

Supporting Information

Synthesis of Polypyrrole-Modified Layered Double Hydroxides for Efficient Removal of Cr(VI)

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Table S1. Description of solutes and solvents used in the experiments

Material	Molecular formula	Molar Mass (g mol⁻¹)	Purity	Source	CAS Registry Number
Magnesium nitrate hexahydrate	Mg(NO ₃) ₂ ·6H ₂ O	256.41	≥ 0.99	Hi-media chemicals	13446-18-9
Aluminium nitrate nonahydrate	Al(NO ₃) ₃ ·9H ₂ O	375.13	≥ 0.95	Merck Chemicals	7784-27-2
Pyrrrole	C ₄ H ₅ N	67.09	≥ 0.98	Sigma Aldrich Chemicals	109-97-7
Sodium hydroxide	NaOH	40	≥ 0.98	Merck Chemicals	1310-73-2
Sodium carbonate	Na ₂ CO ₃	105.99	≥ 0.99	Merck Chemicals	497-19-8
1,5-diphenylcarbazine	C ₁₃ H ₁₄ N ₄ O	242.28		Hi-media chemicals	140-22-7
Ammonium persulfate	(NH ₄) ₂ S ₂ O ₈	228.2	≥ 0.98	Merck Chemicals	7727-54-0
Potassium dichromate	K ₂ Cr ₂ O ₇	294.18	≥ 0.99	Hi-media chemicals	7778-50-9

Table S2. Comparison of the percentage removal of Cr(VI) by PPY-LDHs in different molar proportions

Molar proportions (PPY:LDHs)	Percentage removal of Cr(VI)
1:1	81.84
2:1	96.82
3:1	74.81
4:1	76.54
1:2	43.71
1:4	23.45

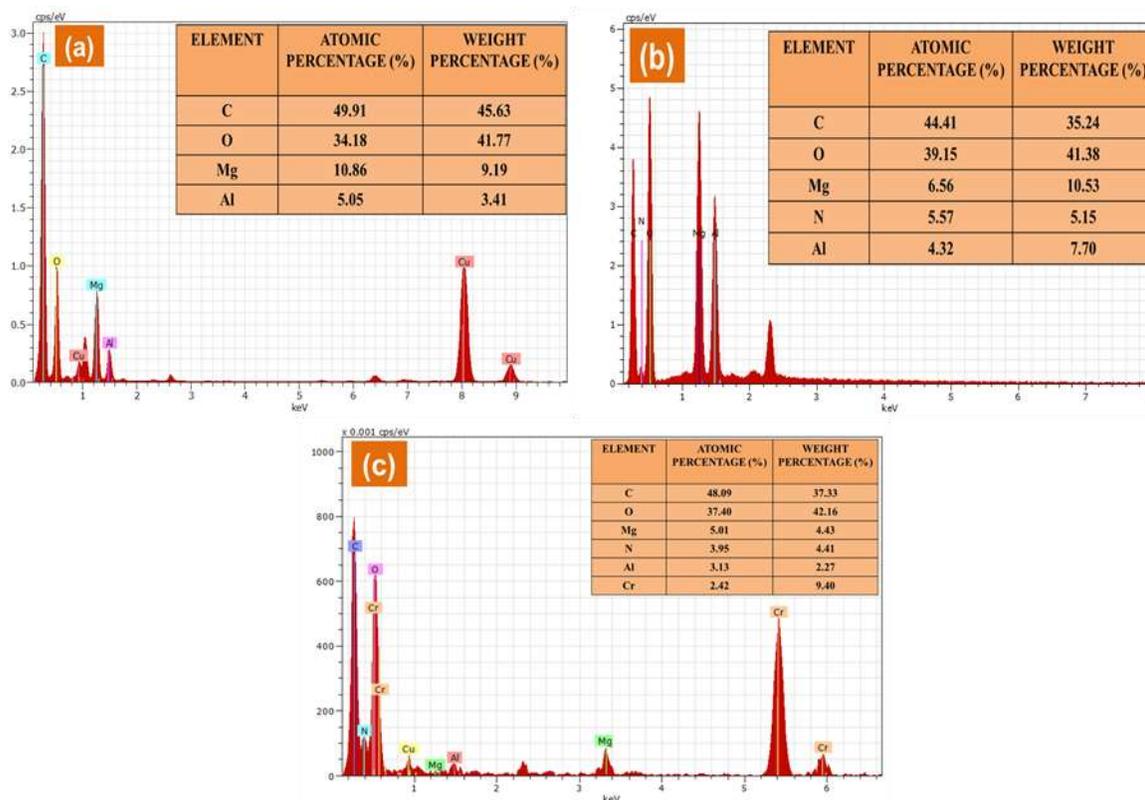


Figure S1. EDX spectrum and corresponding elemental analysis (inset) of (a) LDHs, (b) PPY-LDHs and (c) PPY-LDHs after adsorption of Cr(VI)

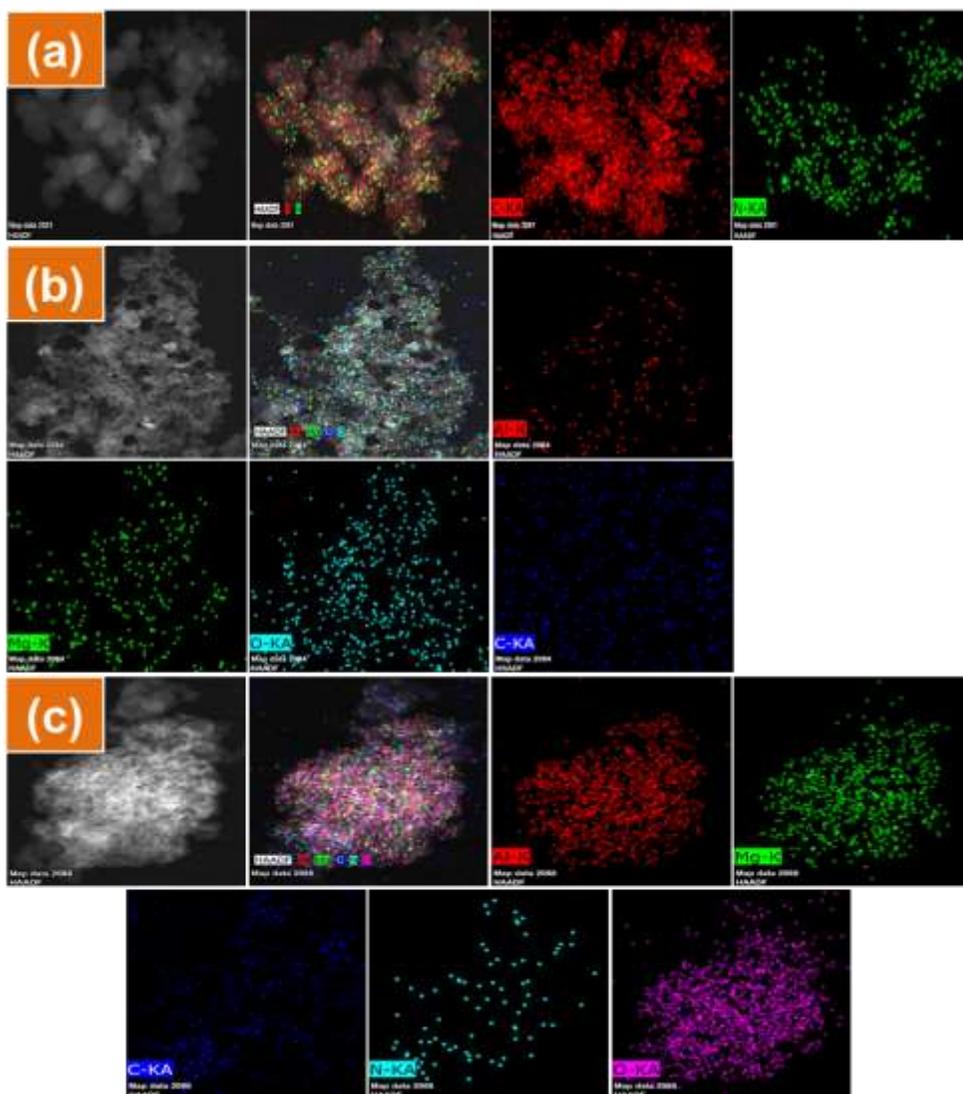


Figure S2. EDS elemental mapping of (a) PPY, (b) LDHs, and (c) PPY-LDHs

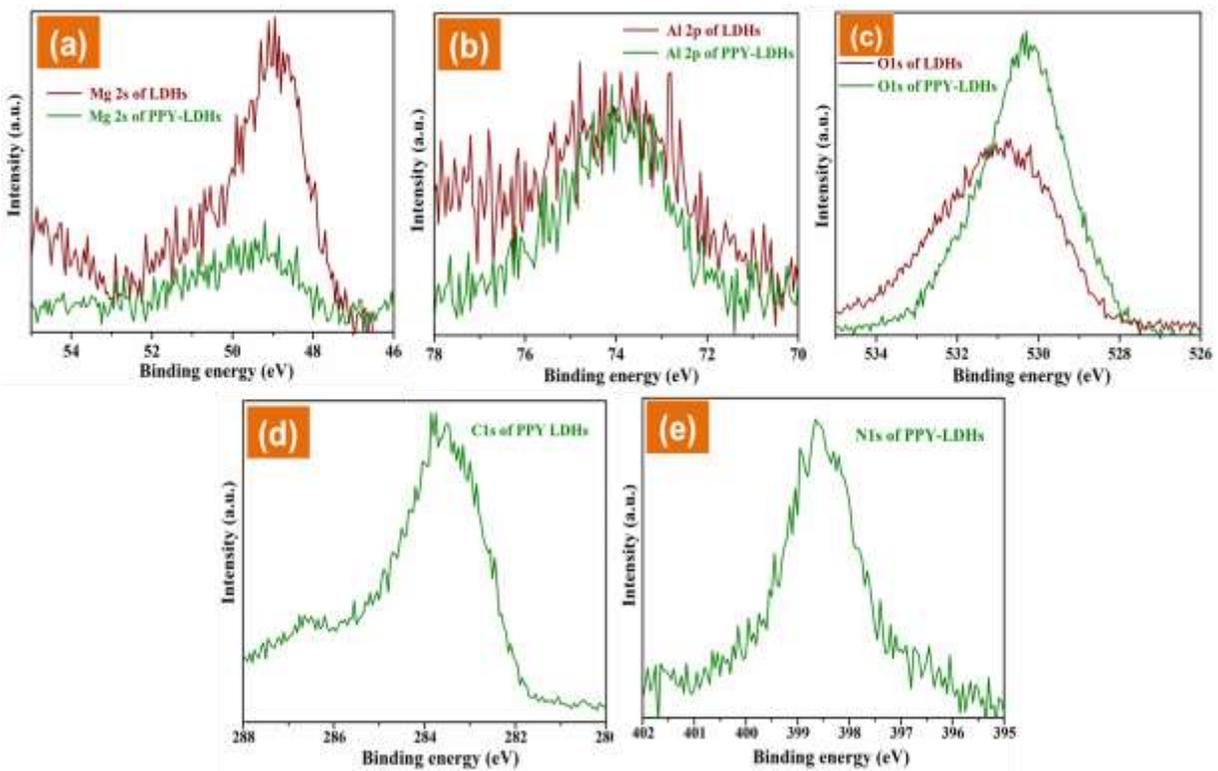


Figure S3. XPS spectra of (a) Magnesium, (b) Aluminum, (c) Oxygen, (d) Carbon and (e) Nitrogen

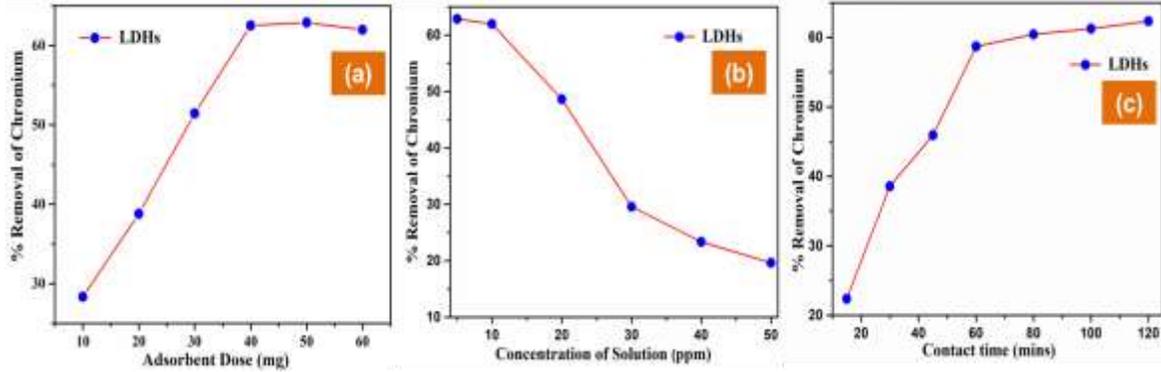


Figure S4. Removal study of Cr(VI) with only LDHs as a function of (a) adsorbent dose, (b) Concentration of solution and (c) contact time.

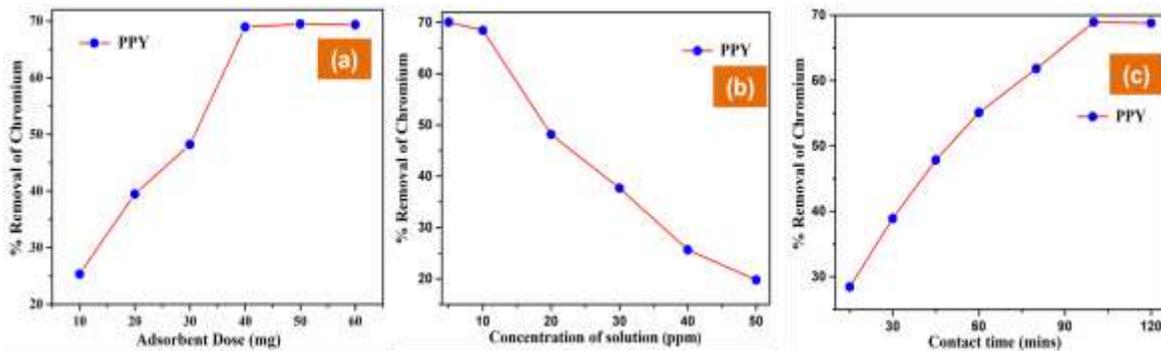


Figure S5. Removal study of Cr(VI) with only PPY as a function of (a) adsorbent dose, (b) Concentration of solution and (c) contact time.