Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

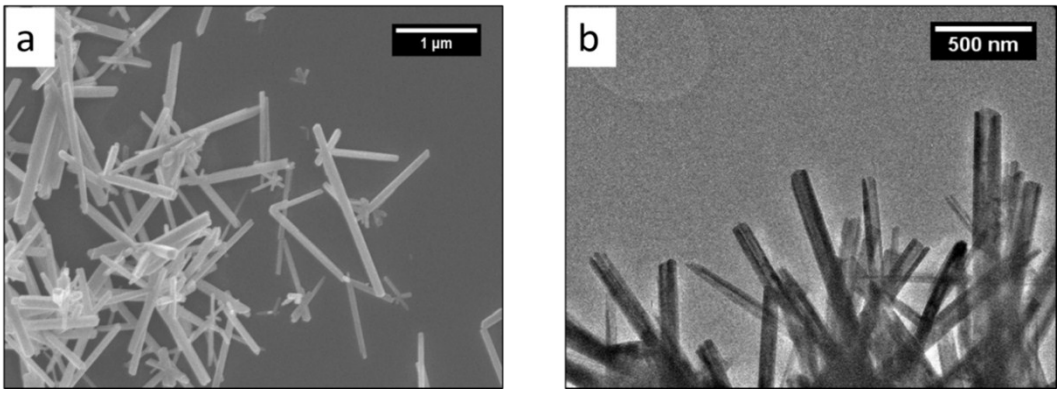

Figure S1 a) SEM image of MnO_2 nanotubes, b) TEM image of MnO_2 nanotubes

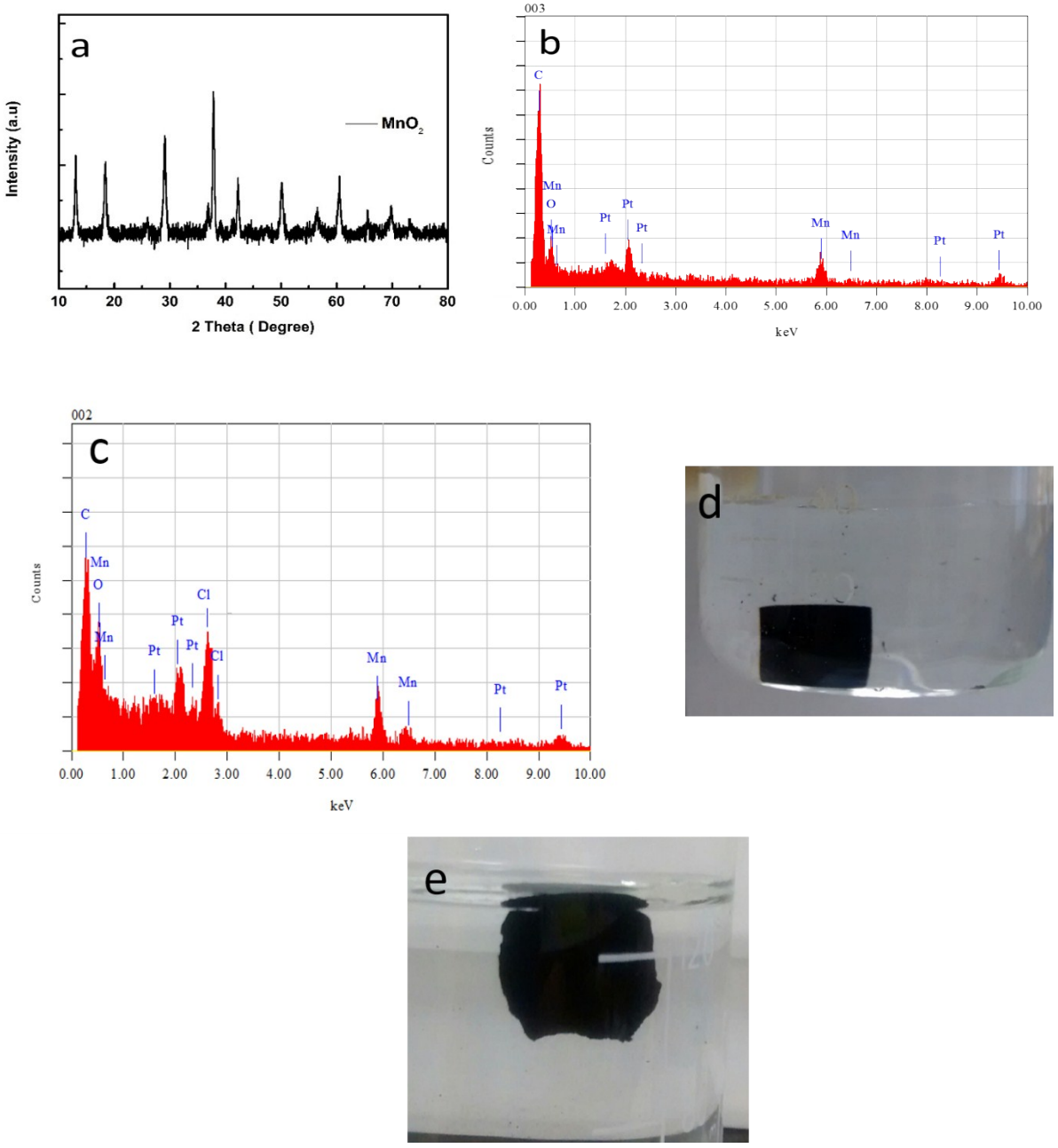

Figure S2 a) XRD analysis plot of the pre-synthesised MnO_2, b) EDX spectra of PGM, c) EDX spectra of PGM- HCl, d) A PGM-HCl hydrogel, e) A PGM hydrogel

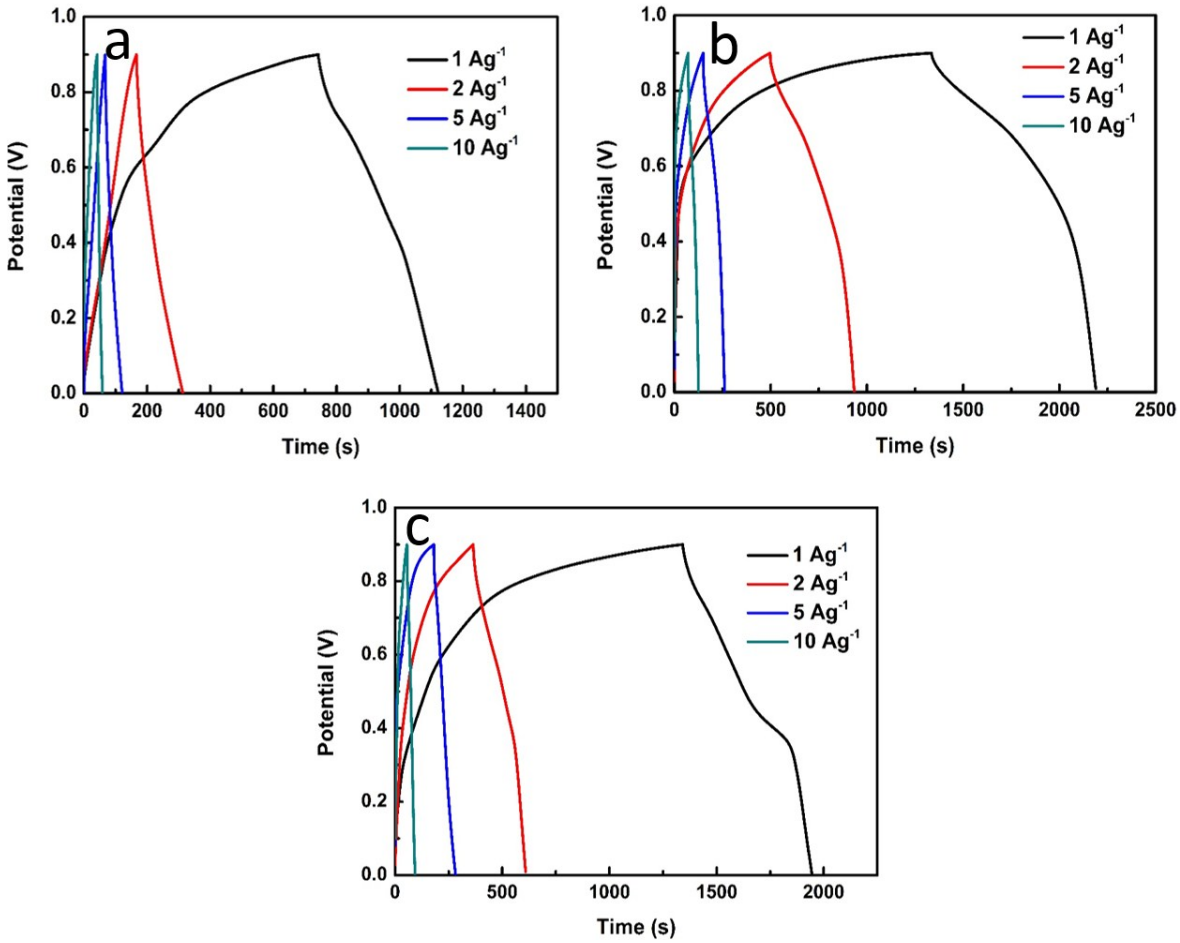

Figure S3 Charge Discharge plots at different current densities of a) PGM, b) PGM-HCl, c) PGM-HCl-2

Table S1: Comparison of our samples with the existing composites of Graphene/PANI/Mn_3O_4 orMnO_2

Reported By	Composite	Specific Capacitance	Binders used for electrode preparation	Capacitance retention
Our study	PGM-HCl	955 Fg^{-1} at 1 Ag^{-1}	No	89% after 1000 cycles
	PGM-HCl-2	676.66 Fg^{-1} at 1 Ag^{-1}		98% after 1000 cycles
	PGM	426 Fg^{-1} at 1 Ag^{-1}		86% after 1000 cycles
Wang et al [1]	Sulfonated Graphene/MnO_2/PANI	276 Fg^{-1} at 1 Ag^{-1}	Yes	88.3% after 3000 cycles
Yu et al [2]	Graphene/MnO_2/PANI (on 2D- graphene sheets)	755 Fg^{-1} at 0.5 Ag^{-1}	Yes	87% after 1000 cycles
Ge et al[3]	Graphene/MnO_2	450 Fg^{-1} at 2 mV s^{-1}	No	90% after 10000 cycles
Zhou et al [4]	Graphene/MnO_2 films	446 Fg^{-1} at 5 mVs^{-1}	Yes	96% after 1000 cycles
Rakhi et al [5]	CNT/Graphene/MnO_2	308 Fg^{-1} at 20 mVs^{-1}	Yes	90% after 5000 cycles
Yu et al [6]	3D Graphene network/PANI	751.3 Fg^{-1} at 1 Ag^{-1}	No	93.2% after 1000 cycles
Zhou et al [7]	Graphene/PANI	250 Fg^{-1} at 0.5 Ag^{-1}	Yes	73.7% after 1000 cycles
Wu et al [8]	Graphene/Mn_3O_4	271.5 Fg^{-1} at 0.1 Ag^{-1}	Yes	100% after 20000 cycles
Raj et al [9]	Graphene/Mn_3O_4	312 Fg^{-1} at 0.5 mA cm^{-2}	Yes	76% after 1000 cycles

References

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