

MnO₂ Doped Polyaniline Grafted Rice Husk Ash Nanocomposites and their Electrochemical Capacitor Applications

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Supporting Information:

The raw rice husk as contains following elements such as silica, carbon, potassium, calcium, Magnesium, Aluminium, Iron, Chlorine, Phosphorous, etc., Figure S1a. However, treating with burning, washing, calcinations and again leaching with acids are resulted in the purest form of silica as illustrated in the Figure S1b. Additionally, the composition of Polyaniline grafted rice husk ash (PANI/RHA) and MnO₂ doped polyaniline grafted rice husk ash (PANI/MnO₂/RHA) are shown in the Figure S2a and S2b respectively. The respective composition of the elements of the raw rice husk, the treated rice husk ash (RHA), Polyaniline grafted rice husk ash (PANI/RHA) and MnO₂ doped polyaniline grafted rice husk ash (PANI/MnO₂/RHA) are listed in the Table S3.

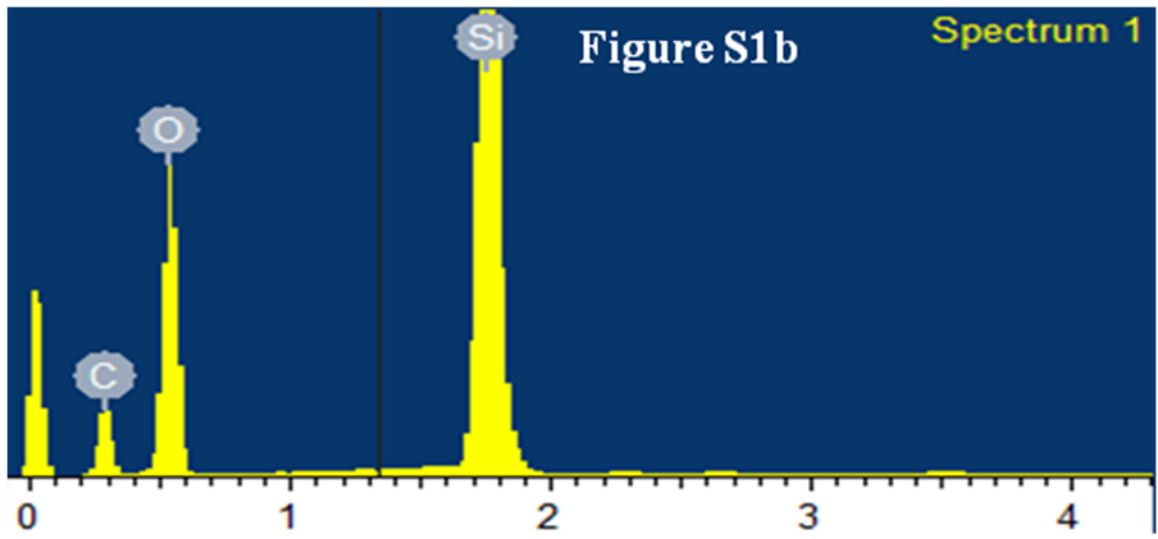
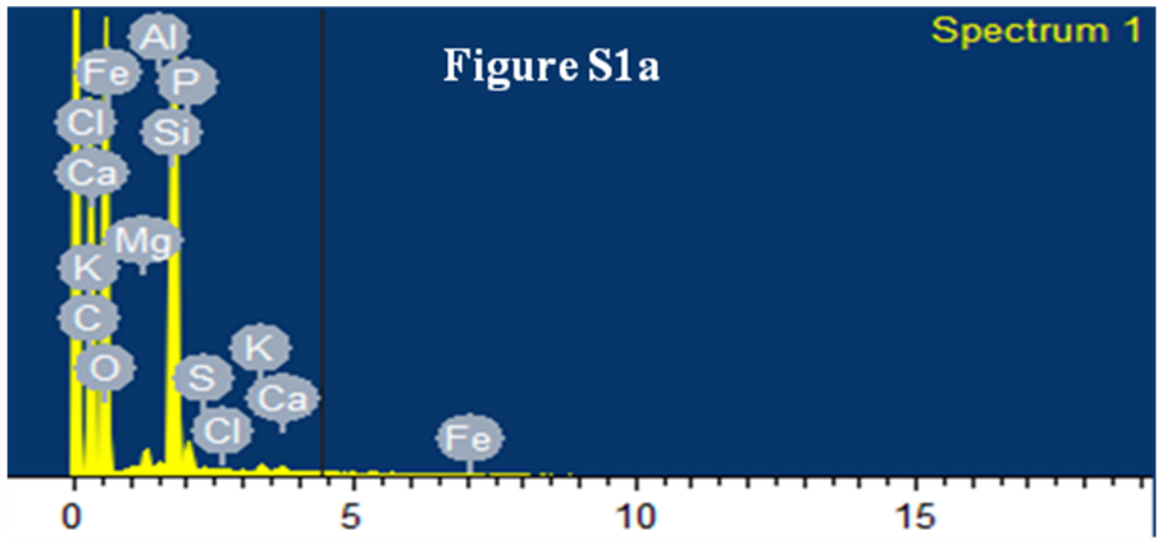


Figure S1a-b illustrates the EDAX profile of raw rice husk and rice husk ash (RHA)

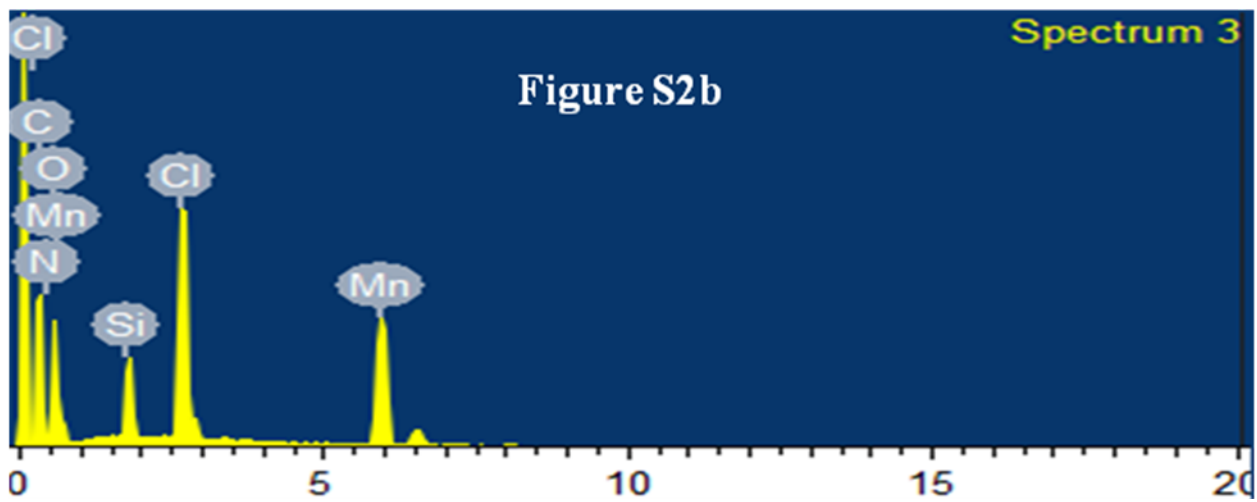
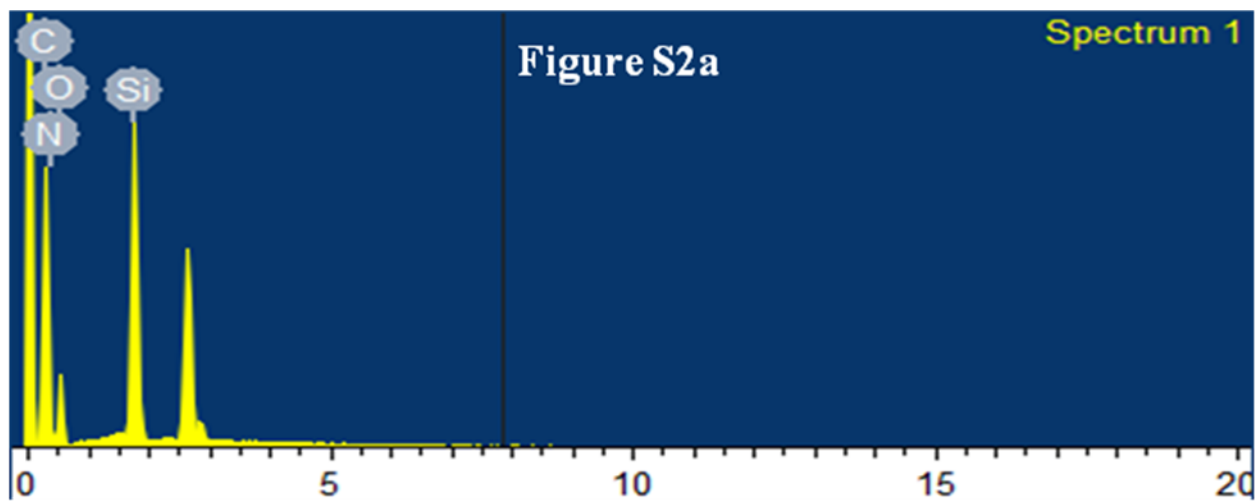


Figure S1a-b illustrates the EDAX profile of PANI/RHA and PANI/MnO₂/RHA

Table S3 Composition of elements present in the RHA, PANI/RHA and PANI/MnO₂/RHA

Raw Rice husk (Before treatment)		Rice husk ash (RHA) (After treatment)		PANI/RHA		PANI/MnO₂/RHA	
Elements	Wt (%)	Elements	Wt (%)	Elements	Wt (%)	Elements	Wt (%)
C	46.85	C	25.79	C	57.27	C	36.99
O	45.04	O	50.72	N	9.26	O	6.35
Mg	0.35	Si	23.49	O	23.52	Si	30.36
Al	0.05			Si	9.95	N	3.71
Si	6.67					Mn	22.59
P	0.58						
S	0.06						
Cl	0.04						
K	0.19						
Ca	0.11						
Fe	0.04						

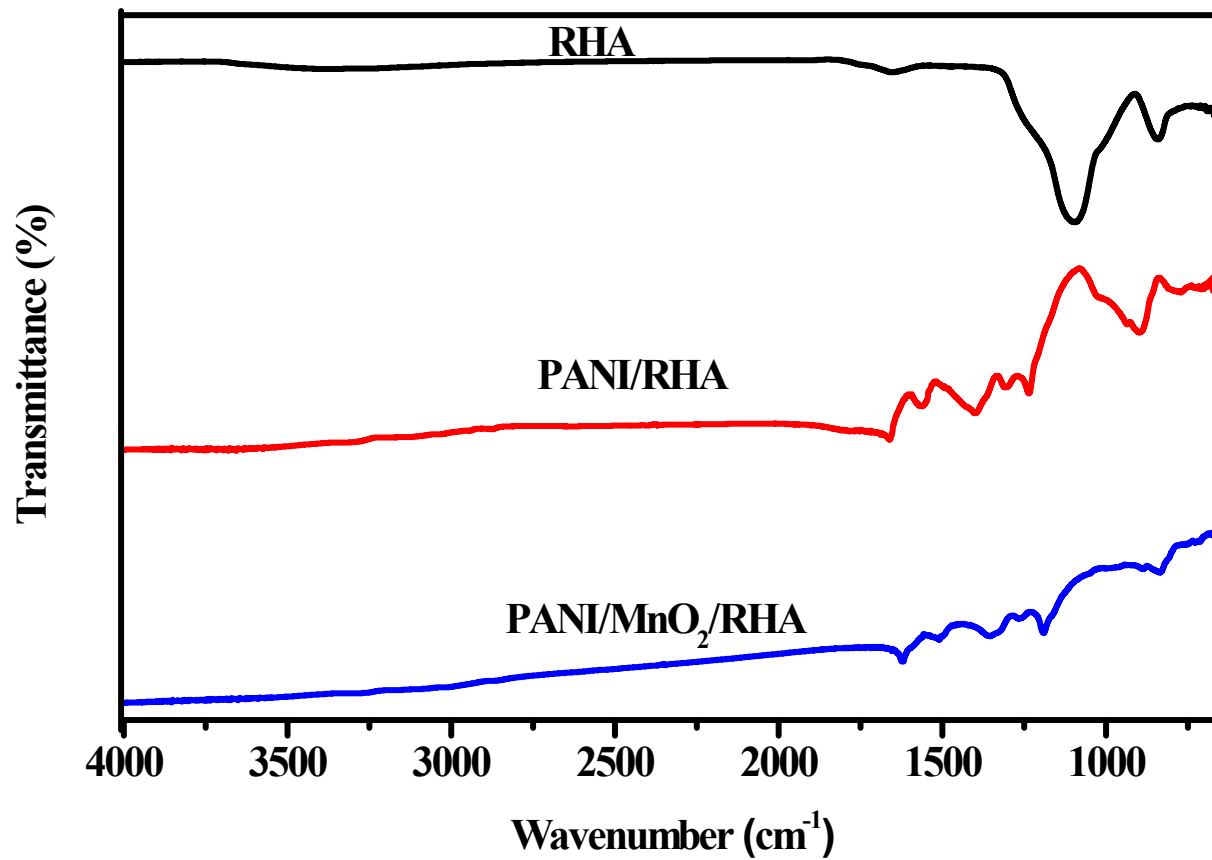


Figure S4, AT-IR spectra rice husk ash, (RHA), Polyaniline grafted rice husk ash (PANI/RHA) and MnO₂ doped polyaniline grafted rice husk ash (PANI/MnO₂/RHA)

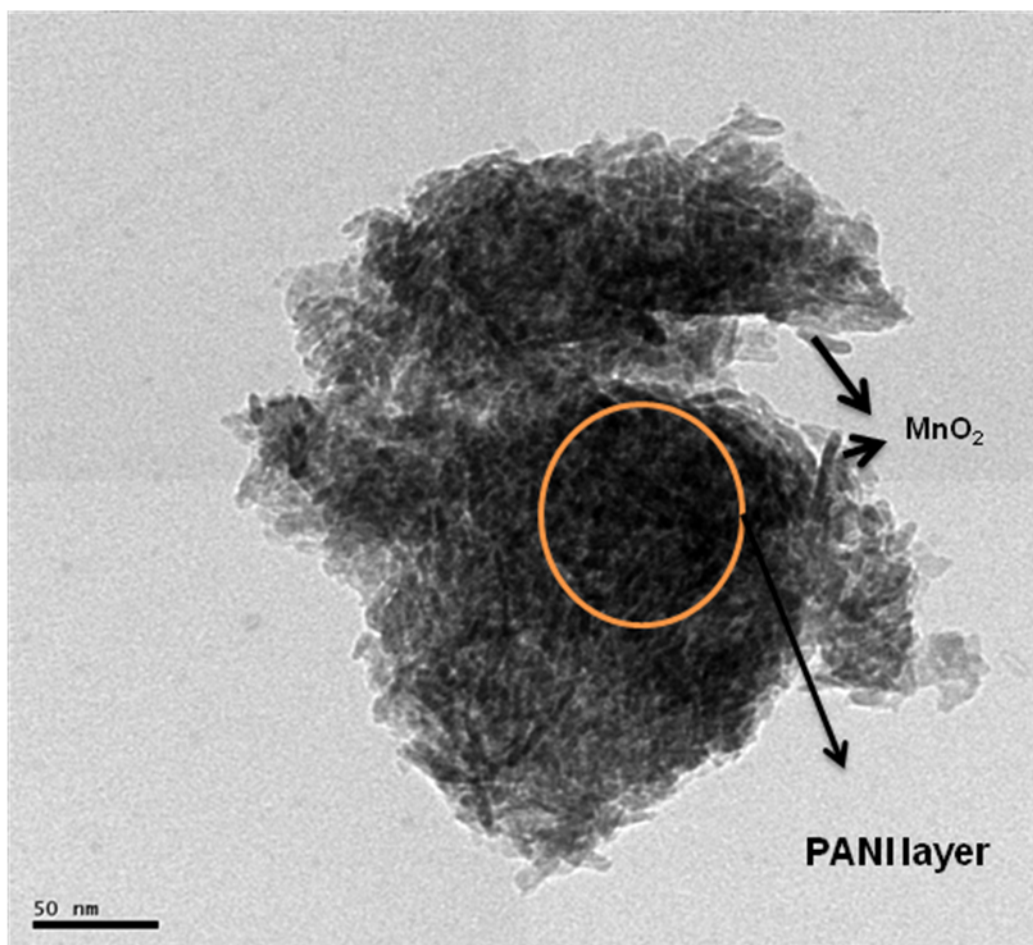


Figure S5, HR-TEM image of MnO₂ doped polyaniline grafted rice husk ash (PANI/MnO₂/RHA)