Supplementary Materials

Enhanced-electrocatalytic activity of $Ni_{1-x}Fe_x$ alloy supported on polyethyleneimine functionalized MoS_2 nanosheets for hydrazine oxidation

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Table S1

Nickel iron DC electroplating formula	
Nickel(II) sulfate	250g/l
Iron(II) sulfate	25.6g/l
Boric acid	40g/l
Sodium chloride	25g/l
Saccharim	2g/l
Sodium citrate	14.7g/l
Ascorbic acid	0.5g/l
2-Butyne-1,4-diol	0.6g/l
Sodium dodecylbenzenesulphonate	0.05g/l

Table S2

Nickel iron plating bath conditions	
Temperature	60 °C
pH	4.2
Plating time	10s
Average current density	56 A/dm^2
mild agitation	

Table S3

The compositions of the Ni-Fe alloy catalysts derived from inductively coupled plasma spectra(ICP)

The concentration of Nickel(II) sulfate (g/L)	The quality of Iron(II) sulfate (g/L)	The compositions of the most active catalysts
250	2.7	$Ni_{95.2}Fe_{4.8}$
250	9.7	$Ni_{89.7}Fe_{10.3}$
250	25.6	$Ni_{85.1}Fe_{14.9}$
250	30	$Ni_{80.5}Fe_{19.5}$
250	32	$Ni_{74.7}Fe_{25.3}$
250	40.7	$Ni_{70.6}Fe_{29.4}$

Electronic Supplementary Material (ESI) for RSC Advances

Figure S1

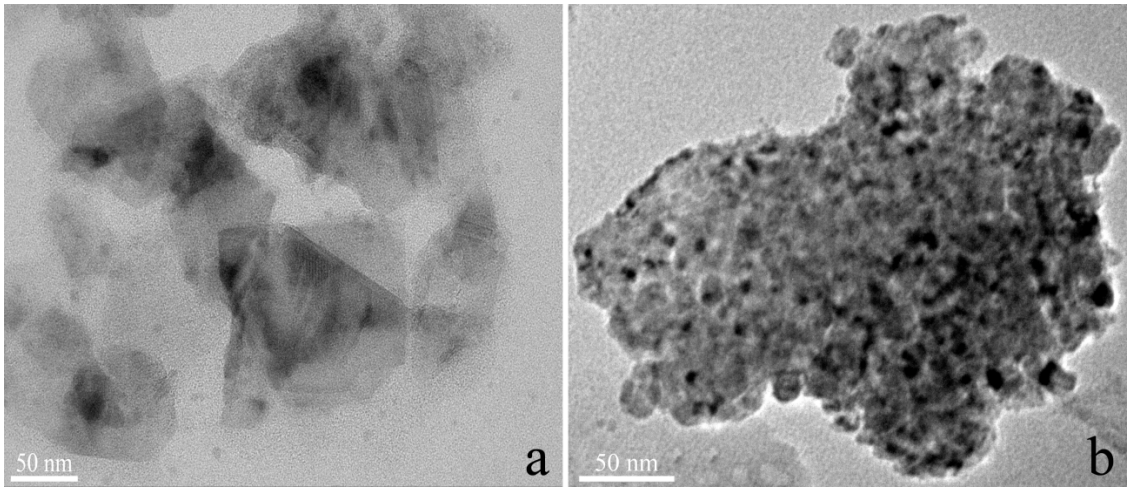

Fig. S1 (a) TEM image of the graphene like MoS_2; (b) TEM image of the $Ni_{85}Fe_{15}/MoS_2$ hybrid.

Figure S2

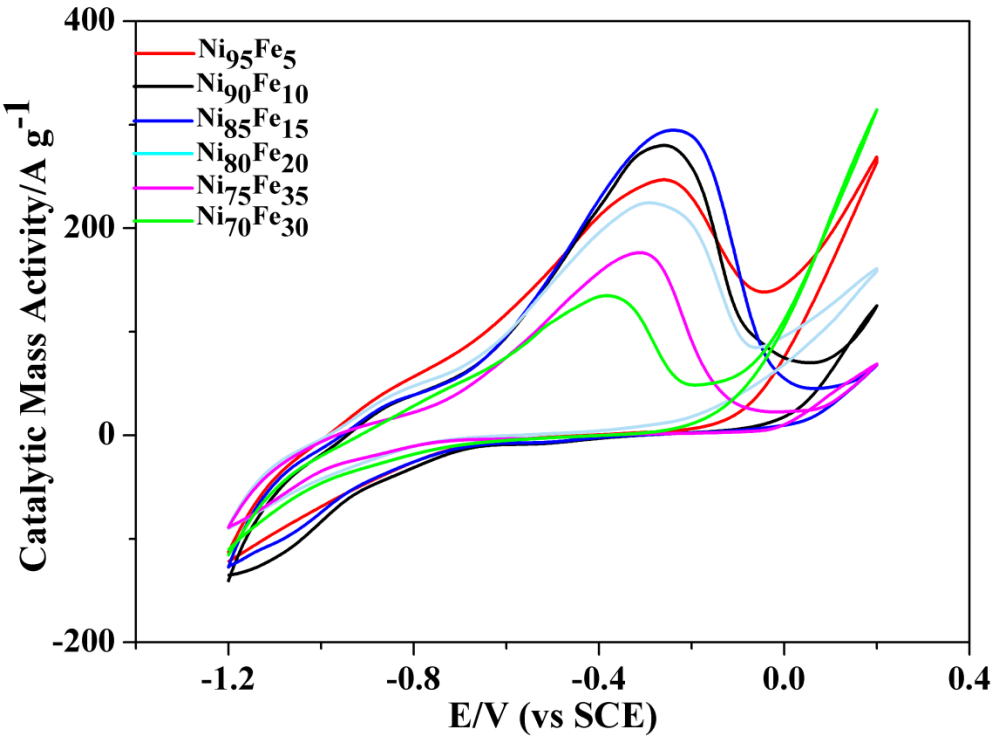

Fig. S2 Cyclic voltammetry measurements of the $Ni_{1-x}Fe_x/MoS_2$ electrode with different Ni/Fe mass ratios at a scan rate of 50 $mV \cdot s^{-1}$.