Electronic Supplementary Information [S]

Deposition of Ni-NiO nanoparticles on the reduced graphene oxide filled polypyrrole: Evaluation as cathode catalyst in microbial fuel cells

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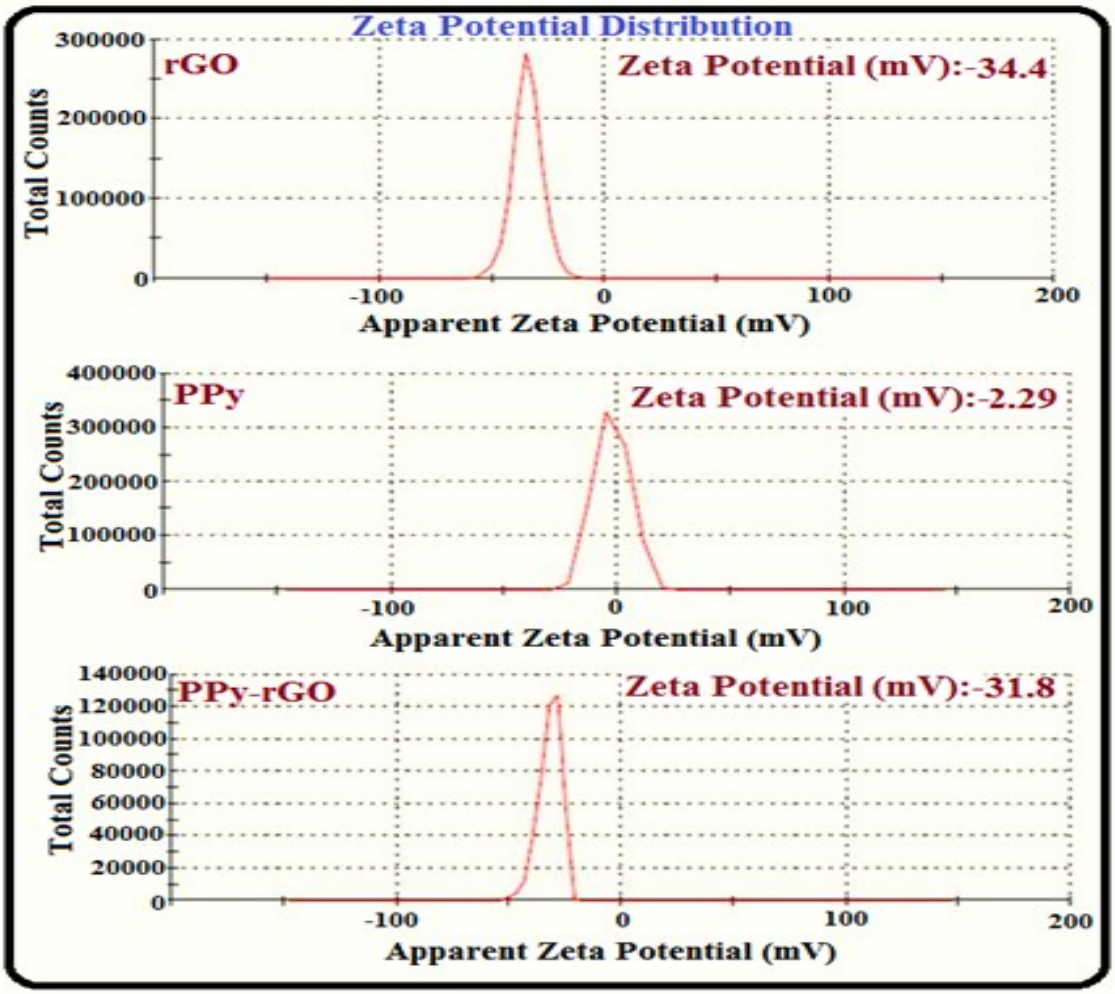
Figure Caption

1. **Fig. S_1.** Zeta potential of rGO, PPy, PPy-rGO.
2. **Fig. S_2.** (A) SEM of untreated carbon cloth; (B) carbon cloth anode electrode after bacterial treated for 1 month (C) Biofilm formation and micro-porous on CC electrode for 1 month in MFC.

Table Caption

1. Table S1. Cost comparison of different cathode catalysts in a microbial fuel cell



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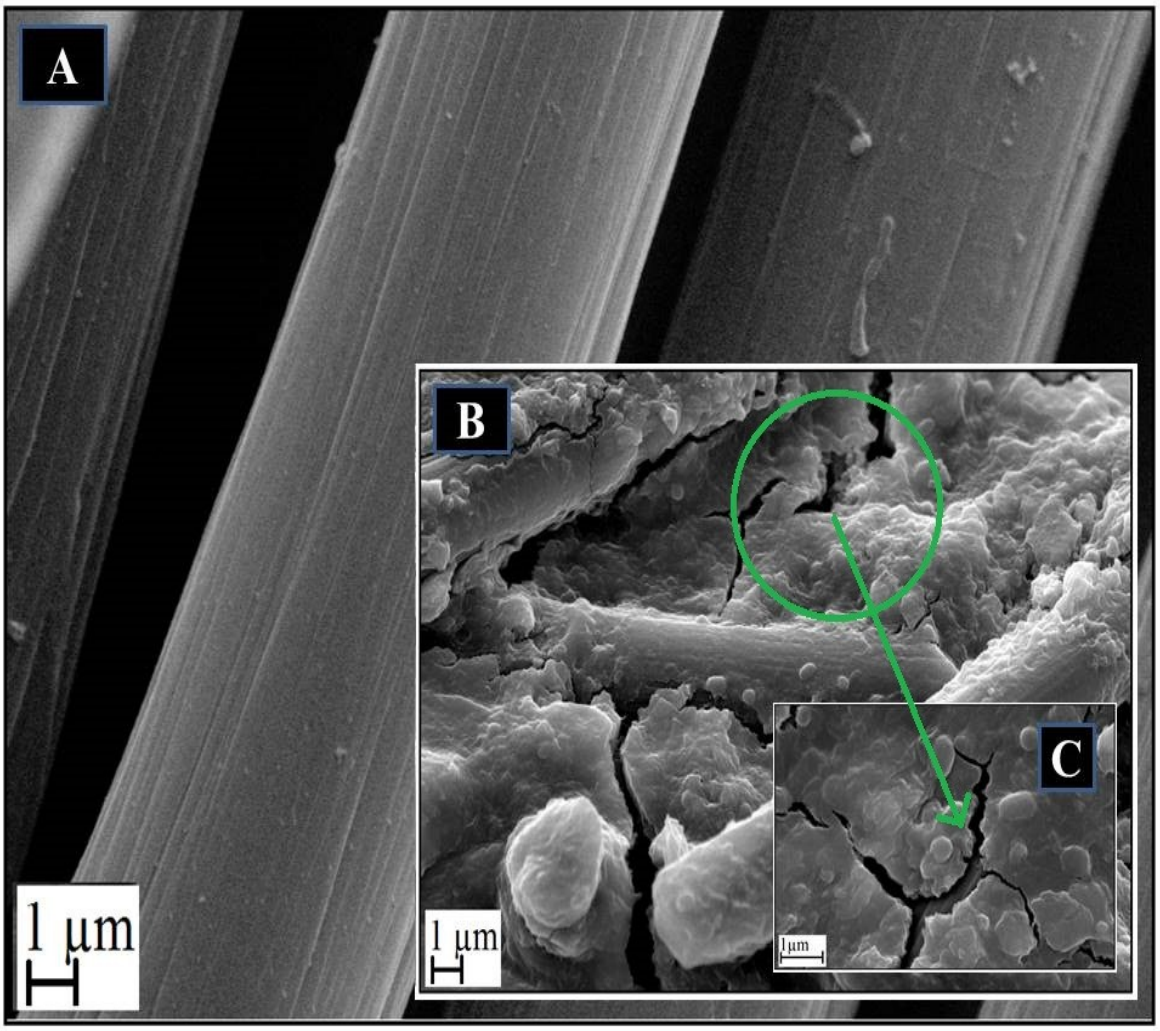

Fig. S_2. (A) SEM of untreated carbon cloth; (B) carbon cloth anode electrode after bacterial treated for 1 month (C) Biofilm formation and micro-porous on CC electrode for 1 month in MFC.

Table S_1. Cost comparison of different cathode catalysts in a microbial fuel cell

Different cathode catalysts	**Commercial catalyst (wt%)**	**Cost ($)/g of commercial catalyst (Pt/C)**	**Cost ($)/g of Synthesis catalyst**	**Reference**
Ni-NiO/PPy-rGO	Pt on carbon (10 wt%)	~27.76-35 US$/g	~0.5 US$/g	**Present work**
Fe–N–C	Pt/C (50 wt%)	~150 US$ g-1	3.3–3.5 US$ g-1	Energy & Environmental Science 9, no. 7 (2016): 2346-2353
NiO/CNT	Pt(10 wt%)	42 $/g	0.3 $/g	Biosensors and Bioelectronics 72 (2015) 332–339
C(N)/MnOx-SP	Pt/C	25€g-1	2 $€g^{-1}$	Journal of Power Sources 390 (2018) 45-53
RGOHI-AcOH-DL	10% Pt on Vulcan XC-72	2100 US$/$m^2$	100 US$/$m^2$	Journal of Power Sources 327 (2016) 548-556

Mn–Co oxide	Pt/C	0.0447 $/cm^2	0.0058 $/cm^2	Bioresource Technology 102 (2011) 10459–10464
rGO-V_2O_5 nanocomposite	10% Pt on Vulcan XC-72	850 USD/m^2	125 USD/m^2	Dalton Transactions, 47(2018), 16777-16788