Abstract

The present work describes the synthesis of complexes derived from 5-sulfoisophathalic acid with Cobalt. The coordination behavior of 5-sulfoisophathalic acid and geometry of the metal was studied under various conditions like sonication and stirring reaction method. FT-IR spectroscopic analysis also supports the binding of ligand with metal. In developing superior energy storage devices, an integrated approach has been used to enhance the desirable features of both batteries and super capacitors, particularly their high energy density, and high-power density. In this context the Metal–Organic Frameworks (MOFs), consisting of metal centers and organic linkers, have emerged as highly trending materials for energy storage by virtue of their high porosity and electrochemical properties. Here, we investigate the electrochemical performance of (MOF-199) and complex SB 31. In the Potentiostat setup involving the analysis of MOF-199 and SB-31 materials, a configuration comprising three electrodes was utilized. Retaining efficient reversible capacity of device showcased impressive energy and power density of 0.76 W h kg^{-1} and 136.8 W kg^{-1}, respectively.