

Figure S1: EDS spectra of YP: upper) before and lower) after Cr (VI) adsorption

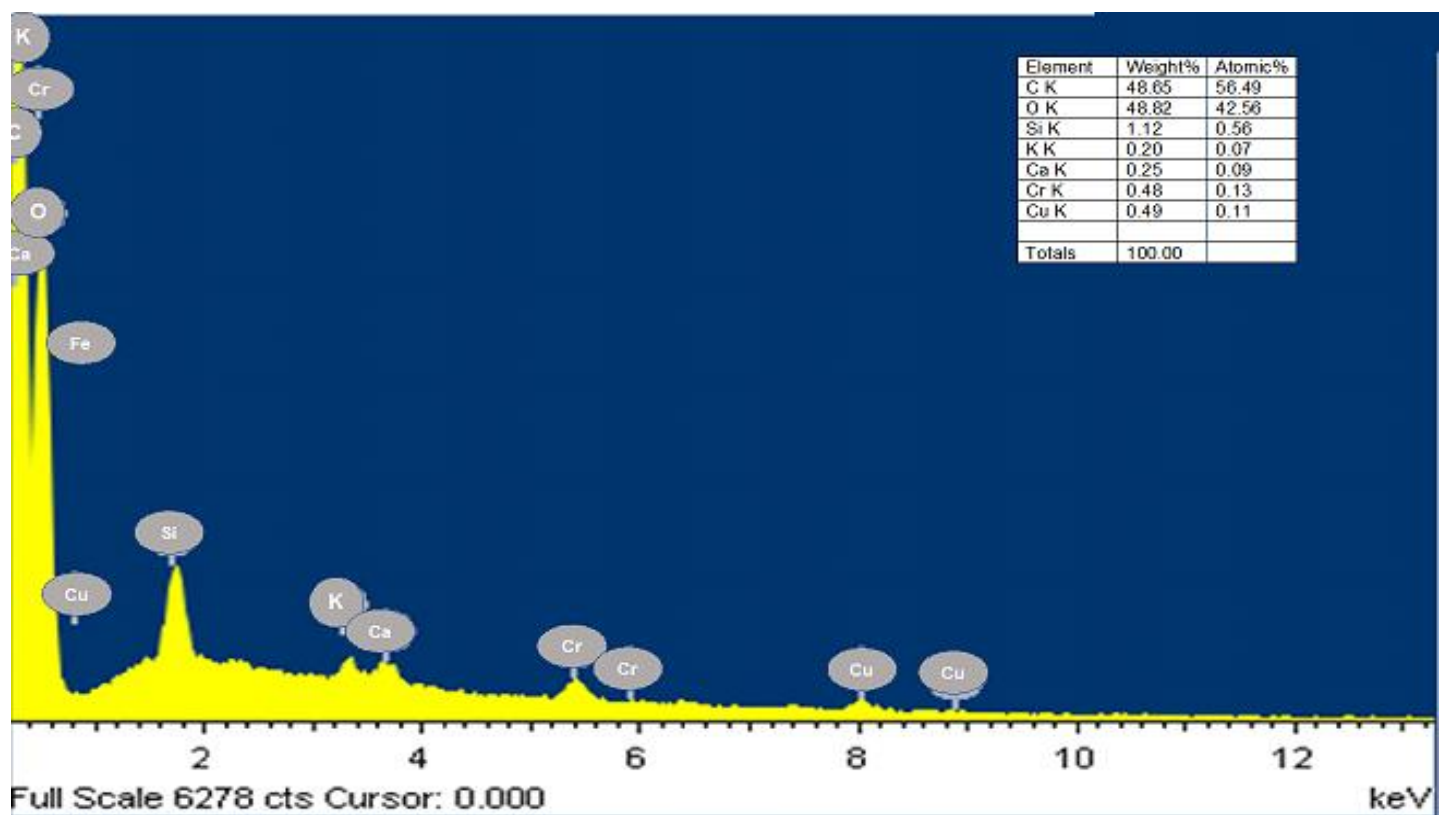
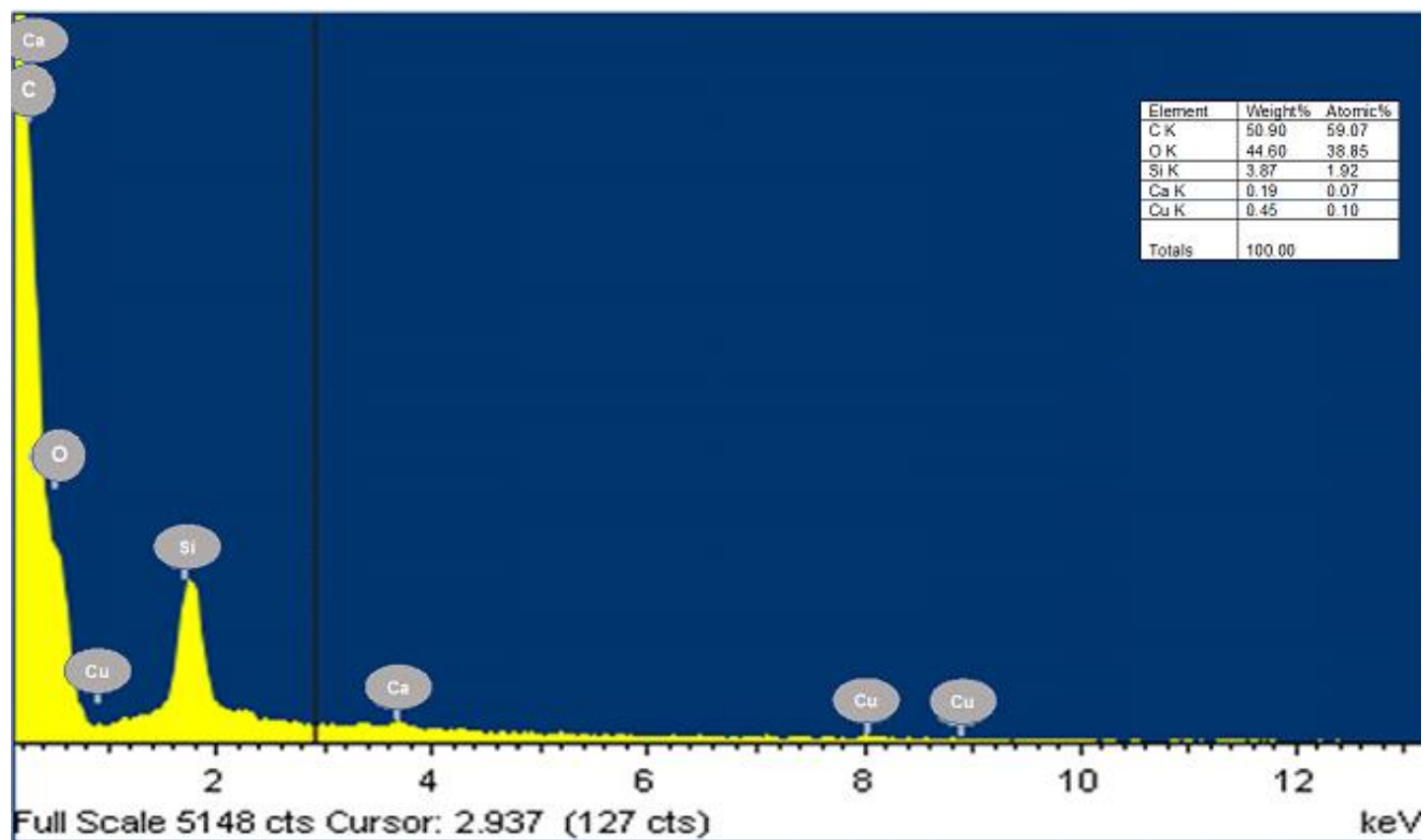


Figure S2: EDS spectra of PF: upper) before and lower) after Cr (VI) adsorption

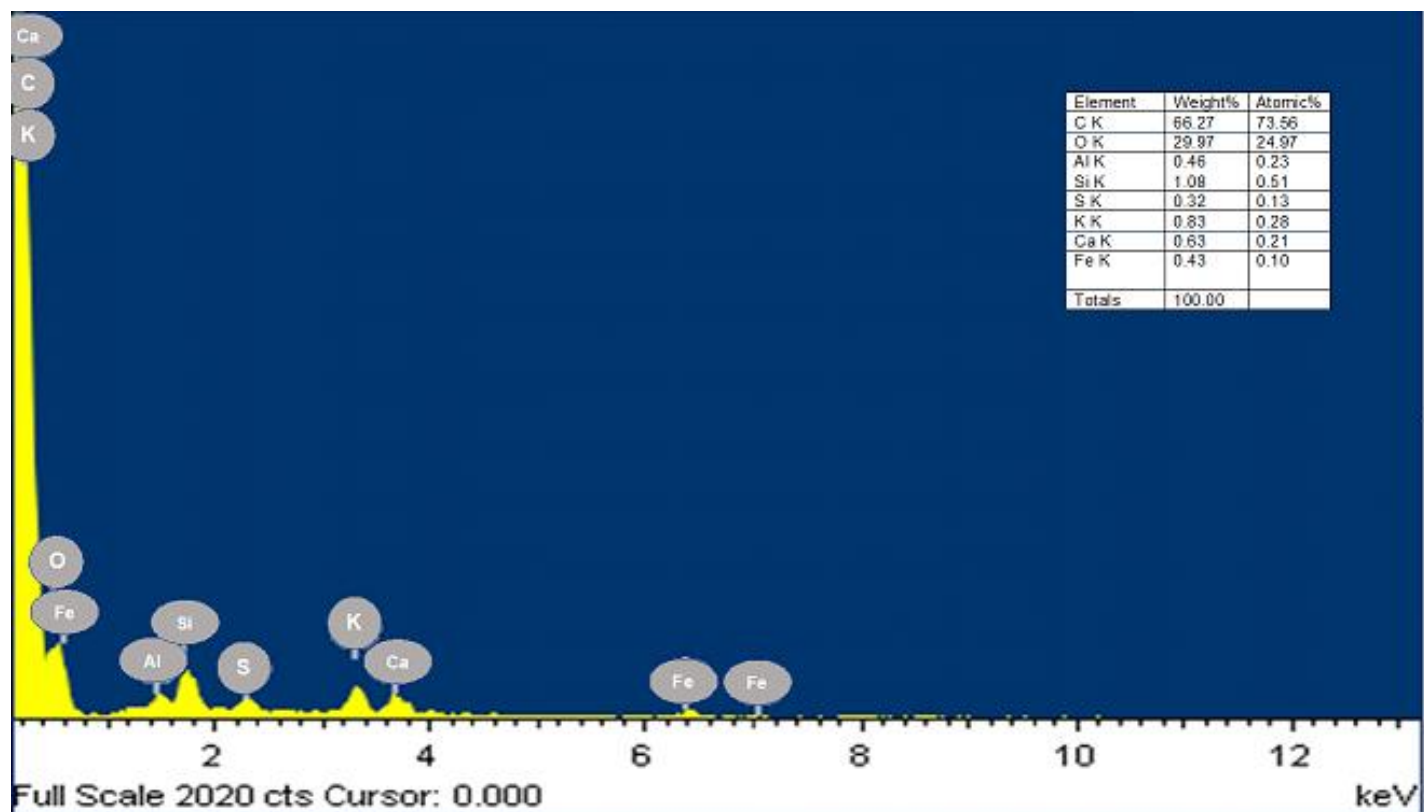
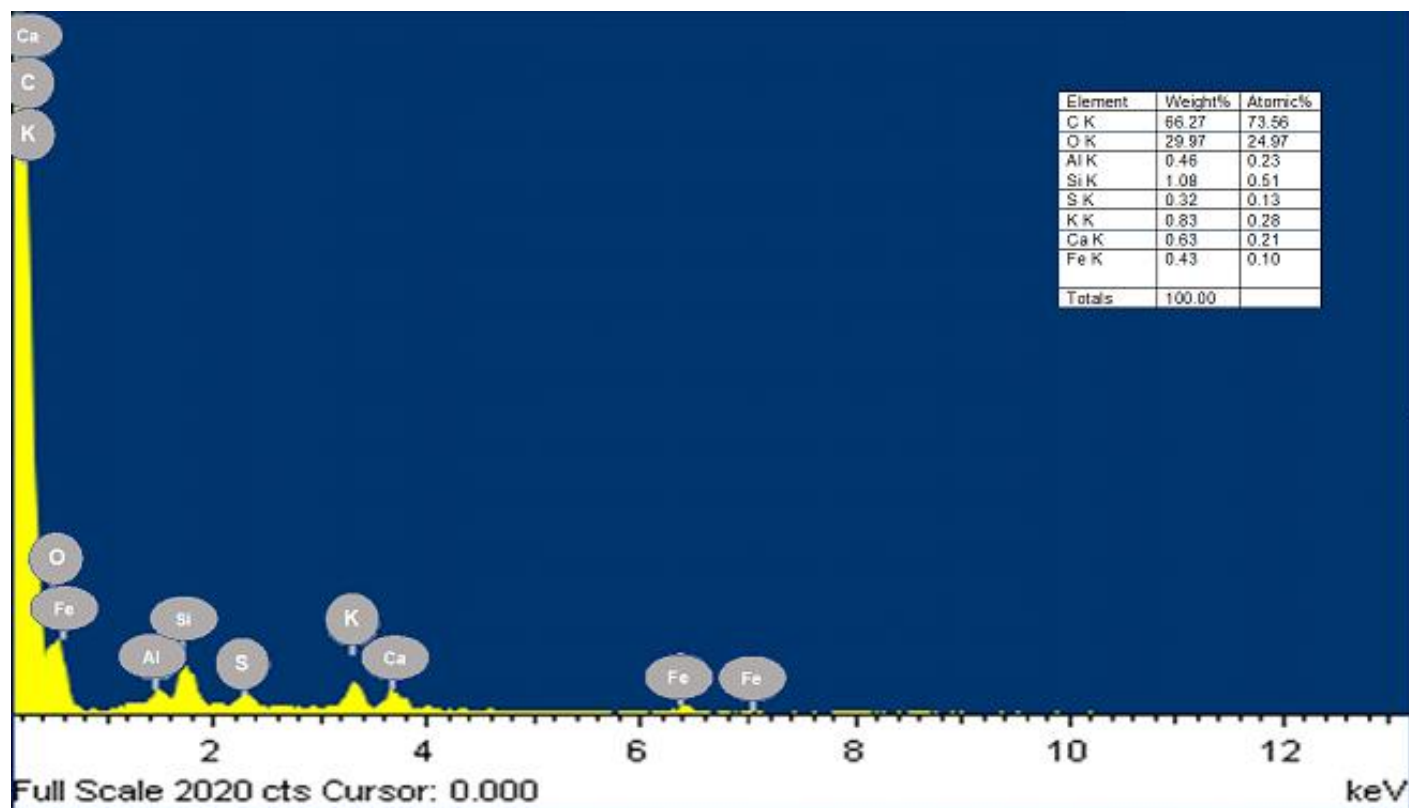


Figure S3: EDS spectra of CP: upper) before and lower) after Cr (VI) adsorption

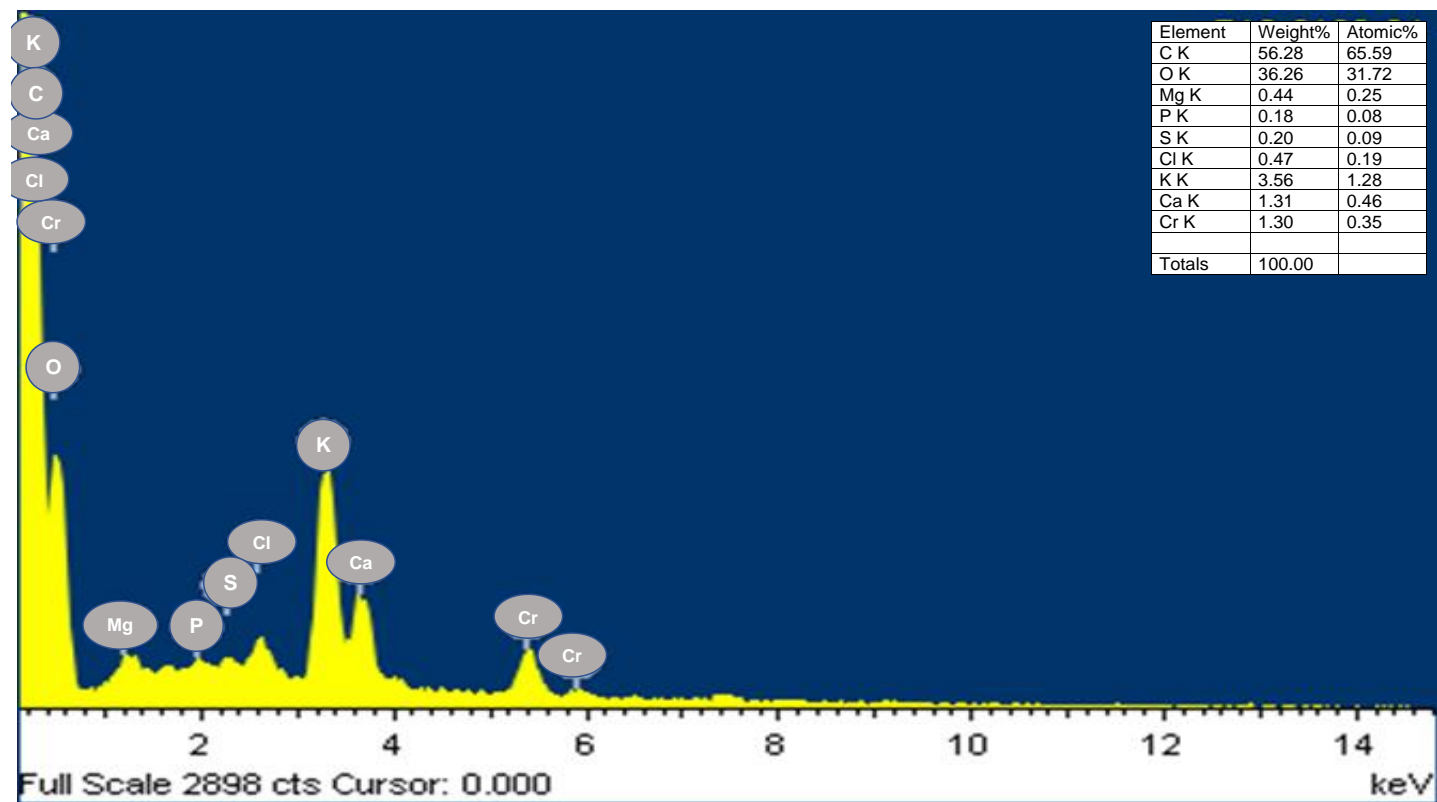
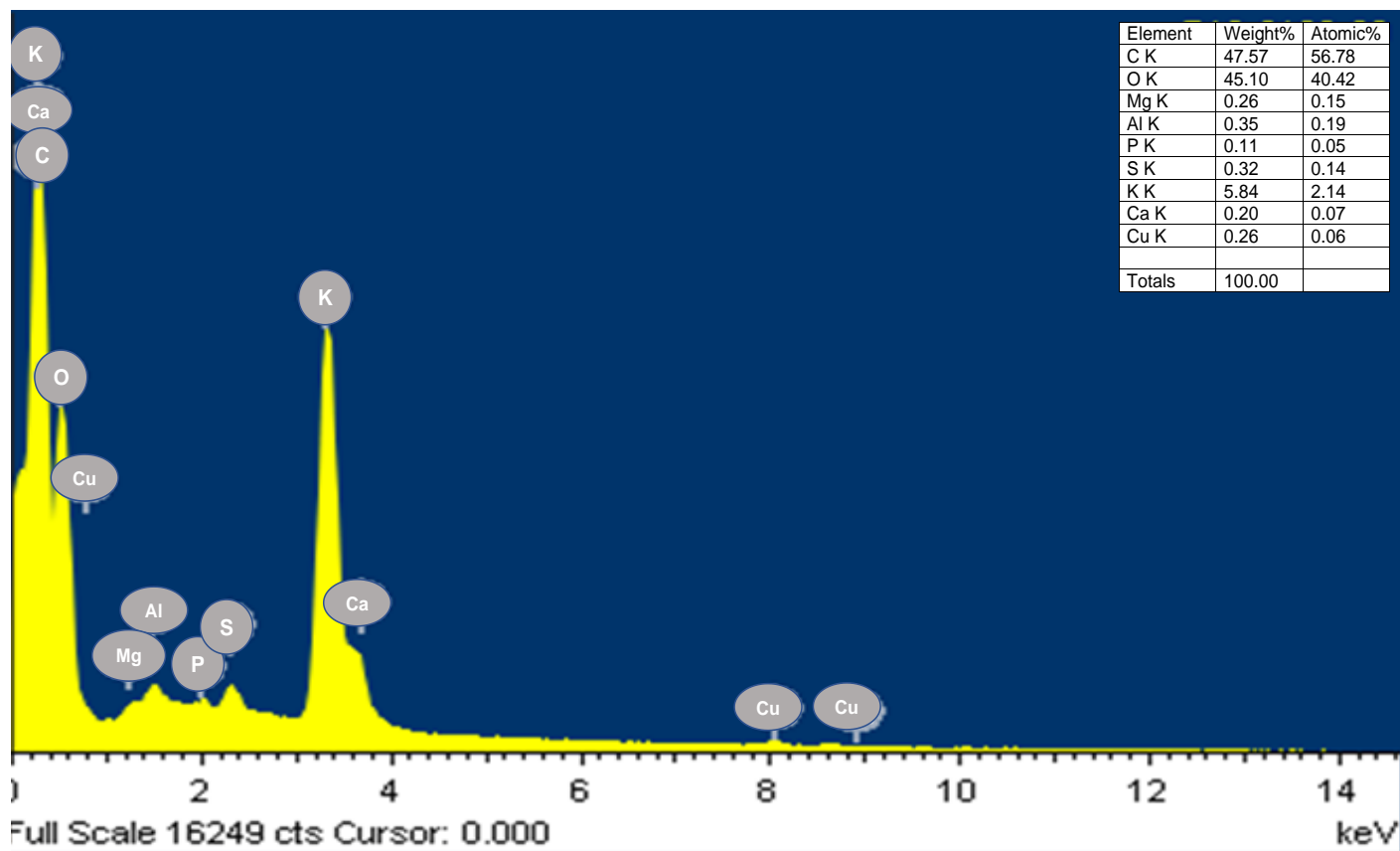


Figure S4: EDS spectra of CH: upper) before and lower) after Cr (VI) adsorption

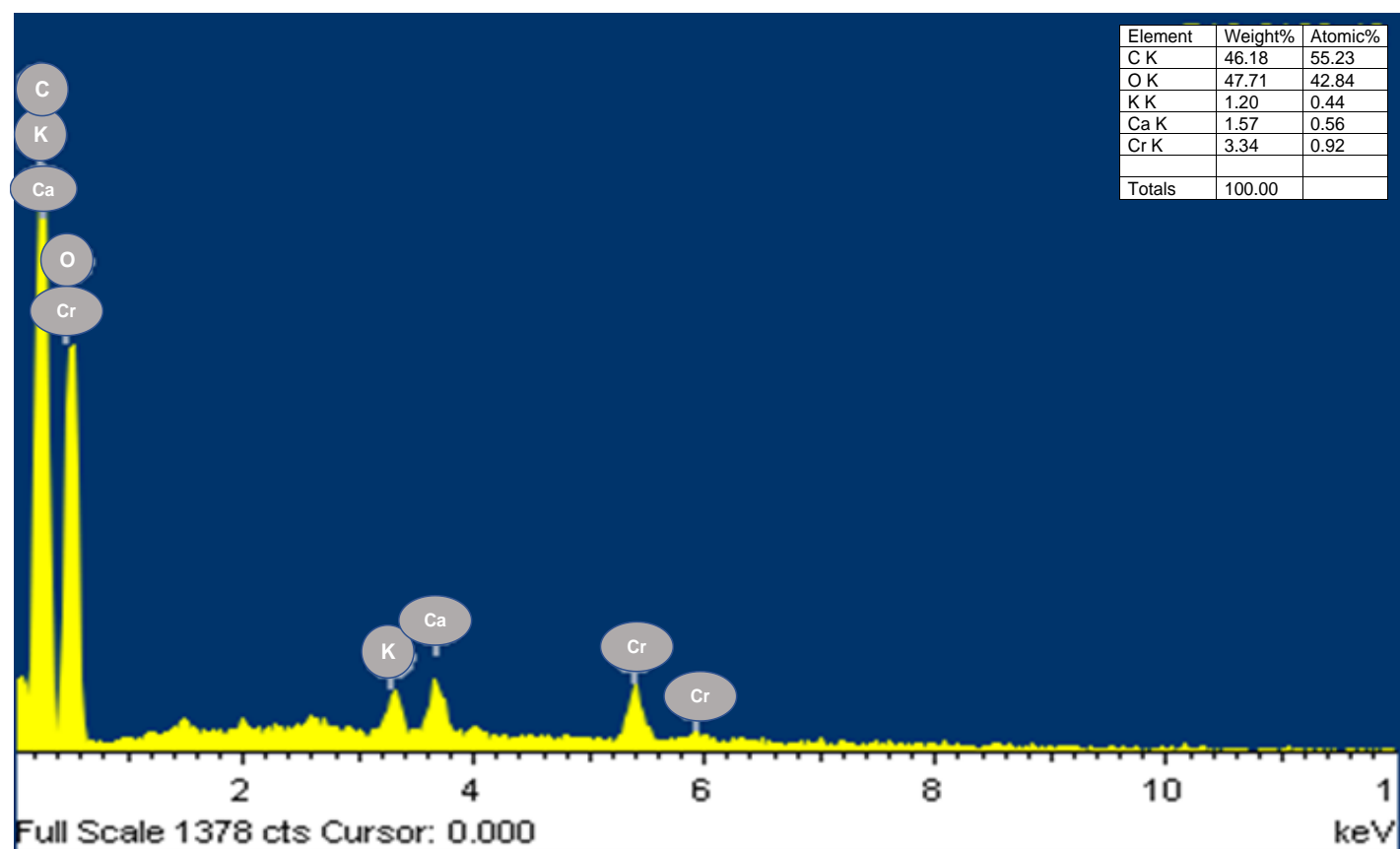
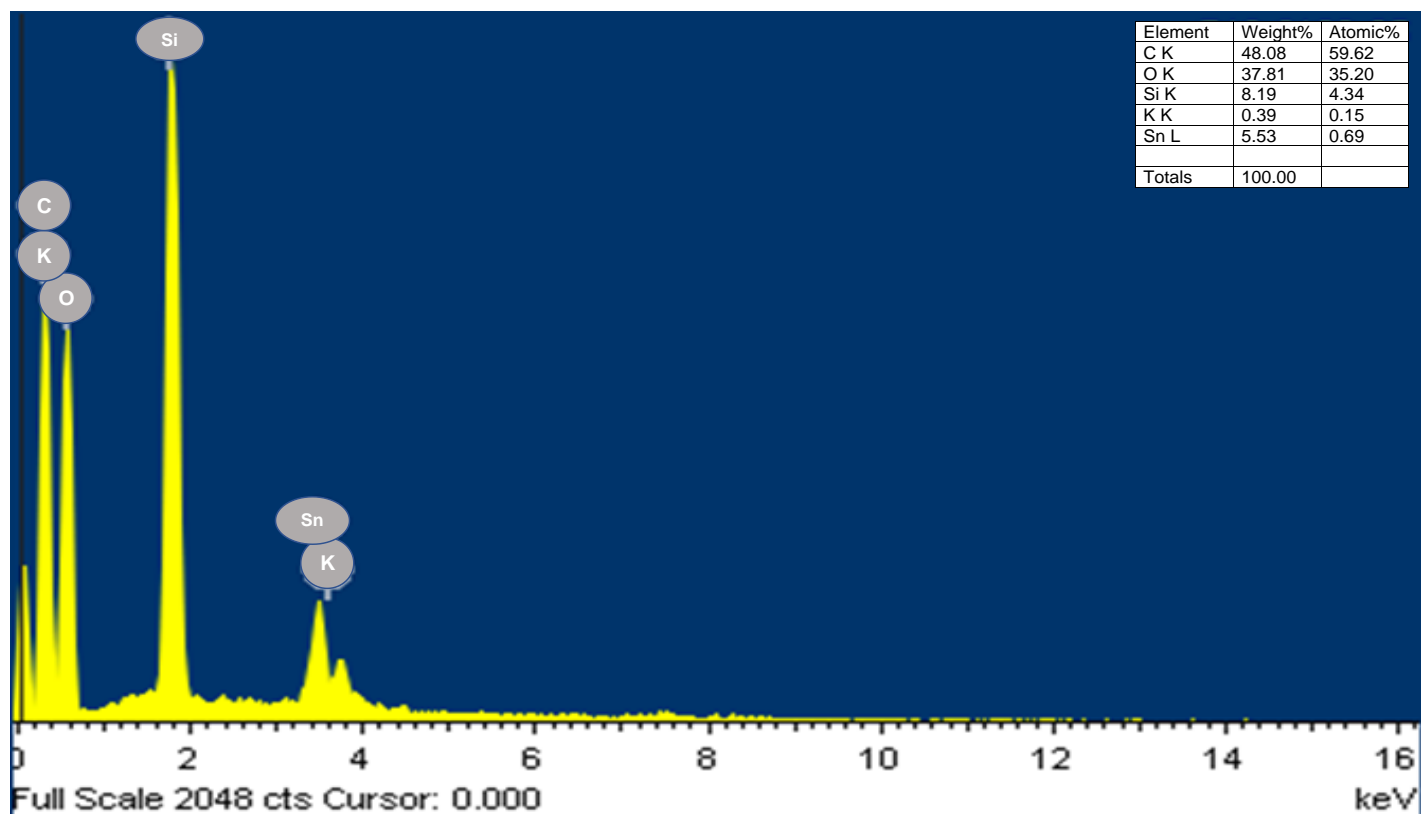


Figure S5: EDS spectra of CR: upper) before and lower) after Cr (VI) adsorption

Table S1: Model fitting and regression analysis of Cr (VI) adsorption process onto PF

Source	Sum of squares	DF	Mean Square	F-Value	P-Value
A: Temperature	0:875585	1	0:875585	0:01	0:9435
B: Particle size	0:875662	1	0:875662	0:01	0:9435
C: Adsorbent dose	580:248	1	580:248	3:62	0:1056
AA	113:504	1	113:504	0:71	0:4321
AB	1:49472	1	1:49472	0:01	0:9262
AC	1:49472	1	1:49472	0:01	0:9262
BB	113:503	1	113:503	0:71	0:4321
BC	1:49472	1	1:49472	0:01	0:9262
CC	324:129	1	324:129	2:02	0:2046
Total error	960:639	6	160:106		
Total (corr:)	2,494:67	15			

Table S2: Model fitting and regression analysis of Cr (VI) adsorption process onto YP

Source	Sum of squares	DF	Mean Square	F-Value	P-Value
A: Temperature	33:4775	1	33:4775	0:03	0:8785
B: Particle size	116:04	1	116:04	0:09	0:7766
C: Adsorbent dose	375:525	1	375:525	0:29	0:6125
AA	217:059	1	217:059	0:16	0:6988
AB	2333:98	1	2333:98	1:77	0:2314
AC	829:864	1	829:864	0:63	0:4575
BB	2146:49	1	2146:49	1:63	0:2488
BC	1:94085	1	1:94085	0:00	0:9706
CC	108:599	1	108:599	0:08	0:7836
Total error	7898:78	6	1316:46		
Total (corr:)	1,3842:2	15			

Table S3: Model fitting and regression analysis of Cr (VI) adsorption process onto CP

Source	Sum of squares	DF	Mean Square	F-Value	P-Value
A: Temperature	222:844	1	222:844	0:35	0:5737
B: Particle size	63:7895	1	63:7895	0:10	0:7611
C: Adsorbent dose	1060:17	1	1060:17	1:68	0:2421
AA	55:8911	1	55:8911	0:09	0:7758
AB	339:992	1	339:992	0:54	0:4902
AC	191:444	1	191:444	0:30	0:6013
BB	1185:89	1	1185:89	1:88	0:2191
BC	182:912	1	182:912	0:29	0:6093
CC	25:3611	1	25:3611	0:04	0:8476
Total error	3778:9	6	629:817		

Total (corr:)	7,158:46	15
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Table S4: Model fitting and regression analysis of Cr (VI) adsorption process onto CH

Source	Sum of squares	DF	Mean Square	F-Value	P-Value
A: Temperature	110:006	1	110:006	0:73	0:4260
B: Particle size	0:00105581	1	0:00105581	0:00	0:9980
C: Adsorbent dose	1649:42	1	1649:42	10:93	0:0163
AA	22:4025	1	22:4025	0:15	0:7133
AB	0:00245	1	0:00245	0:00	0:9969
AC	205:639	1	205:639	1:36	0:2873
BB	22:4024	1	22:4024	0:15	0:7133
BC	0:0512	1	0:0512	0:00	0:9859
CC	913:511	1	913:511	6:05	0:0491
Total error	905:352	6	150:892		
Total (corr:)	4,355:48	15			

Table S5: Model fitting and regression analysis of Cr (VI) adsorption process onto CR

Source	Sum of squares	DF	Mean Square	F-Value	P-Value
A: Temperature	75:314	1	75:314	0:56	0:4818
B: Particle size	0:174279	1	0:174279	0:00	0:9724
C: Adsorbent dose	1225:97	1	1225:97	9:15	0:0233
AA	14:5439	1	14:5439	0:11	0:7530
AB	0:0529751	1	0:0529751	0:00	0:9848
AC	152:382	1	152:382	1:14	0:3273
BB	19:6414	1	19:6414	0:15	0:7150
BC	1:74939	1	1:74939	0:01	0:9128
CC	781:65	1	781:65	5:83	0:0522
Total error	803:977	6	133:996		
Total (corr:)	3,515:25	15			