Supporting Information

Fe induced MoO_3 nanowires along [110] direction and their fast selective adsorption of quasi-phenothiazine dyes

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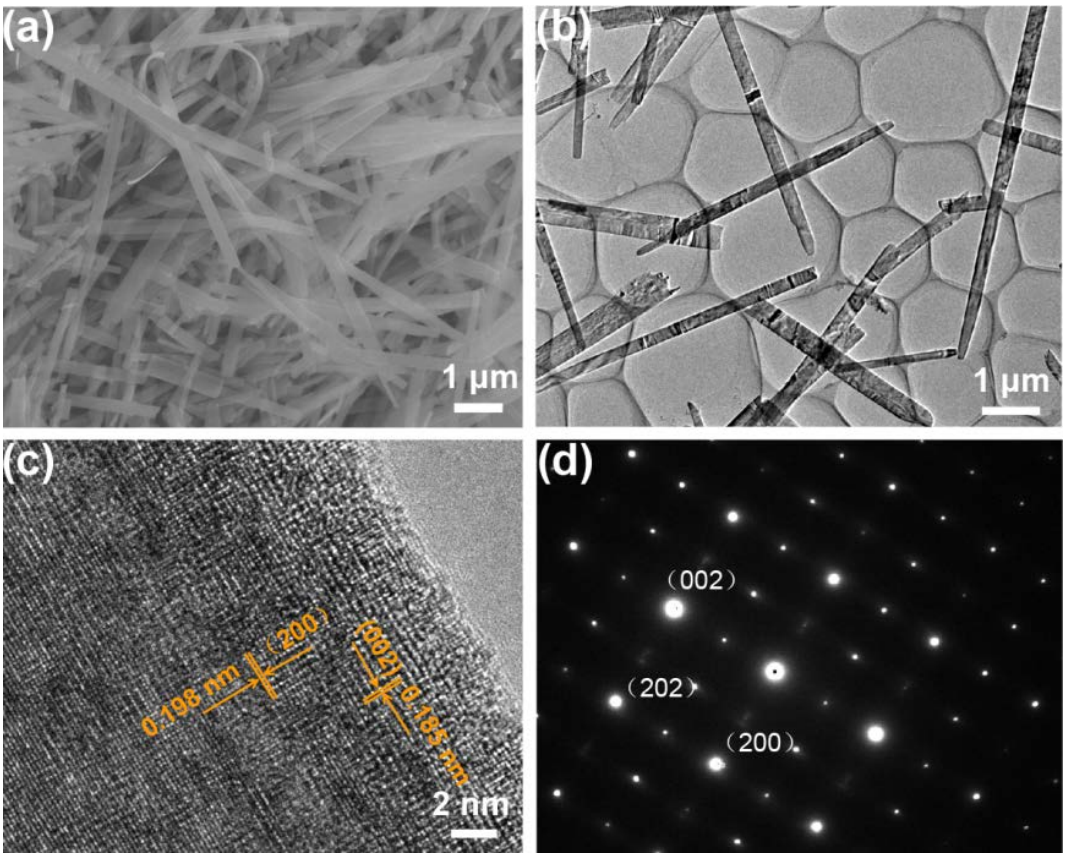

Fig. S1†. (a) The SEM image, (b) Typical TEM image and (c) HRTEM pattern, (d) SAED image of MoO_3 NRs.

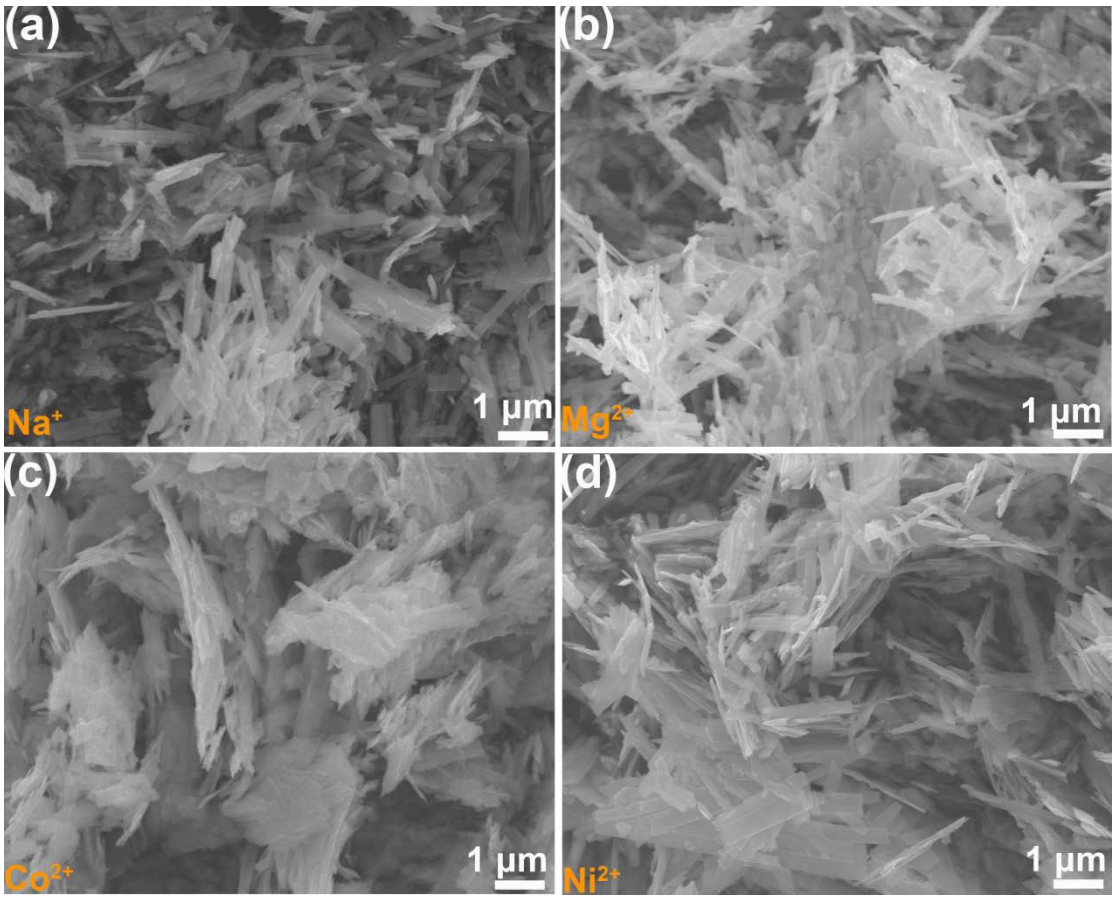

Fig. S2† The SEM images of samples obtained with different cations: (a) $NaNO_3$, (b) $Mg(NO_3)_2{\cdot}6H_2O$, (c) $Co(NO_3)_2{\cdot}6H_2O$, (d) $Ni(NO_3)_2{\cdot}6H_2O$

Tab. S1† The ion radius of different cations.

element	Mo^{6+}	Fe^{3+}	Mg^{2+}	Ni^{2+}	Co^{2+}	Na^{+}
ion radius	0.62Å	0.64Å	0.65Å	0.72Å	0.74Å	0.95Å

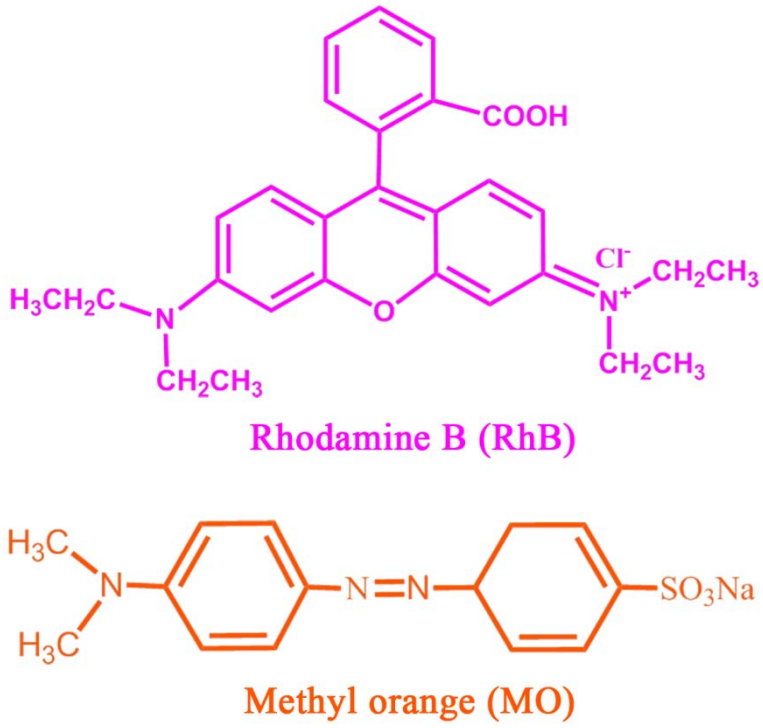

Fig. S3† The molecular structure of RhB and MO.

Tab. S2† The adsorption performances of some reported adsorbents of MoO_3 in the selective adsorption of dyes.

Adsorbents	Dyes	Q_{max} (mg/g)	Q' (mg/(g·min))	Adsorption time (min)	Removal efficiency (%)	BET ($m^2 \cdot g^{-1}$)	Reference
α-MoO_3 microspheres	RhB	15.9	1.59	10	97.9	17.7	[1]
	MB	0	0	0	0		
	MO	0	0	0	0		
α-MoO_3 nanoparticles	MB	37.5	0.13	300	60.0	0.7	[2]
α-MoO_3 milled phases	MB	62.5	1.25	50	100	7.0	
α-MoO_3 nanowires	MB	13.0	0.15	90	100	-	[3]
α-MoO_3 nanobelts	MB	8.5	0.14	60	30.0	11.7	[4]
α-MoO_3 nanobelts	MB	20.0	0.33	60	99.0	-	[5]
α-MoO_3/polyaniline	RhB	36.3	0.605	60	75.2	27.3	[6]
Fe-MoO_3 NWs	MB	**144.3**	**28.86**	**5**	**100**	**174.7**	Our work
	TB	**138.0**	**27.60**	**5**	**97.0**		
	AI	**141.0**	**28.20**	**5**	**99.0**		
	AO	**141.0**	**28.20**	**5**	**99.0**		
	RhB	**33.7**	**1.685**	**20**	**22.5**		
	MO	**14.1**	**0.705**	**20**	**9.4**		
MoO_3 NRs	MB	12.3	2.46	5	41.0	21.6	

Methylene blue (MB), Toluidine blue (TB), Azure I (AI), Acridine orange (AO), Rhodamine B (RhB), Methyl orange (MO)

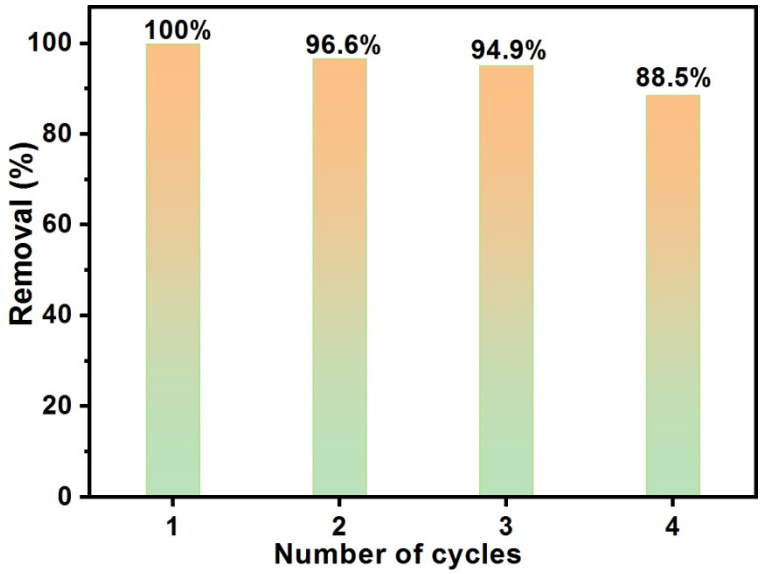

Fig. S4† The recycling experiments for MB adsorption on the Fe-MoO_3 NWs.

References

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