

Supplementary information

Template-free synthesis of a multilayer manganese oxide/graphene oxide nanoflake-modified carbon felt as an anode material for microbial fuel cells

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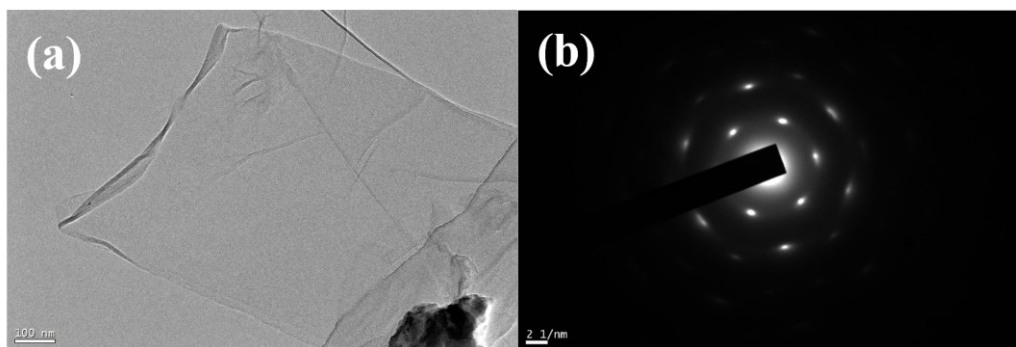


Fig. S1 TEM image (a) and SAED (b) of GO.

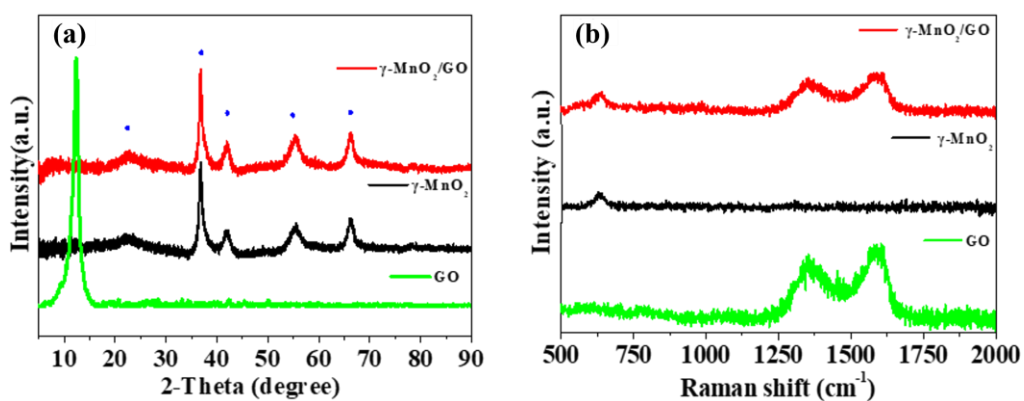


Fig. S2 XRD patterns (a), Raman spectra (b) of GO, pure γ -MnO₂ and γ -MnO₂/GO composite.

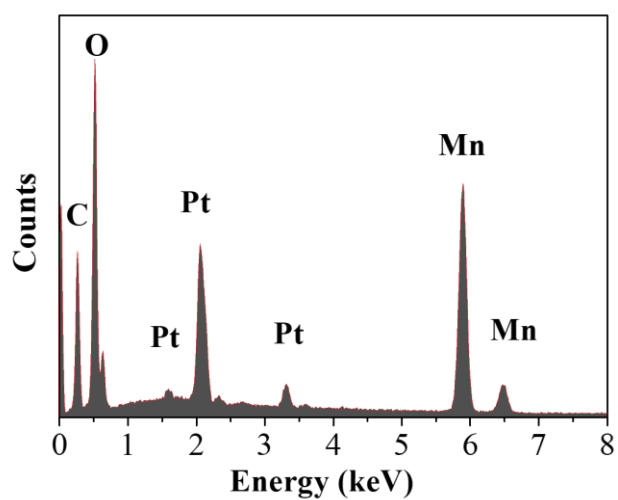


Fig. S3 Energy dispersive spectra analysis of γ -MnO₂/GO composite.

Table.S1 Summary of the MFC performance with different anode materials in the literatures

anode	Inoculum	P_{\max} (mW m ⁻²)	Reference
PANI+G+CC	Mixed culture	884 ± 96	[5]
CSE	Mixed culture	759 ± 38	[8]
thornless CSE	Mixed culture	425 ± 21	[8]
brush	Mixed culture	830 ± 42	[8]
Mo ₂ C/CCT	Mixed culture	1120	[11]
LSC	Mixed culture	701 ± 44	[12]
NCP/LSC	Mixed culture	1090 ± 72	[12]
graphite plate	Mixed culture	383 ± 21	[12]
reticulated vitreous carbon	Mixed culture	650 ± 33	[12]
graphene-coated sponge	Mixed culture	612 ± 39	[12]
NC@CCT	Mixed culture	931 ± 61	[13]
Ni _{0.1} Mn _{0.9} O _{1.45} /CF	Mixed culture	1390 ± 20	[14]
γ -MnO ₂ /GO/CF	Mixed culture	1130 ± 90	This work

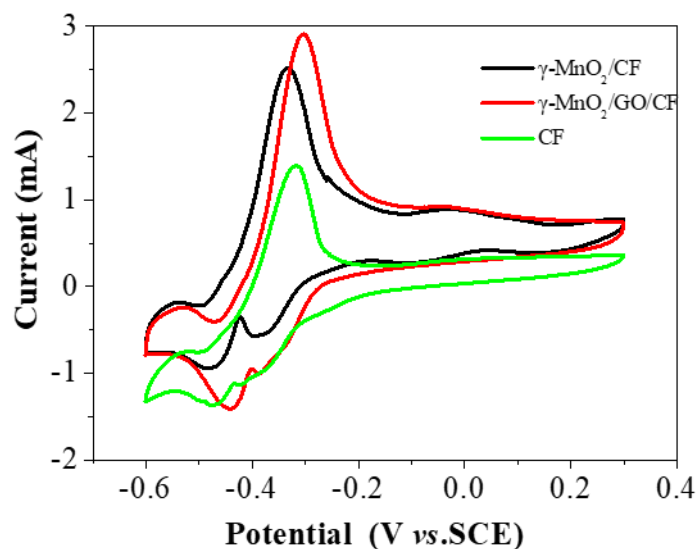


Fig. S4 Cyclic voltammograms for the γ -MnO₂/CF, γ -MnO₂/GO/CF and CF electrodes after inoculation under unturnover conditions (scan rate 5mV s⁻¹).

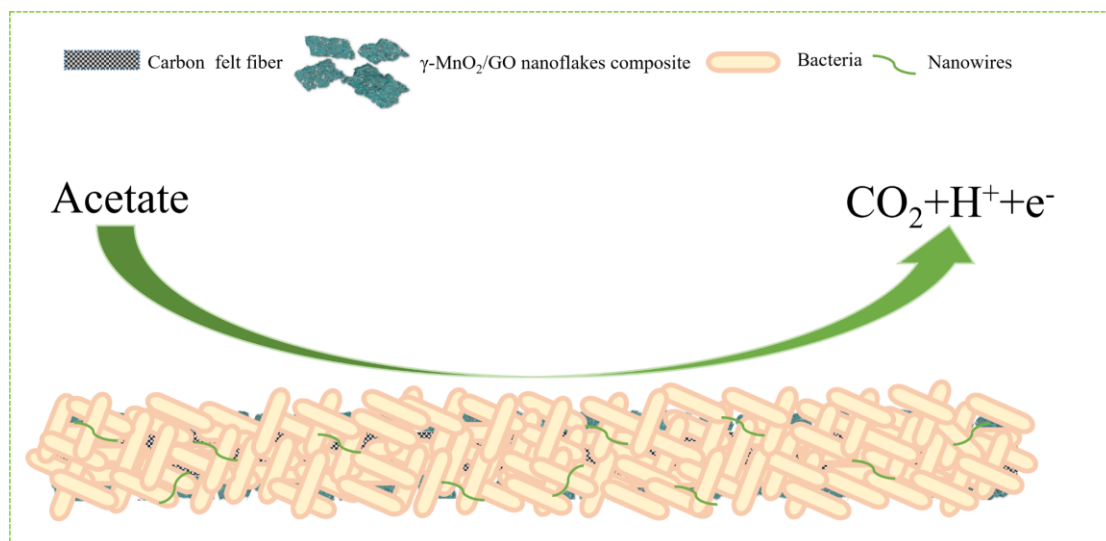


Fig. S5 Schematic electron-transfer mechanisms of γ -MnO₂/GO/CF electrode.