**Abstract**

A newer of FePO4 electrode material have synthesized through facile combustion method for the fabrication of aqueous type hybrid supercapacitors. The phase purity, homogeneity and the functional groups present in the synthesized FePO4 are characterized through X-ray diffraction and FTIR measurements. Field emission scanning electron microscopy (FESEM) images show that there is a uniform and spherical shaped nano particles present in the electrode material. The electrochemical properties of the FePO4 electrode are studied in various alkaline aqueous electrolytes to explore their superior electrochemical performances. Among these aqueous electrolytes, the FePO4 electrode provides a maximum specific capacitance of 400 F g-1 in 1 M NaOH at 2 mV s-1 and also retained about 93% of the initial capacitance value even after 5000 cycles at a current density of 1 mA cm-2. These results suggest that the synthesized sample has higher potential as a newer electrode material for hybrid supercapacitors. By employing FePO4 as a negative electrode in hybrid supercapacitor configuration of FePO4║Co3O4, it exploits an outstanding electrochemical with an enhanced energy density of 18 W h kg−1 at an improved power density of 443 W kg−1 and protracted cyclic stability for about 5000 cycles.