Electronic Supplementary Informations

Ultrasmall NiO nanoclusters modified with conical Ni (II) – SR staples for high performance supercapacitor applications

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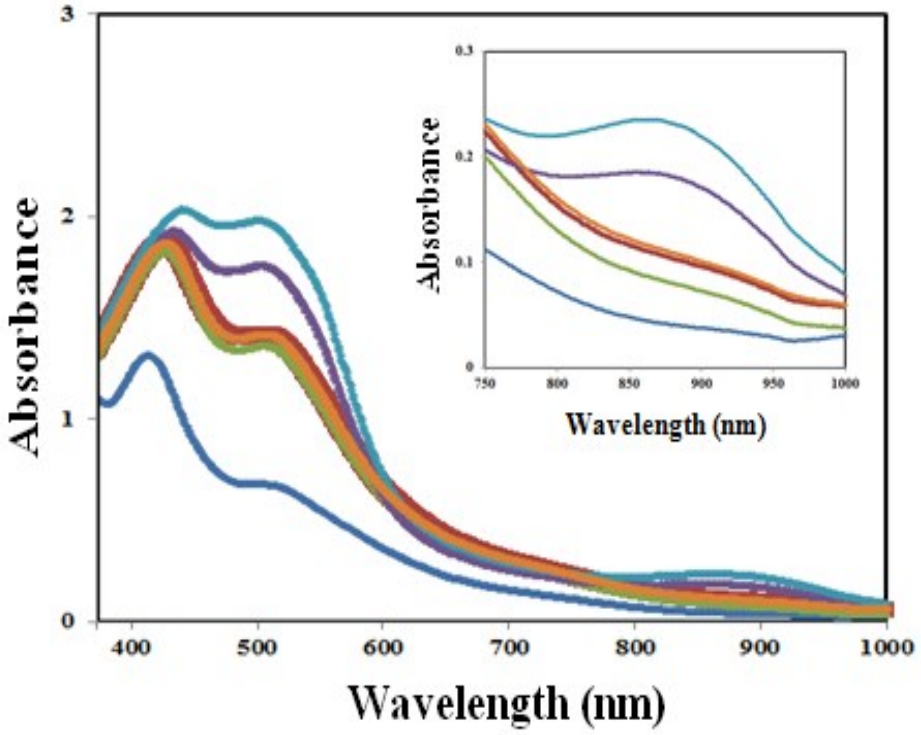

Fig. S1 UV-Vis absorption spectra's of synthesized NiO@Ni(II)-SR NCs by varying the metal to ligand ratio. Insets: shows the expanded figure ranging between 750 to 1000 nm.

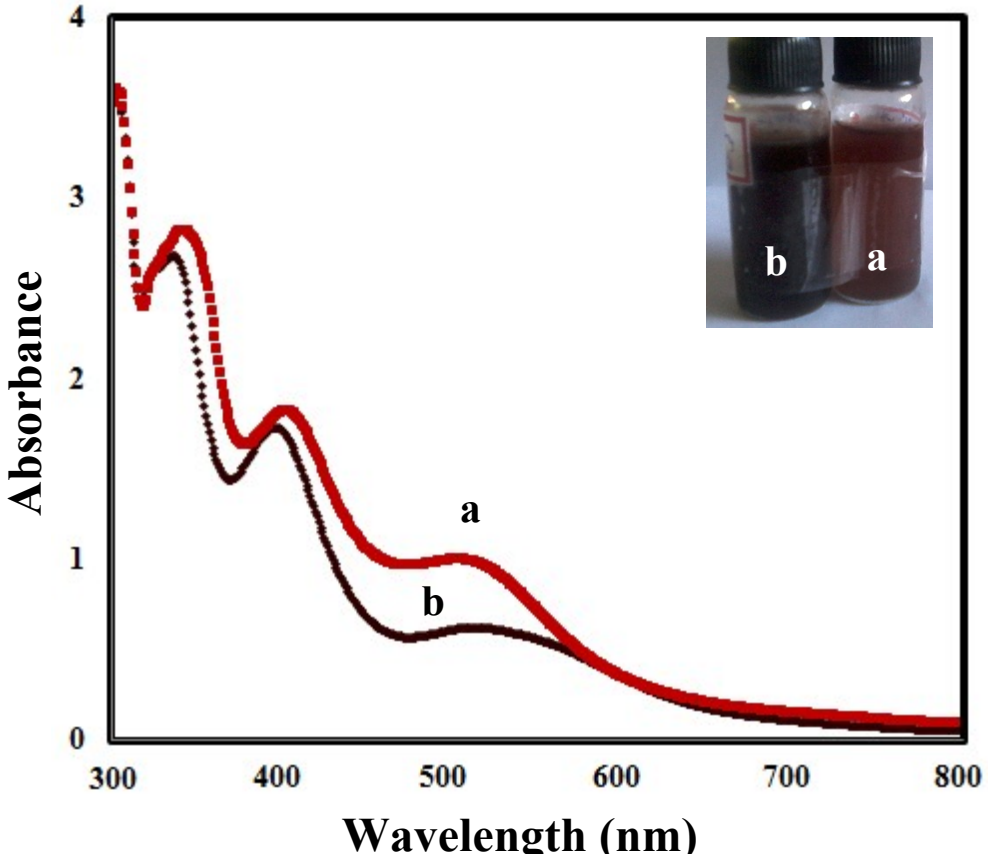

Fig. S2 UV-Vis absorption spectrum of NiO@Ni(II)SR NCs synthesized in absence (a) and presence (b) of reducing agent $NaBH_4$. Inset: shows the corresponding solutions contained in sample vials respectively.

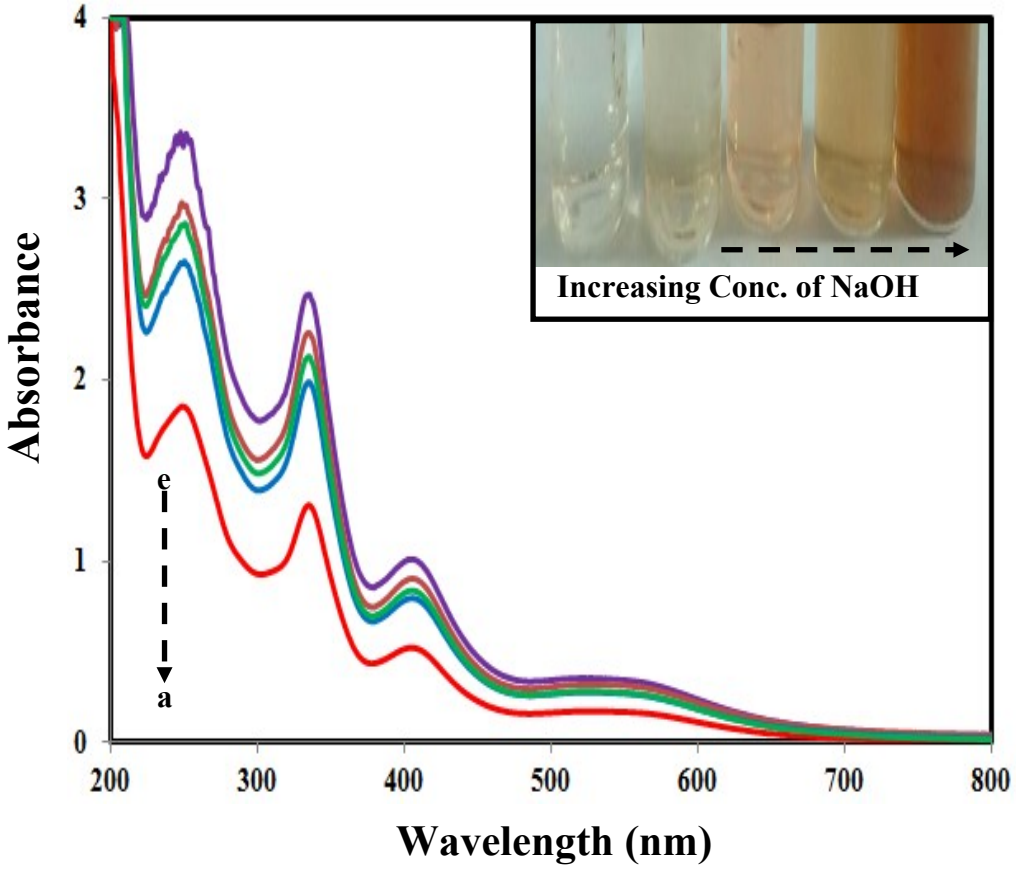

Fig. S3 UV-Vis spectrum of NiO@Ni(II)-SR NCs for varying pH from 2 to 10 (**e** to **a** in descending order). Inset: shows the image of NiO@Ni(II)-SR NCs samples prepared by varying the concentration of NaOH (from left to right: 0, 0.25, 0.50, 0.75 and 1.0 M)

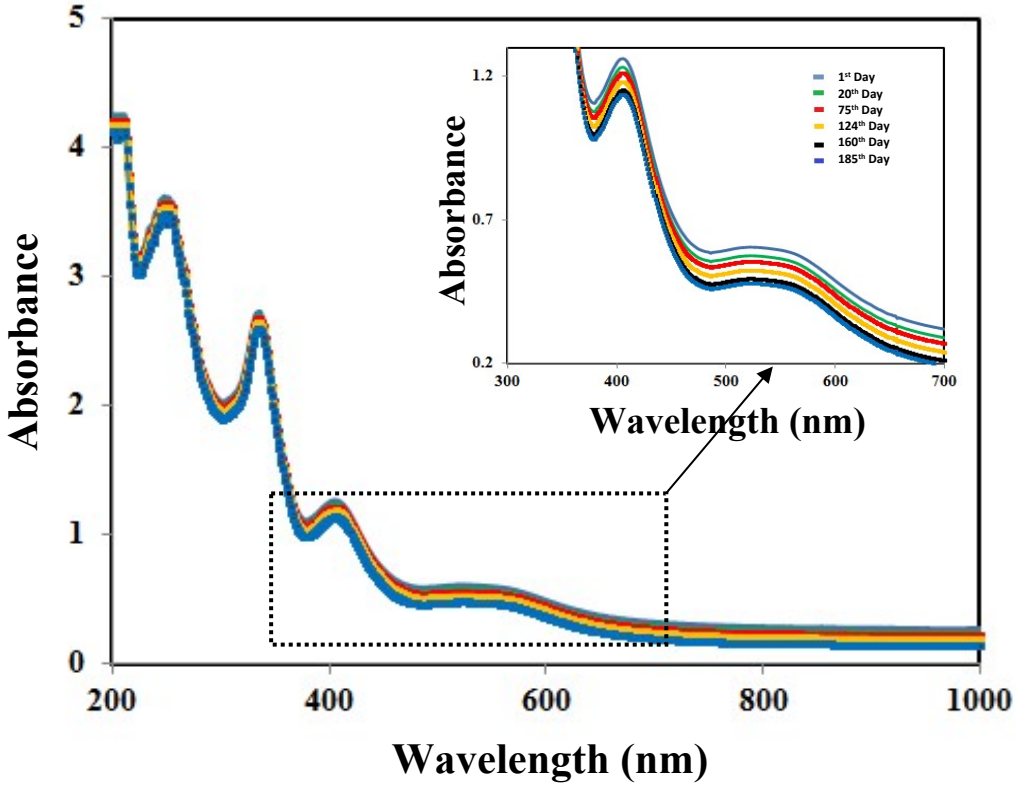

Fig. S4 UV-Vis repetitive spectrum of NiO@Ni(II)-SR NCs recorded on 1st , 20th , 75th , 124th , 160th and 185th days respectively. Inset: shows the zoom-in spectra's in the range of 300 nm – 700 nm.

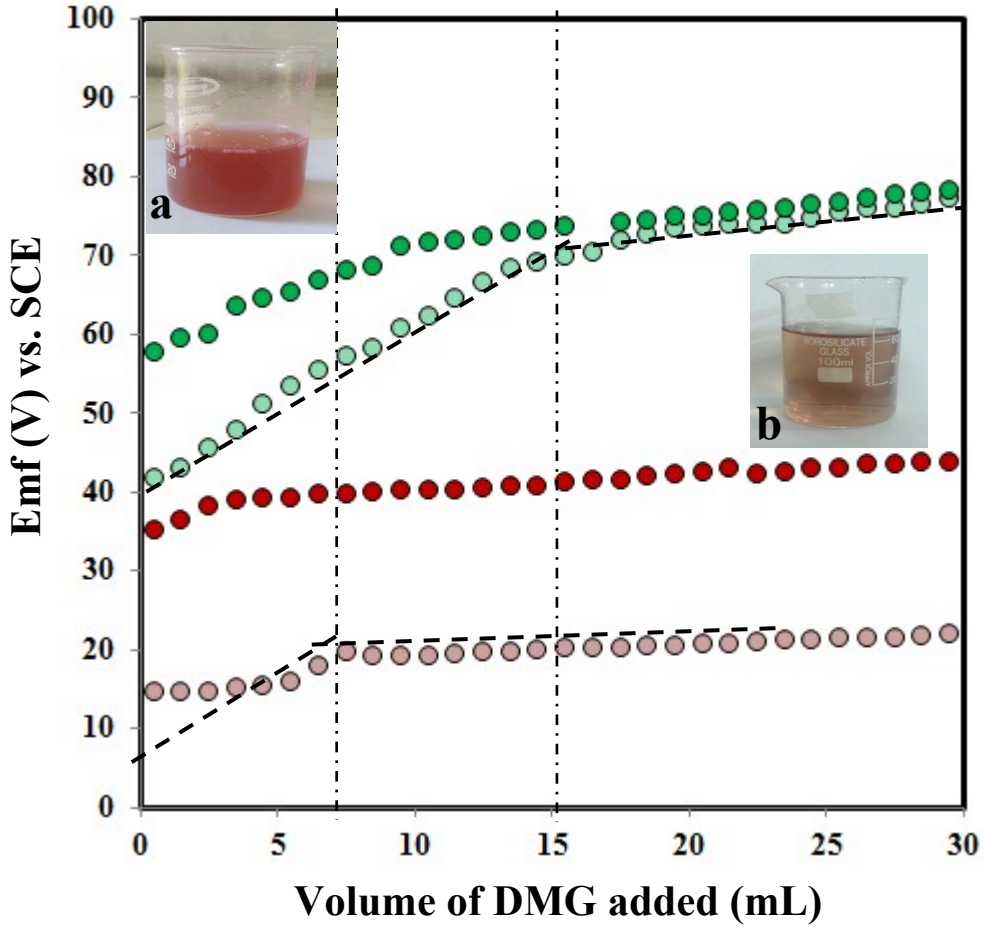

Fig. S5 shows the plot of Emf response versus volume of DMG added for low (5 mg) and high (10 mg) loading of NiO@Ni nanoparticles (light and dark brown circle) and similarly for NiO@Ni(II)-SR NCs (light and dark green circle). Insets: shows the resultant color changes for mixture containing (a) NiO@Ni(II)-SR NCs and (b) NiO@Ni after complete additions of DMG.

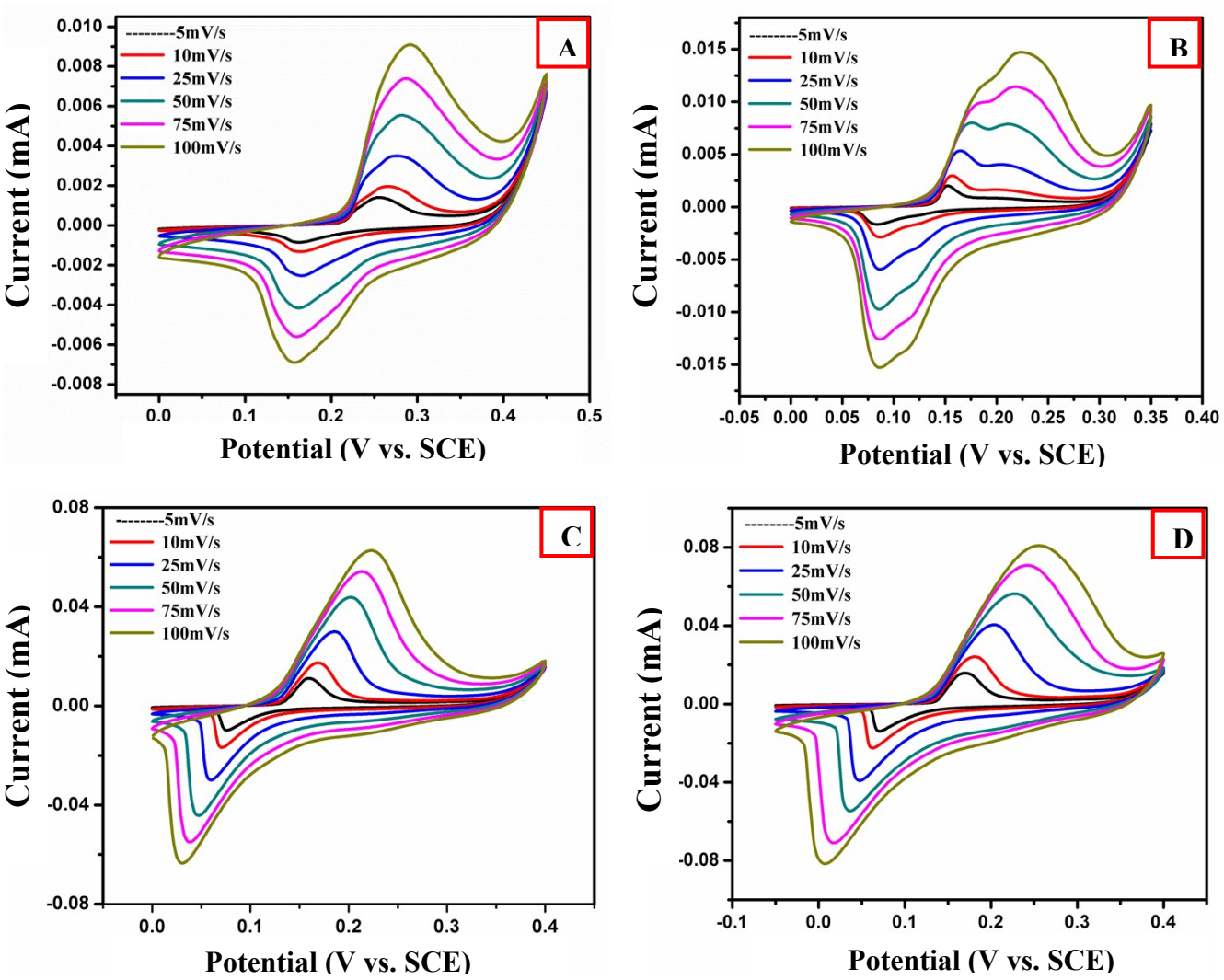

Fig. S6 CV responses for NiO@Ni (A) and NiO@Ni(II)-SR NCs prepared by varying M-L ratio from 1:3 to 1:5 (B to D) versus scan rates (V/s) in 5M KOH aqueous solution.

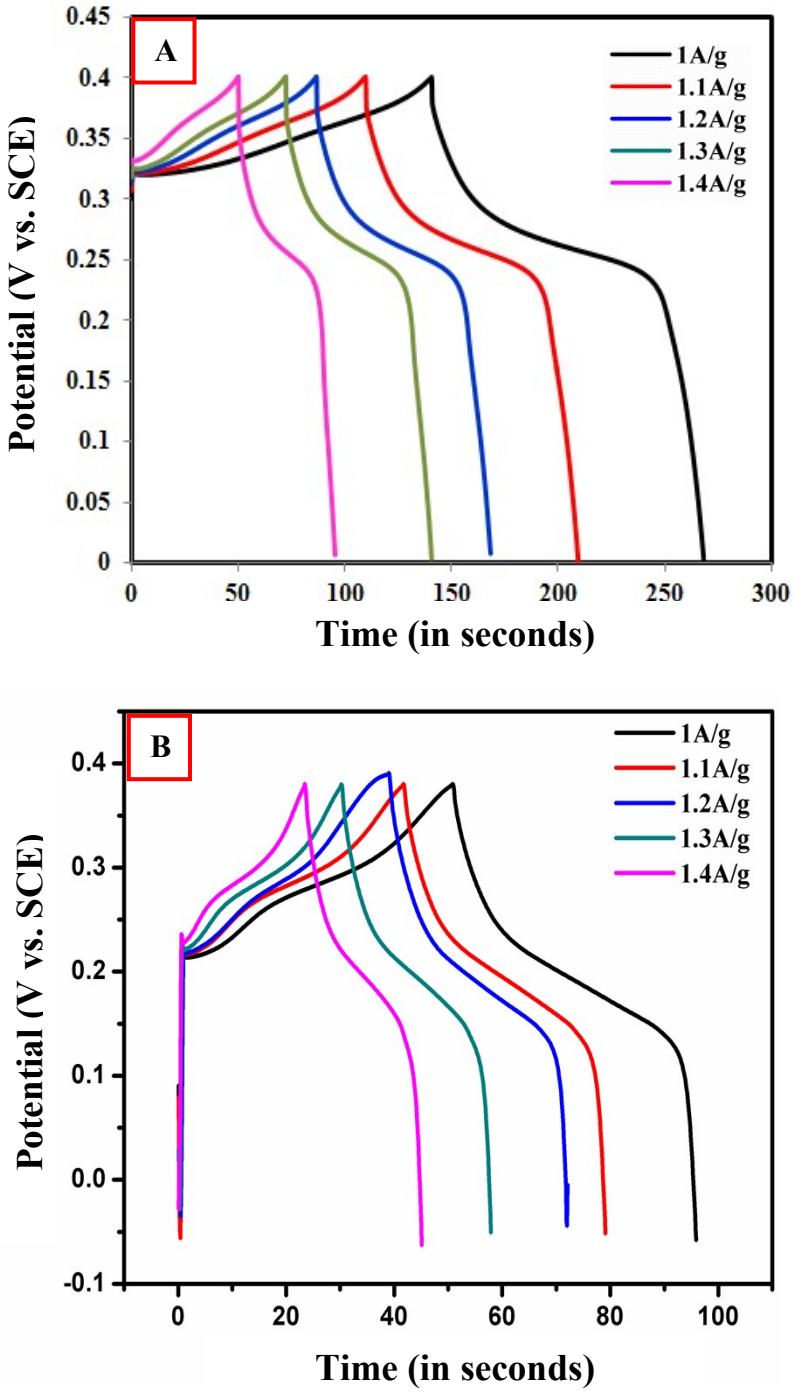

Fig. S7 shows the charge-discharge curves obtained by varying current density for NiO@Ni(II)-SR NCs synthesized with M-L ratio of (A) 1:4 and (B) 1:5.