Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supplementary Information
for

Sacrificial Carbonaceous Coating over Alumina Supported Ni-MoS_2 Catalyst for Hydrodesulfurization

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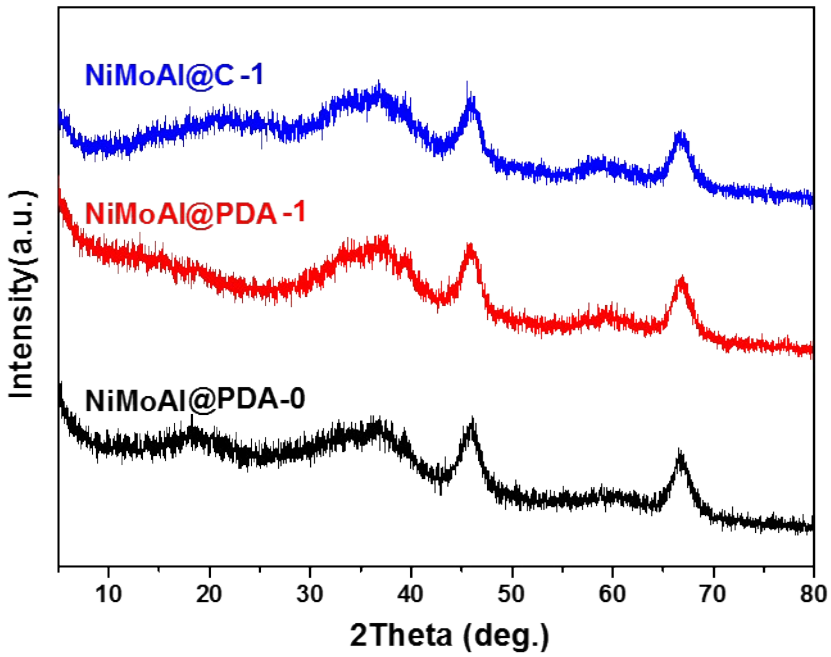


Fig. S1 XRD patterns of NiMoAl@PDA-0, NiMoAl@PDA-1 and NiMoAl@C-1 Samples.

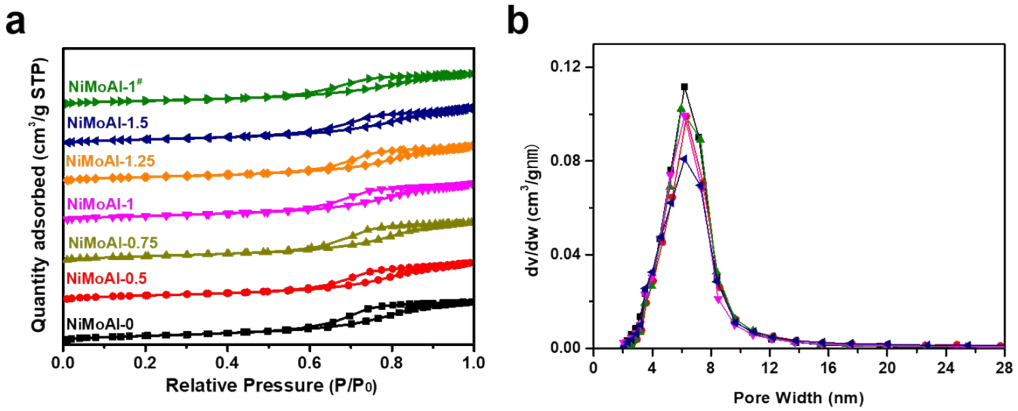


Fig. S2 Nitrogen adsorption-desorption isotherms (a) and pore size distributions (b) of the catalysts.

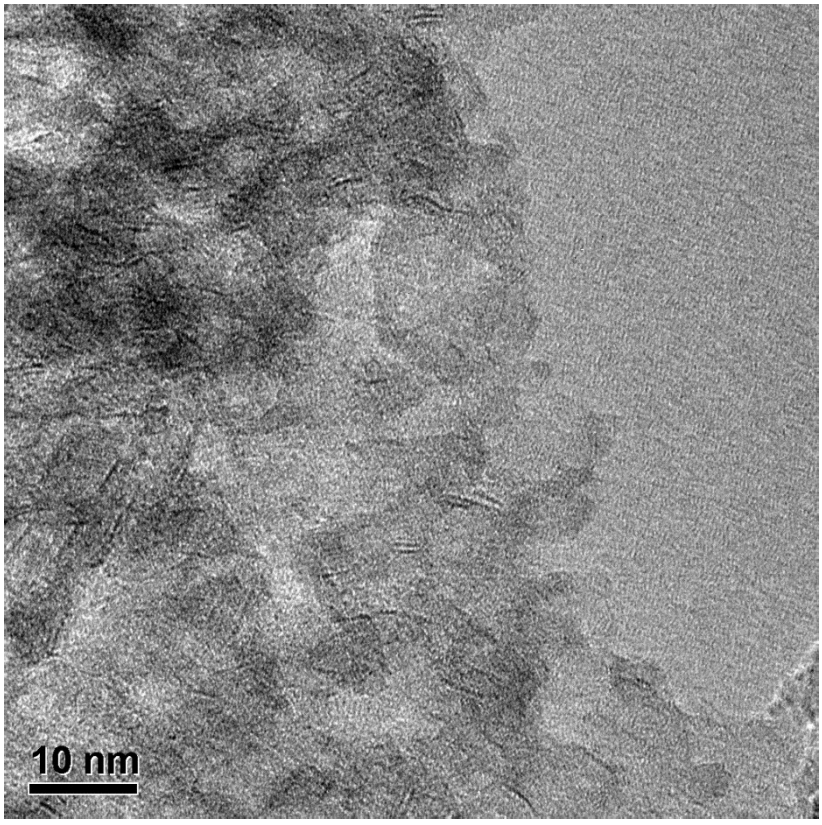


Fig. S3 Typical HRTEM images of the sulfided NiMoAl-1$^{\#}$ catalyst.

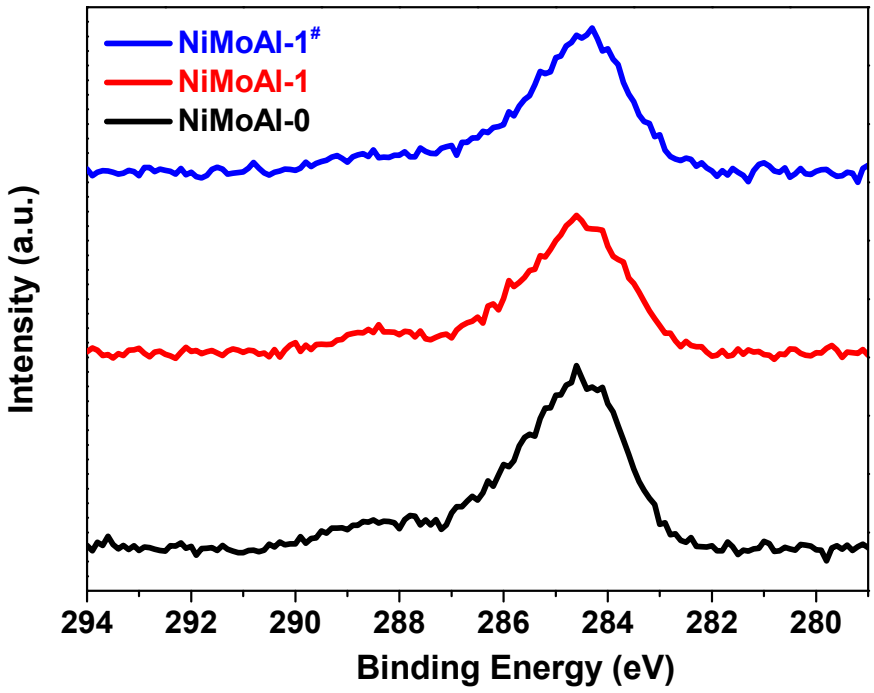
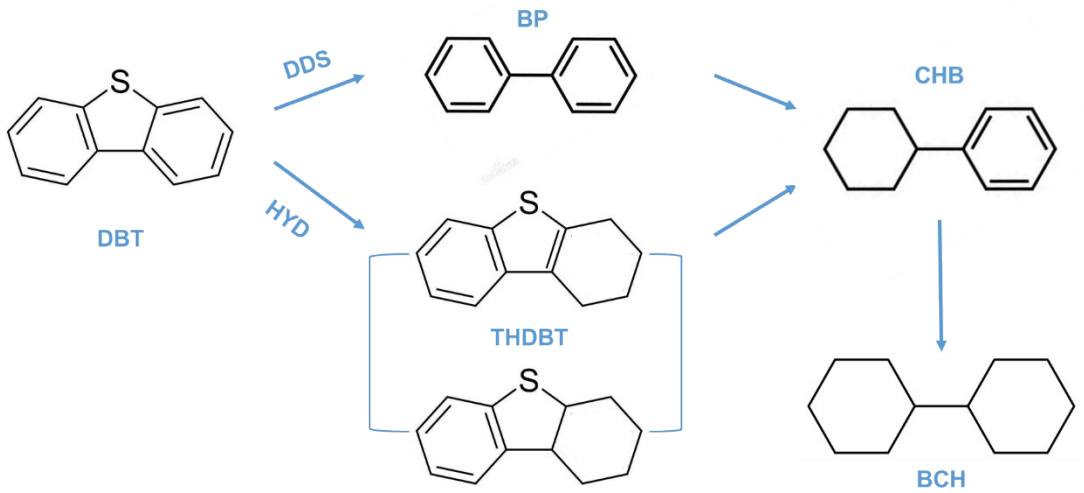


Fig. S4 C 1s spectra of NiMoAl-0, NiMoAl-1 and NiMoAl-1$^{\#}$.



Scheme S1 Proposed reaction network of DBT over HDS catalysts through DDS (direct desulfurization) and HYD (hydrodesulfurization) pathways. BP: biphenyl; THDBT: tetrahydrodibenzothiophene; CHB: cyclohexylbenzene; BCH: bicyclohexyl.

Table S1 Weight losses at different temperature ranges of the NiMoAl-x precursors.

Catalysts	Weight Loss (%)		
	40~140 °C	140~400 °C	400~700 °C
NiMoAl-0	5.87	6.4	4.3
NiMoAl-0.5	3.60	11.1	5.5
NiMoAl-1	3.80	12.1	8.1
NiMoAl-1.5	4.64	13.8	9.6
NiMoAl@C	4.03	12.1	7.8
NiMoAl@PDA	3.37	13.2	8