

Electronic Supplementary Information (ESI)

***Bio-Inspired Green Surface Functionalization of PMMA for
Multifunctional Capacitors***

Characterization

Characterizations of the pristine PMMA and PDOPA@PMMA samples were done using FTIR, Raman, TGA; XRD.

The FTIR spectra of PMMA and PDOPA@PMMA samples were recorded on a Nicolet 460 FTIR spectrometer (Madison, WI).

Raman spectra were recorded with a Thermo Almega spectrometer supplied by Thermo Scientific (West Palm Beach, FL), with a 532 nm laser, a 50 μm aperture, and a grating with 2400 lines/mm. A notch filter cut off most scattered intensity below 100 cm^{-1} .

Thermal stability of the samples was studied using thermogravimetric analysis performed on a TA Instruments Q50 thermobalance in nitrogen atmosphere at a heating rate of $20\text{ }^\circ\text{C}/\text{min}$.

X-ray diffraction study was carried out in APEX II instrument from Bruker AXS (Madison, WI)

The changes in the surface morphology of the pristine PMMA after functionalization/deposition with polydopamine were also studied by SEM. Figure S1 (a, b) shows the SEM images of the pristine PMMA and PDOPA@PMMA. The SEM image shows that the polydopamine has formed a distinctive layer on the pristine PMMA. Thus morphological study further supports the FTIR, Raman, TGA and XRD results.

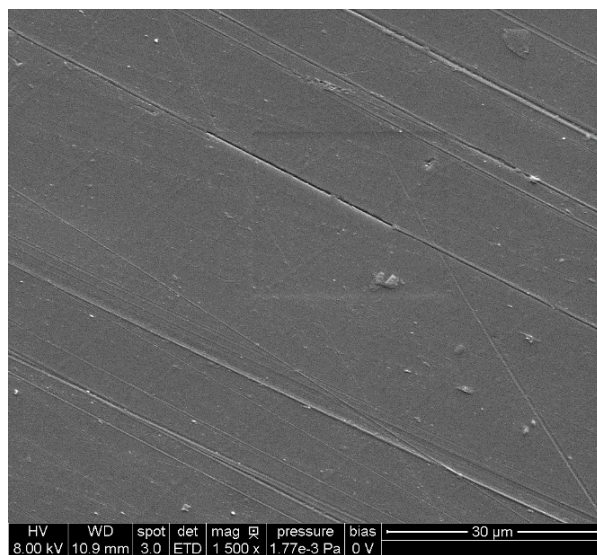


Figure S1 (a) SEM image of pristine PMMA

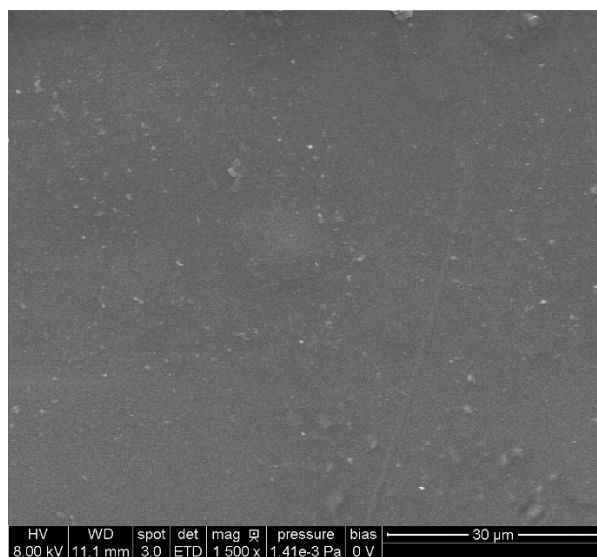


Figure S1 (b) SEM image of PDOPA@PMMA