# Supporting Information

# Polar Hydrogen Species Mediated Nitroarenes Selective Reduction to Anilines over an [FeMo]$S_x$ Catalyst

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## 1. The XRD pattern

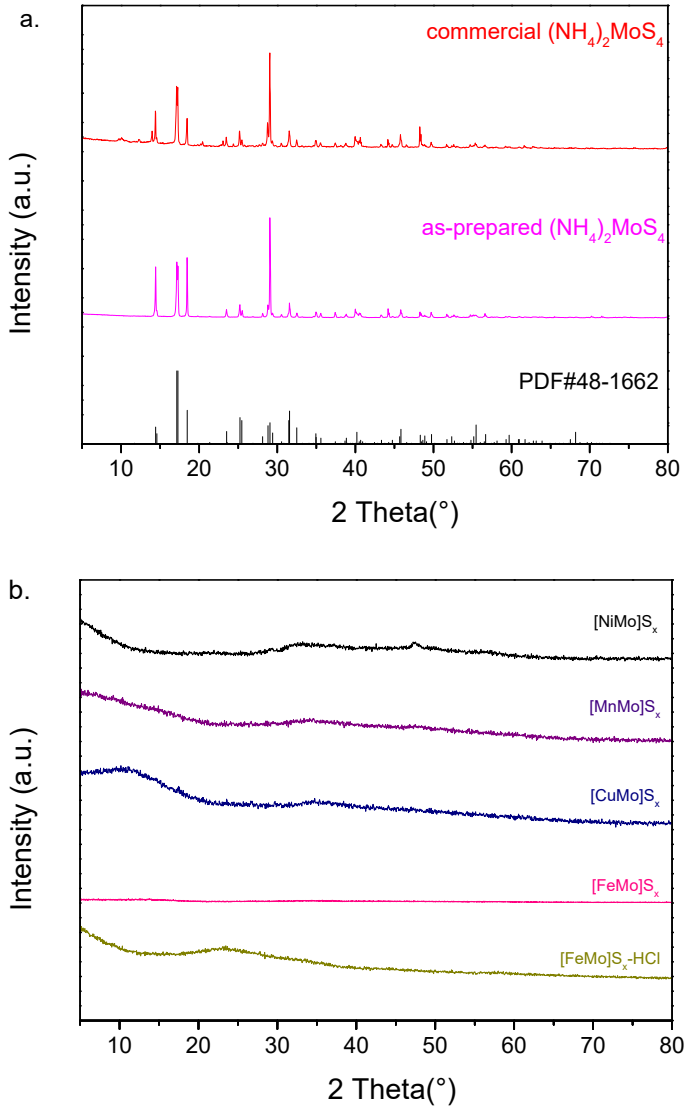
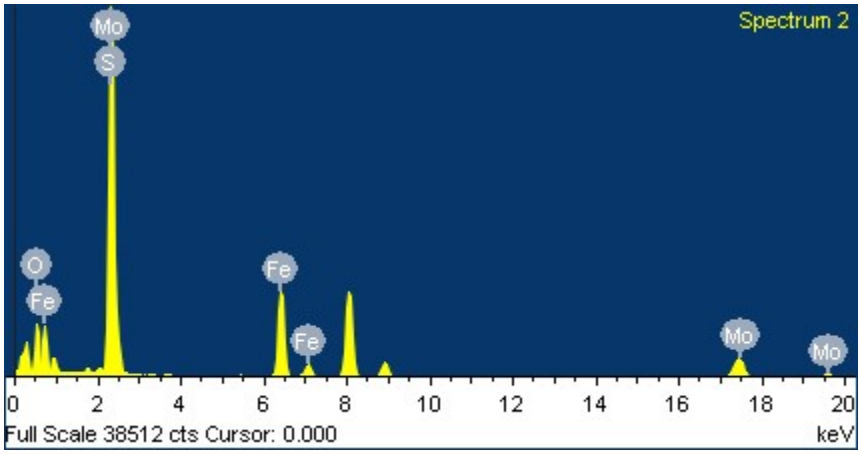



**Figure S1.** The XRD of the commercial and prepared $(NH_4)_2MoS_4$ (a); The XRD of the prepared catalyst. Note: The [NiMo]$S_x$, [MnMo]$S_x$, [CuMo]$S_x$, [FeMo]$S_x$ and [FeMo]$S_x$-HCl here are prepared with the homemade $(NH_4)_2MoS_4$ (b).

## 2. The EDX of the prepared [FeMo]$S_x$



| Element | Atomic% |
|---|---|
| S | 59.76 |
| Fe | 18.87 |
| Mo | 21.36 |
| Totals | 100.00 |

**Figure S2.** The EDX of prepared [FeMo]$S_x$.

## 3. The cyclic experiment

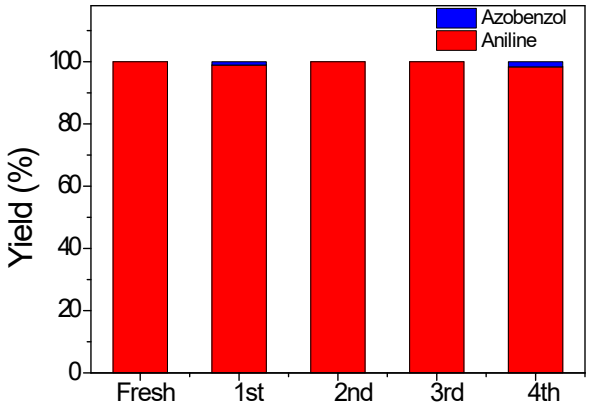



**Figure S3.** The cyclic experiment. Reaction conditions: nitrobenzene 0.5 mmol, $N_2H_4$ 3.0 mmol, $C_2H_5OH$ 2.0 mL, [FeMo]$S_x$ 20 mg, Ar 1bar, 30 °C.

## 4. The exploration of reaction route.

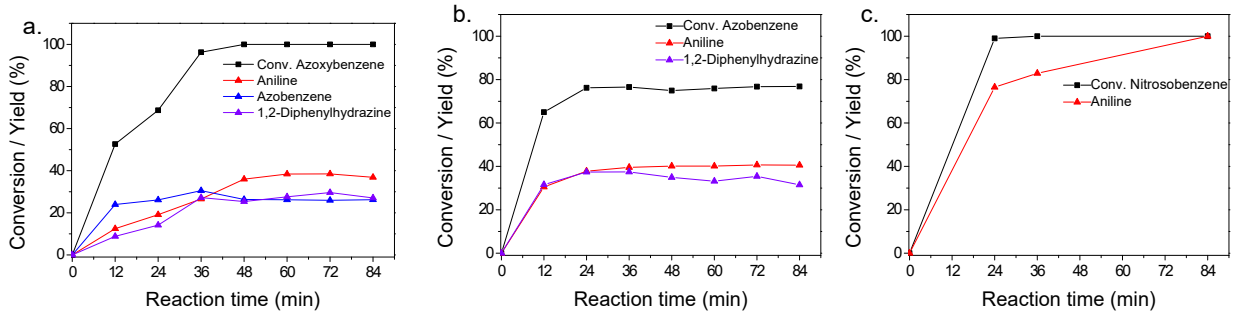



**Figure S4.** The exploration of reaction route. Reaction conditions: hydrazine hydrate (80 w%) 3.0 mmol, $C_2H_5OH$ 2.0 mL, [FeMo]$S_x$ 20 mg, Ar 1bar, 30 °C. Substrate: (a) azoxybenzene 0.25 mmol, (b) azobenzene 0.25 mmol, (c) nitrosobenzene 0.5 mmol.