

Supplementary materials

Tab. S1. Variable coding and level of RSM

Variable	Coding	Level		
		-1	0	1
Time (min)	A	30	60	90
Current density (mA/cm^2)	B	6	12	18
Initial pH	C	5	7	9

The choice of data for three variables was depended on the results of single-factor experiment. Through the removal performance of the three factors in different horizontal conditions, the appropriate removal level was obtained as the center point, and take the numbers with the same difference on both sides of central point as the other two levels. Based on the costs, the optimal conditions which were 60 min, 12 mA/cm^2 and initial $\text{pH}=7$ were obtained. After determined the data, we did 17 experiments according to Tab. S1.

Tab. S2. Test scheme and results

Number	A	B	C	Removal rate (%)
1	0	0	0	94.76
2	1	1	0	97.42
3	0	1	-1	91.31
4	0	-1	-1	80.7
5	0	0	0	96.17
6	-1	-1	0	61.43
7	1	0	-1	92.92
8	-1	1	0	75.66
9	0	0	0	96.14
10	-1	0	-1	69.17
11	0	-1	1	68.96
12	0	1	1	81.47
13	0	0	0	96.27
14	1	-1	0	90.94
15	0	0	0	94.19
16	1	0	1	81.6
17	-1	0	1	57.5

Tab. S3. Analysis of variance of regression model

Source	Sum of squares	df	Mean square	F value	P value
Model	2771.04	9	307.89	350.36	< 0.0001
A	1228.10	1	1228.10	1397.49	< 0.0001
B	240.13	1	240.13	273.26	< 0.0001
C	248.31	1	248.31	282.56	< 0.0001
AB	15.02	1	15.02	17.09	0.0044
AC	0.031	1	0.031	0.035	0.8572
BC	0.90	1	0.90	1.03	0.3446
A ²	398.46	1	398.46	453.42	< 0.0001
B ²	82.09	1	82.09	93.41	< 0.0001
C ²	462.49	1	462.49	526.28	< 0.0001
Residual	6.15	7	0.88		
Lack of Fit	2.44	3	0.81	0.87	0.5249
Pure Error	3.71	4	0.93		
Cor Total	2777.20	16			
R ²	0.9978				
R _{adj} ²	0.9949				