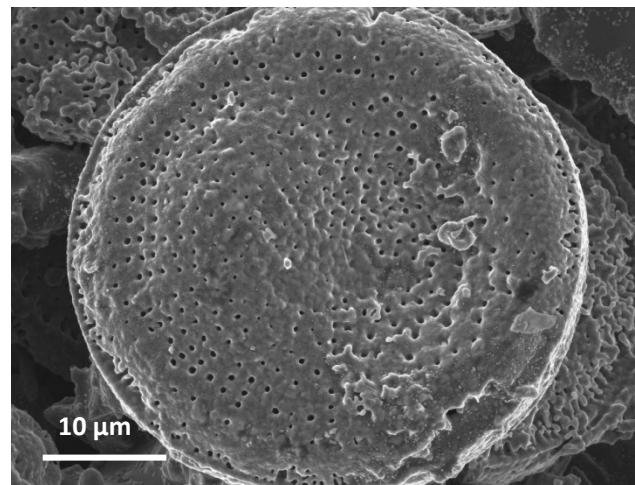
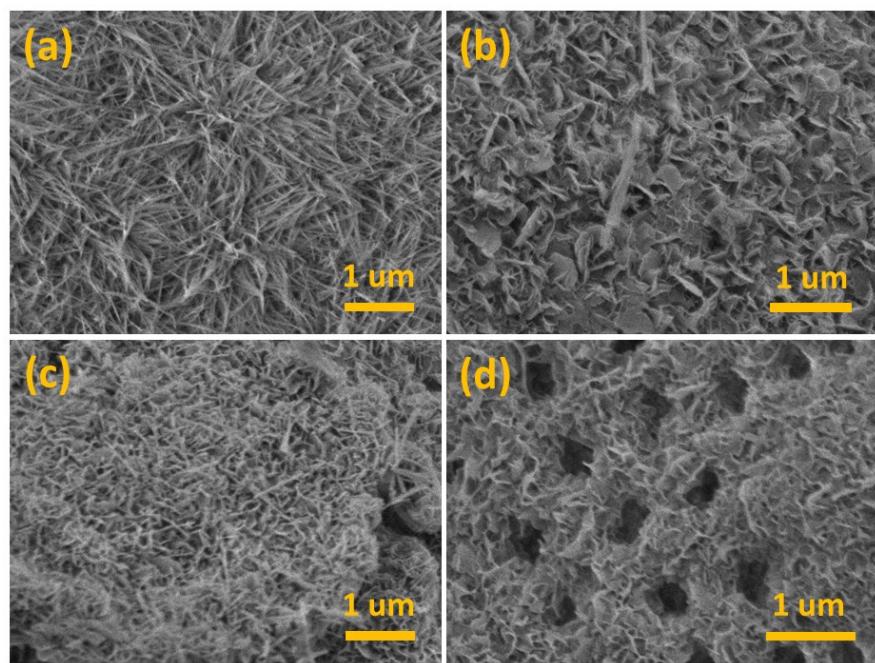


## Supplementary information

**Fig. S1.** The SEM image of the pure diatomite.



**Fig. S2.** The high magnification of the SEM images of the Ni-Co LDH @Diatomite. **(a)** Ni<sub>1</sub>Co<sub>2</sub> LDH@Diatomite, **(b)** Ni<sub>1</sub>Co<sub>1</sub> LDH@Diatomite, **(c)** Ni<sub>2</sub>Co<sub>1</sub> LDH@Diatomite, **(d)** Ni<sub>3</sub>Co<sub>1</sub> LDH@Diatomite.



**Fig. S3.** Color changes of the samples with the increase of Ni ionic concentration.

