

Supplementary Information

Cadmium and Lead Determination in Freshwater and Hemodialysis Solutions by Thermospray Flame Furnace Atomic Absorption Spectrometry Following Cloud Point Extraction

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Table S1. Experimental matrix design for optimizing the CPE method

Experiment	DPKSH / (mmol L ⁻¹)	pH	Triton X-114 / %	NaCl / %	Cd Abs	Pb Abs
1	0.20	7.0	0.10	7.0	3.25602	0.40656
2	0.20	7.0	0.30	3.0	2.99046	2.12690
3	0.20	9.0	0.10	3.0	2.23812	0.85918
4	0.20	9.0	0.30	7.0	2.66132	1.63695
5	0.50	7.0	0.10	3.0	0.81576	0.24067
6	0.50	7.0	0.30	7.0	2.36306	1.21515
7	0.50	9.0	0.10	7.0	2.06452	0.78454
8	0.50	9.0	0.30	3.0	0.04863	0.32588
9	0.40	8.0	0.20	5.0	1.78439	1.26160
10	0.20	7.0	0.10	3.0	2.23158	0.67666
11	0.20	7.0	0.30	7.0	2.58255	1.47790
12	0.20	9.0	0.10	7.0	2.53745	0.94568
13	0.20	9.0	0.30	3.0	2.39870	1.83564
14	0.50	7.0	0.10	7.0	2.16794	0.87423
15	0.50	7.0	0.30	3.0	0.34987	0.16730
16	0.50	9.0	0.10	3.0	0.24047	0.07866
17	0.50	9.0	0.30	7.0	1.87124	1.51960
18	0.40	8.0	0.20	5.0	1.78439	1.26160
19	0.10	8.0	0.20	5.0	2.54045	1.30312
20	0.70	8.0	0.20	5.0	0.00000	0.00000
21	0.40	6.0	0.20	5.0	1.96935	0.85559
22	0.40	10.0	0.20	5.0	2.19899	0.18650
23	0.40	8.0	0.00	5.0	0.00000	0.00000
24	0.40	8.0	0.40	5.0	1.95134	1.67715
25	0.40	8.0	0.20	1.0	0.00000	0.00000
26	0.40	8.0	0.20	9.0	2.39935	1.90160
27	0.40	8.0	0.20	5.0	1.78439	1.26160

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Table S2. Analysis of variance (ANOVA) for the full experimental design results for Cd ($R^2 = 0.89$ and adjust $R^2 = 0.76$)

Effect	Sum of squares (SS)	Degree of freedom	Mean of squares	F	p
DPKSH	10.94531	1	10.94531	45.58383	0.000020
DPKSH ²	0.09572	1	0.09572	0.39863	0.539637
pH	0.20953	1	0.20953	0.87263	0.368646
pH ²	0.36803	1	0.36803	1.53272	0.239380
Triton	0.54149	1	0.54149	2.25514	0.159021
Triton ²	0.45778	1	0.45778	1.90650	0.192527
NaCl	5.92085	1	5.92085	24.65852	0.000328
NaCl ²	0.17412	1	0.17412	0.72515	0.411132
DPKSH × pH	0.00145	1	0.00145	0.00603	0.939400
DPKSH × Triton	0.00097	1	0.00097	0.00403	0.950426
DPKSH × NaCl	2.16232	1	2.16232	9.00541	0.011048
pH × Triton	0.00045	1	0.00045	0.00187	0.966250
pH × NaCl	0.00321	1	0.00321	0.01338	0.909831
Triton × NaCl	0.04095	1	0.04095	0.17056	0.686899
Pure error	2.88137	12	0.24011	–	–
Total SS	26.03994	26	–	–	–

Table S3. Analysis of variance (ANOVA) for the full experimental design results for Pb ($R^2 = 0.91$ and adjust $R^2 = 0.80$)

Effect	Sum of squares (SS)	Degree of freedom	Mean of squares	F	P
DPKSH	1.94466	1	1.944659	23.85918	0.000376
DPKSH ²	0.38047	1	0.380470	4.66802	0.051660
pH	0.00704	1	0.007035	0.08631	0.773936
pH ²	0.58996	1	0.589960	7.23827	0.019655
Triton	3.49741	1	3.497413	42.91005	0.000027
Triton ²	0.16040	1	0.160401	1.96797	0.186004
NaCl	1.24794	1	1.247943	15.31111	0.002061
NaCl ²	0.07322	1	0.073216	0.89829	0.361937
DPKSH × pH	0.03522	1	0.035219	0.43210	0.523368
DPKSH × Triton	0.47197	1	0.471969	5.79063	0.033131
DPKSH × NaCl	1.61348	1	1.613480	19.79592	0.000794
pH × Triton	0.00121	1	0.001210	0.01484	0.905056
pH × NaCl	0.06568	1	0.065679	0.80582	0.387015
Triton × NaCl	0.00354	1	0.003541	0.04345	0.838378
Pure error	0.97807	12	0.081506	–	–
Total SS	11.11841	26	–	–	–

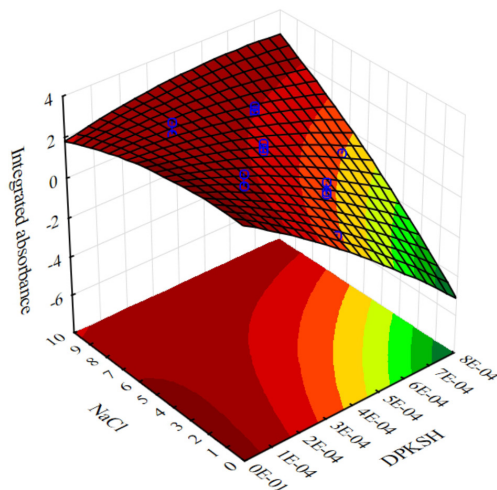


Figure S1. Three dimensional response surface plot of the variation in the integrated absorbance as a function of NaCl (% m/v) versus DPKSH concentration (mol L⁻¹) to cadmium CPE.

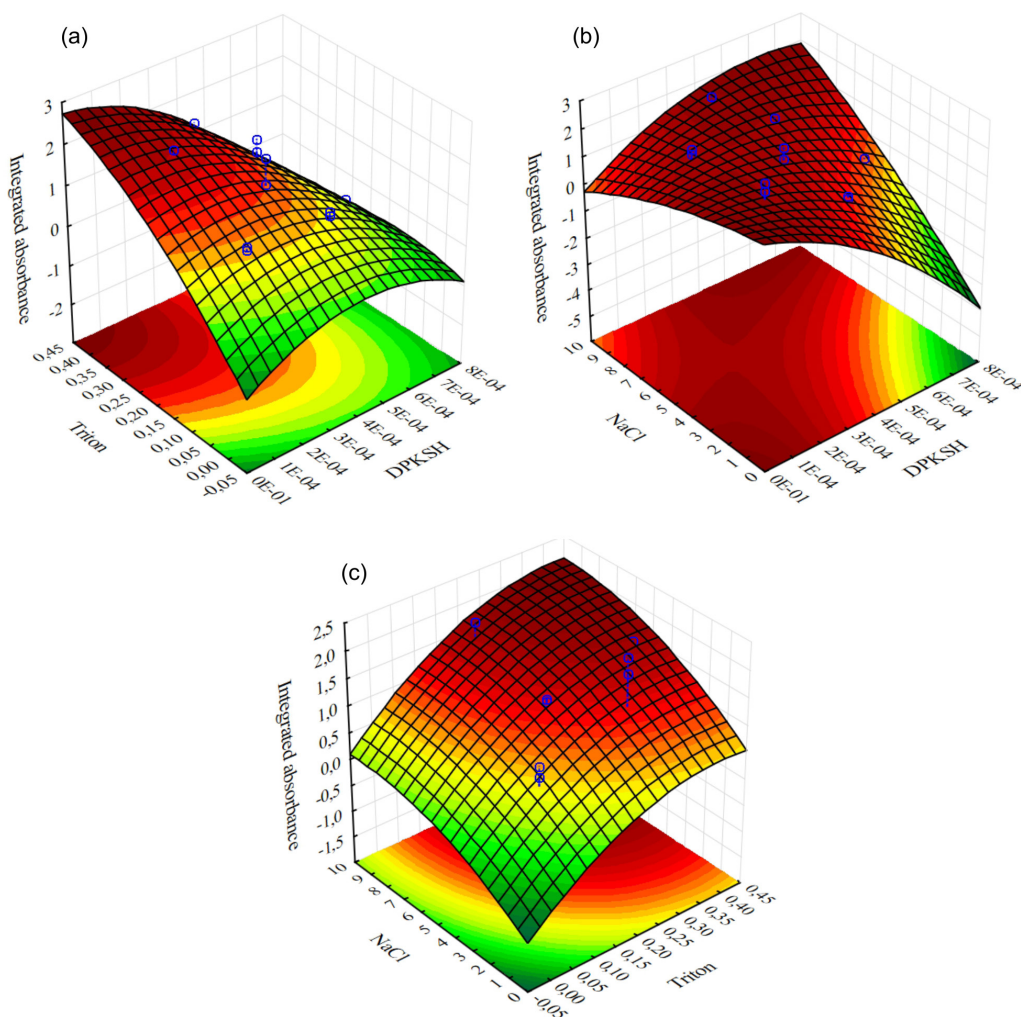


Figure S2. Three dimensional response surface plot of the variation in the integrated absorbance as a function of (a) Triton X-114 (% m/v) and DPKSH concentration (mol L⁻¹); (b) NaCl (% m/v) and DPKSH concentration (mol L⁻¹) and (c) NaCl (% m/v) and Triton X-114 (% m/v) to lead CPE.