Supplementary material to: Adsorption and desorption performances of *Eichhornia crassipes* (water hyacinth) roots and leaves powder towards metal ions in industrial wastewater

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Table S1. Pseudo-second order parameters for the adsorption of metal ions by water hyacinth leaves power (WHLP).

	Pseudo-second order parameters				
Metal ions	q_e (exp.) mg/g	q_e (calc.) mg/g	h (mg/g·min)	k_2 (g/mg·min)	R^2
Pb^{2+}	0.1245	0.1245	1.87	120.81	1.000
Ni^{2+}	0.1094	0.1099	0.25	20.69	1.000
Zn^{2+}	0.1191	0.1205	0.12	8.42	0.999
Co^{2+}	0.1163	0.1167	0.32	23.21	1.000

Table S2. Pseudo-second order parameters for the adsorption of metal ions by water hyacinth roots powder (WHRP).

	Pseudo-second order parameters				
Metal ions	q_e (exp.) mg/g	q_e (calc.) mg/g	h (mg/g·min)	k_2 (g/mg·min)	R^2
Pb^{2+}	0.1234	0.1235	1.08	71.03	1.000
Ni^{2+}	0.1198	0.1209	0.15	10.17	1.000
Zn^{2+}	0.1138	0.1142	0.34	25.79	1.000
Co^{2+}	0.1113	0.1141	0.05	3.85	0.999

Table S3. Desorption of metals from loaded WHLP adsorbent

	Percentage desorption (%)			
	Pb	**Ni**	**Zn**	**Co**
Concentration of NaOH				
2M	9.42	20.43	52.14	16.78
4M	11.85	32.64	58.49	25.46
6M	13.04	28.90	51.94	21.78
Concentration of HNO_3				
2M	34.50	18.22	5.25	14.61
4M	35.22	16.30	5.03	15.28
6M	33.67	17.78	5.65	15.61

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Table S4. Desorption of metals from loaded WHRP adsorbent

	Percentage desorption (%)			
	Pb	**Ni**	**Zn**	**Co**
Concentration of NaOH				
2M	7.20	19.20	4.53	18.42
4M	11.00	29.34	5.96	27.73
6M	11.18	28.83	6.38	27.33
Concentration of HNO_3				
2M	0.68	20.91	-	25.78
4M	36.01	18.89	9.45	24.86
6M	32.28	19.23	9.37	24.02

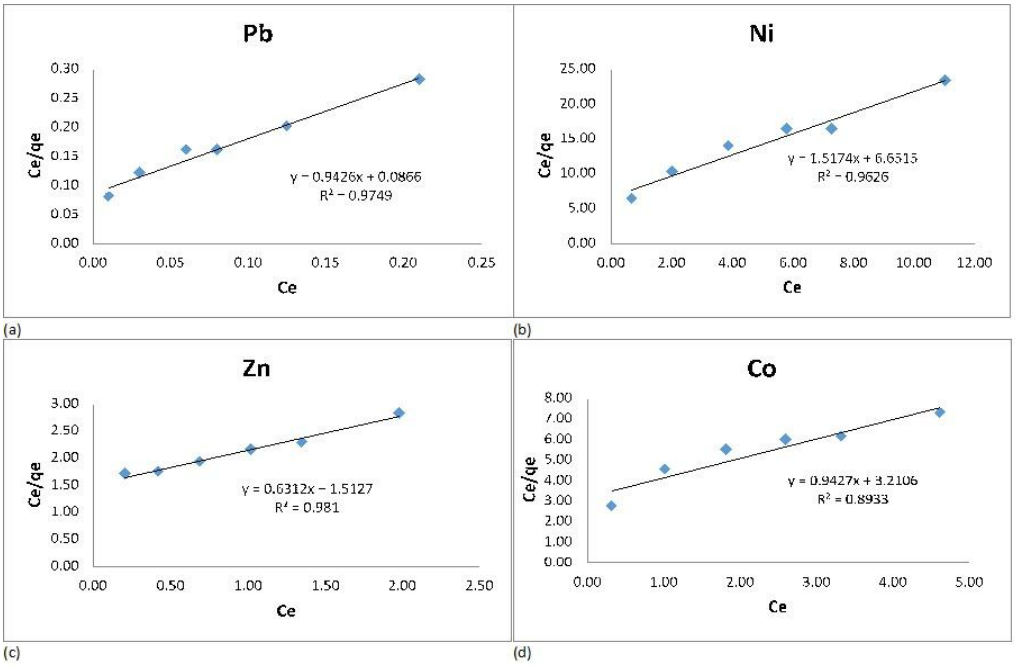

Figure S1. Langmuir isotherm for the adsorption of (a) Pb^{2+}, (b) Ni^{2+}, (c) Zn^{2+}, and (d) Co^{2+} with WHLP

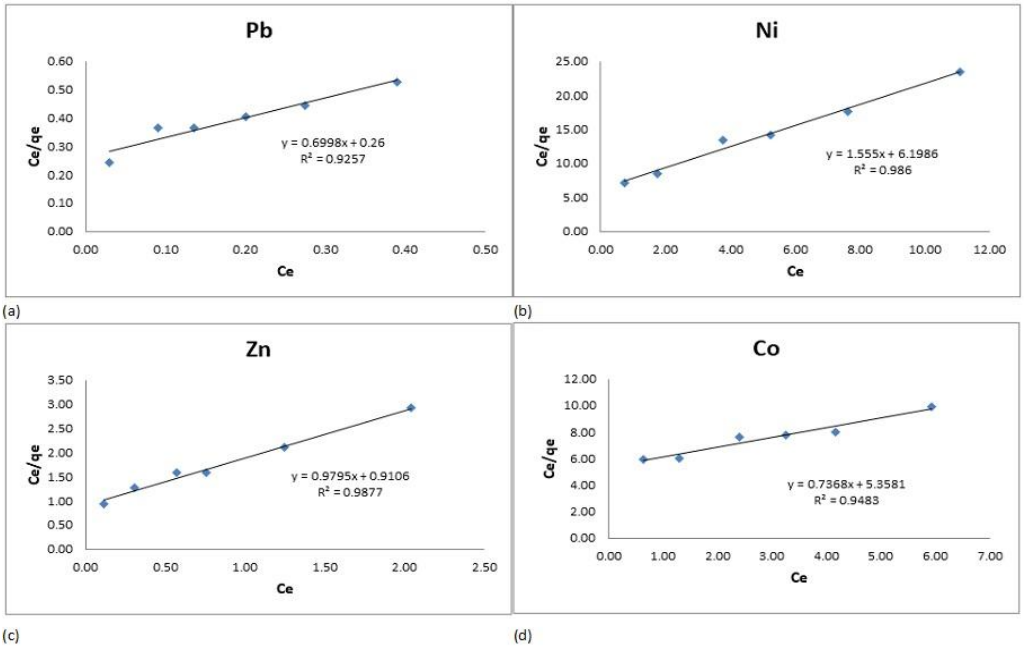

Figure S2. Langmuir isotherm for the adsorption of (a) Pb^{2+}, (b) Ni^{2+}, (c) Zn^{2+}, and (d) Co^{2+} with WHRP

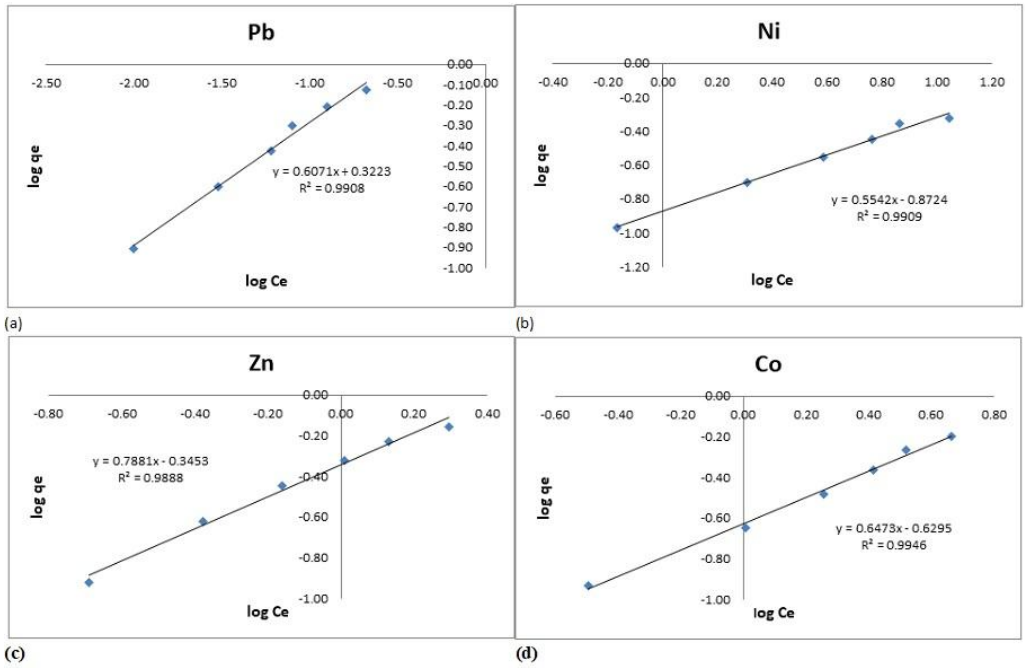

Figure S3. Freundlich isotherm for the adsorption of (a) Pb^{2+}, (b) Ni^{2+}, (c) Zn^{2+}, and (d) Co^{2+} with WHLP

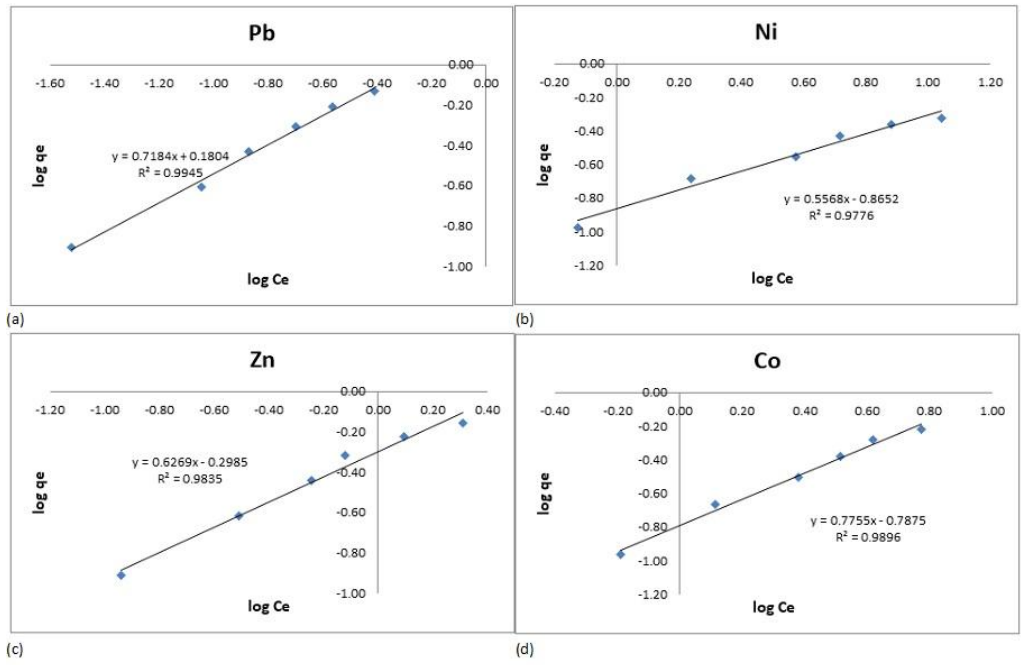

Figure S4. Freundlich isotherm for the adsorption of (a) Pb^{2+}, (b) Ni^{2+}, (c) Zn^{2+}, and (d) Co^{2+} with WHRP

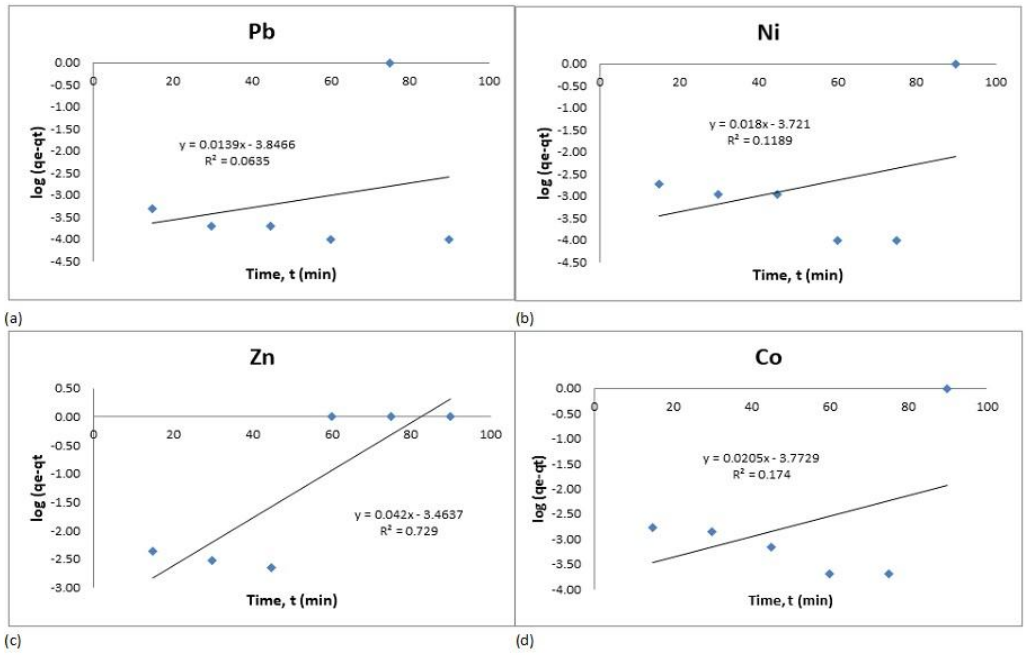

Figure S5. Pseudo-first order for the adsorption of (a) Pb^{2+}, (b) Ni^{2+}, (c) Zn^{2+}, and (d) Co^{2+} with WHLP for 5 mg/L of metal and 1 g/25 mL of sorbent

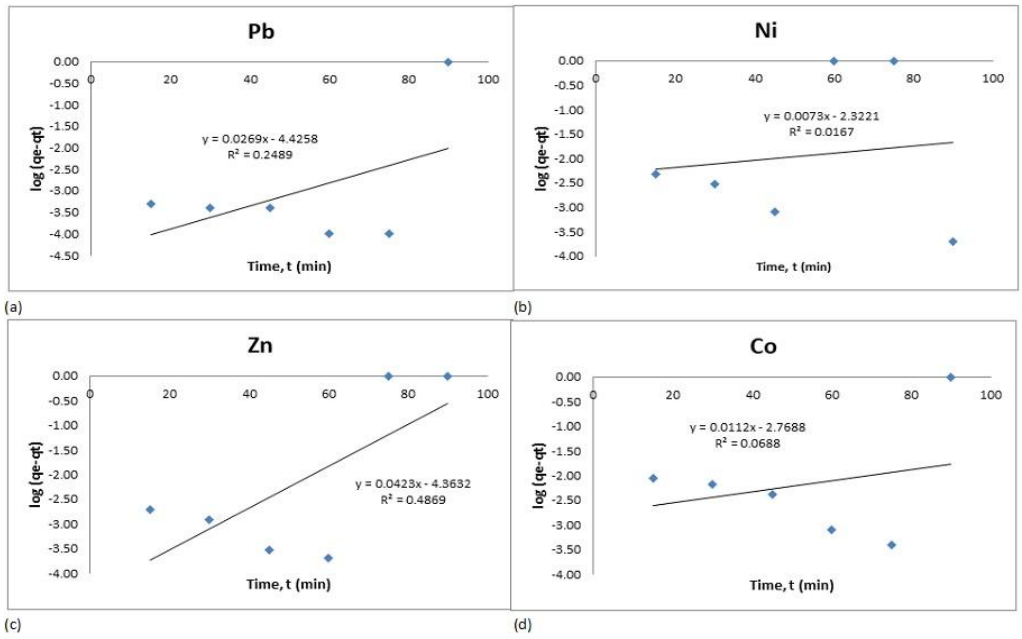

Figure S6. Pseudo-first order for the adsorption of (a) Pb^{2+}, (b) Ni^{2+}, (c) Zn^{2+}, and (d) Co^{2+} with WHRP for 5 mg/L of metal and 1 g/25 mL of sorbent