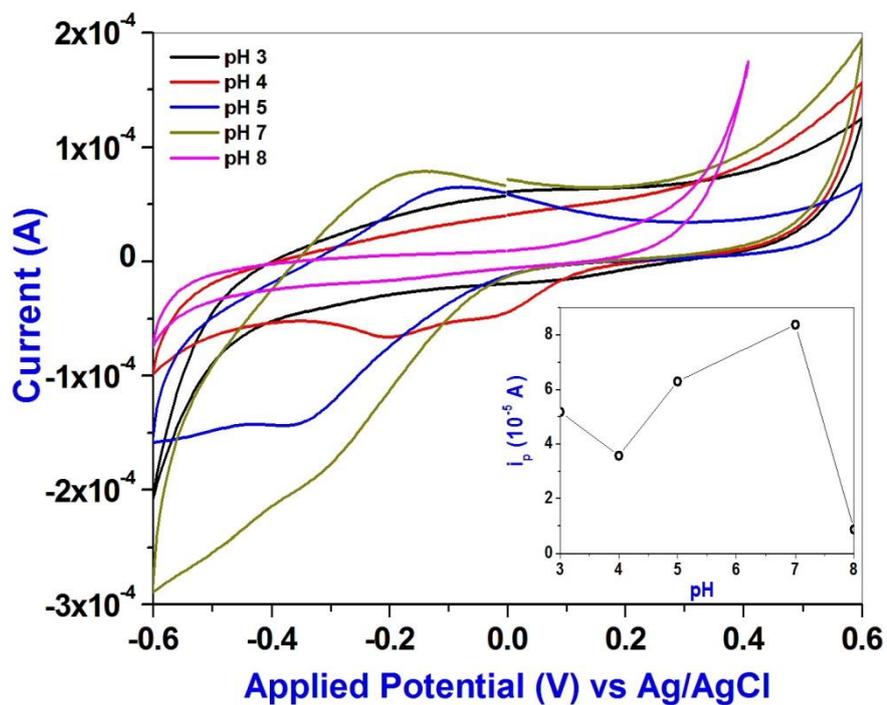
**Figure S4.** Linear dependency between the peak current and the scan rate on the Nafion NFs/HRP electrode. Inset shows the variation of the peak current with the square root of scan rate.

**Fig. S5**



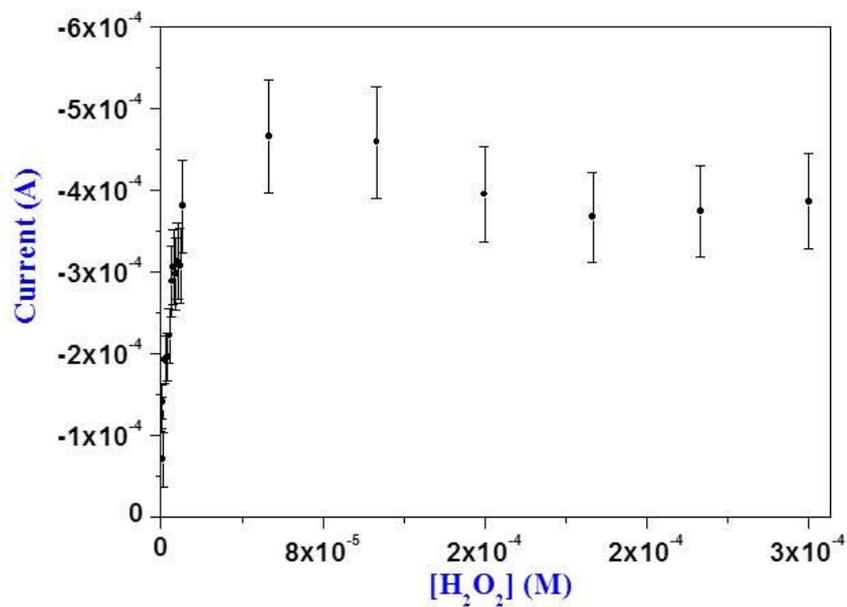
**Figure S5.** Voltammetric response of the Au NP-composite NFs (HRP-free electrodes) in the presence and absence of 25 mM H<sub>2</sub>O<sub>2</sub>.

**Fig. S6**



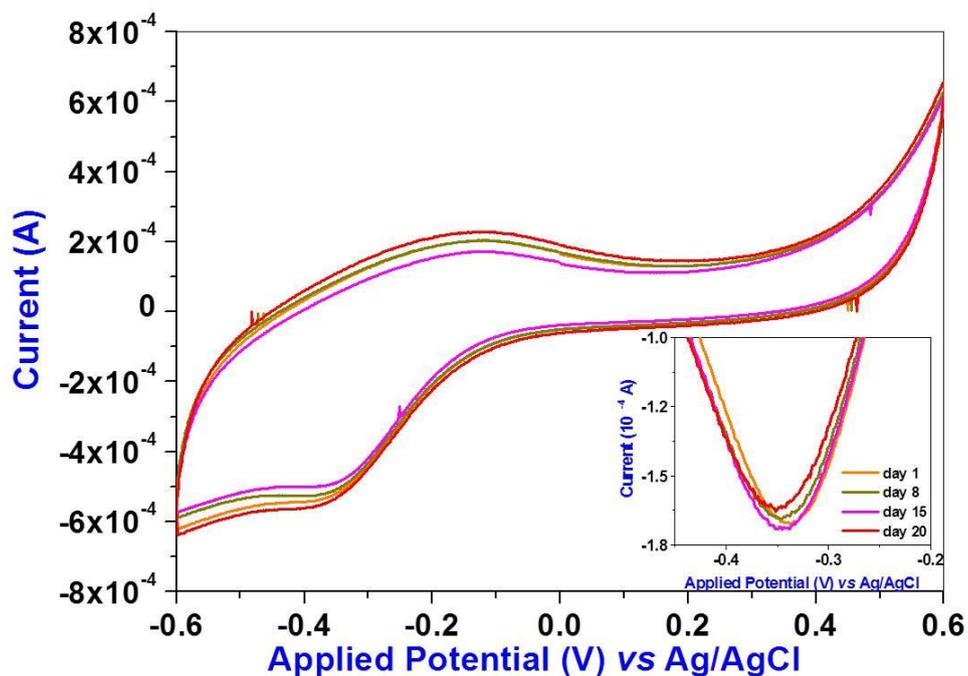
**Figure S6:** Dependence of pH on the peak currents obtained from cyclic voltammogram of HRP immobilized Au NP-composite nanofibers. The current response to 0.01 mM  $\text{H}_2\text{O}_2$  was performed at different pH levels (from pH 3 to pH 8).

**Fig. S7**



**Figure S7:** Response of steady state current with  $[H_2O_2]$  for the electrodes modified with Nafion NFs/HRP.

**Fig. S8**



**Figure S8:** Stability of Au NP-composite NFs towards 0.05 mM  $\text{H}_2\text{O}_2$ . The electrodes were stored at 4° C over three weeks and used for the analysis at different time points.