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Table S1. Box–Behnken design with three independent variables for arsenate removal.

Factors	Levels and Ranges		
	-1	0	+1
A: Solution pH	4.5	6.5	8.5
B: As concentration (µg/L)	20	70	120
C: Contact time (min)	20	80	140

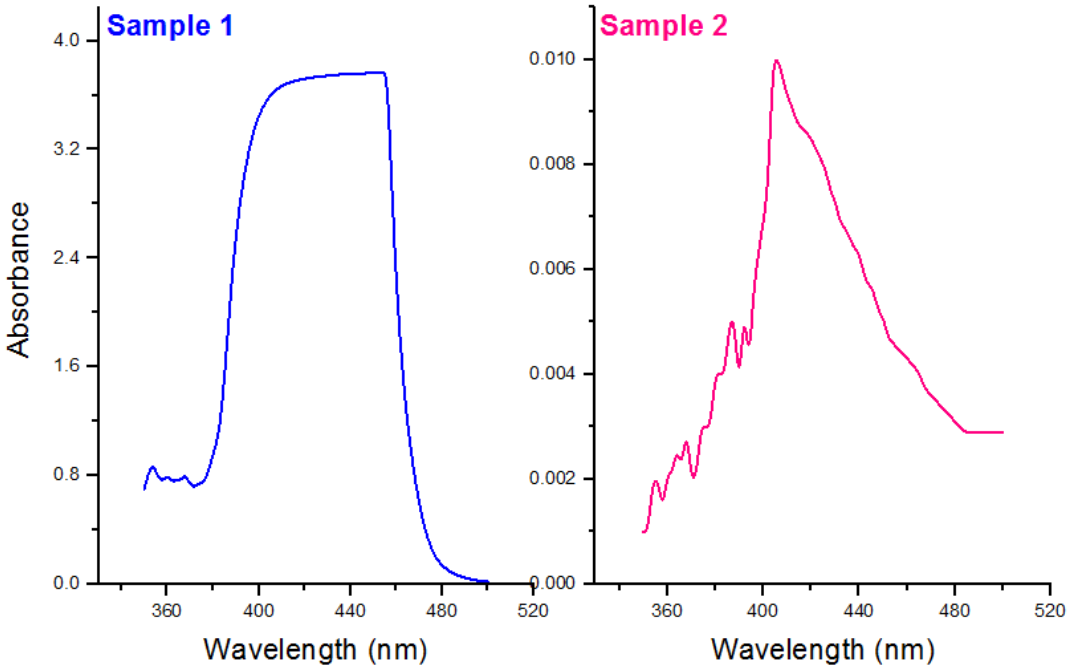
Std.	Run	Block	A	B	C	$Y_{Observed}$ (%)	$Y_{Predicted}$ (%)	Residual	Error (%)
9	1	1	4.5	70	80	91.62	92.36	-0.74	0.8
5	2	1	4.5	20	140	87.49	80.63	6.86	8.51
17	3	1	6.5	70	80	85.72	84.32	1.4	1.66
20	4	1	6.5	70	80	75.72	77.14	-1.42	1.84
6	5	1	8.5	20	140	14.4	15.18	-0.78	5.13
18	6	1	6.5	70	80	84.72	85.13	-0.41	0.48
16	7	1	6.5	70	80	86.72	88.65	-1.93	2.17
15	8	1	6.5	70	80	80.72	80.96	-0.24	0.29
8	9	1	8.5	120	140	2.6	2.43	0.17	6.99
1	10	1	4.5	20	20	8.89	8.13	0.76	9.35
14	11	1	6.5	70	140	87.1	88.57	-1.47	1.66
12	12	2	6.5	120	80	75.4	76.13	-0.73	0.96
2	13	2	8.5	20	20	1.47	1.32	0.15	11.36
7	14	2	4.5	120	140	100	99.13	0.87	0.87
11	15	2	6.5	20	80	64.99	65.97	-0.98	1.48

4	16	2	8.5	120	20	12.34	13.75	-1.41	10.25
19	17	2	6.5	70	80	83.82	82.68	1.14	1.37
3	18	2	4.5	120	20	41.3	43.57	-2.27	5.21
10	19	2	8.5	70	80	25.2	25.19	0.01	0.04
13	20	2	6.5	70	20	33.72	35.21	-1.49	4.23

Table S2. Analysis of variance (ANOVA) of the response surface model for the prediction of arsenic adsorption.

Source	Sum of Squares	DF	Mean Square	F-Value	p-value
Model	23009.52	9	2556.61	72.91	0.0001
A	7468.74	1	7468.74	212.98	0.0001
B	295.94	1	295.94	8.44	0.0157
C	3758.56	1	3758.56	107.18	0.0001
AB	262.78	1	262.78	7.49	0.0209
AC	2248.19	1	2248.19	64.11	0.0001
BC	226.53	1	226.53	6.46	0.0293
A^2	1181.61	1	1181.61	33.70	0.0002
B^2	219.97	1	219.97	6.27	0.0312
C^2	964.60	1	964.60	27.51	0.004
Residual	350.68	10	35.07		
Lack of Fit	267.67	5	53.53	3.22	11.23
Pure Error	83.01	5	16.60		
R-Squared					0.9850
Adj R-Squared					0.9715
Pred R-Squared					0.9130

p-value< 0.05 was set as significant



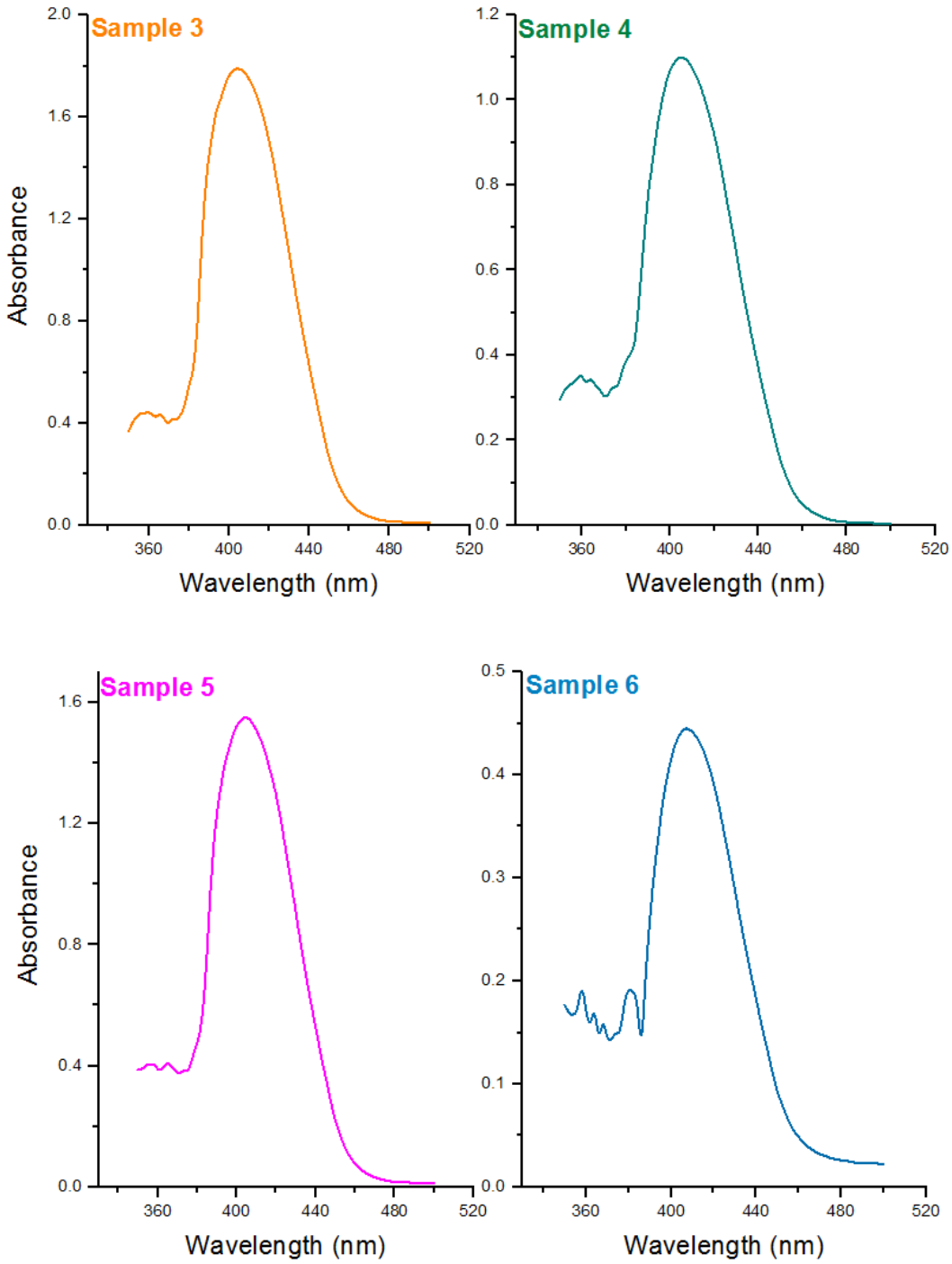


Fig. S1. UV/VIS spectra of AMPDSA samples after Schiff base reaction

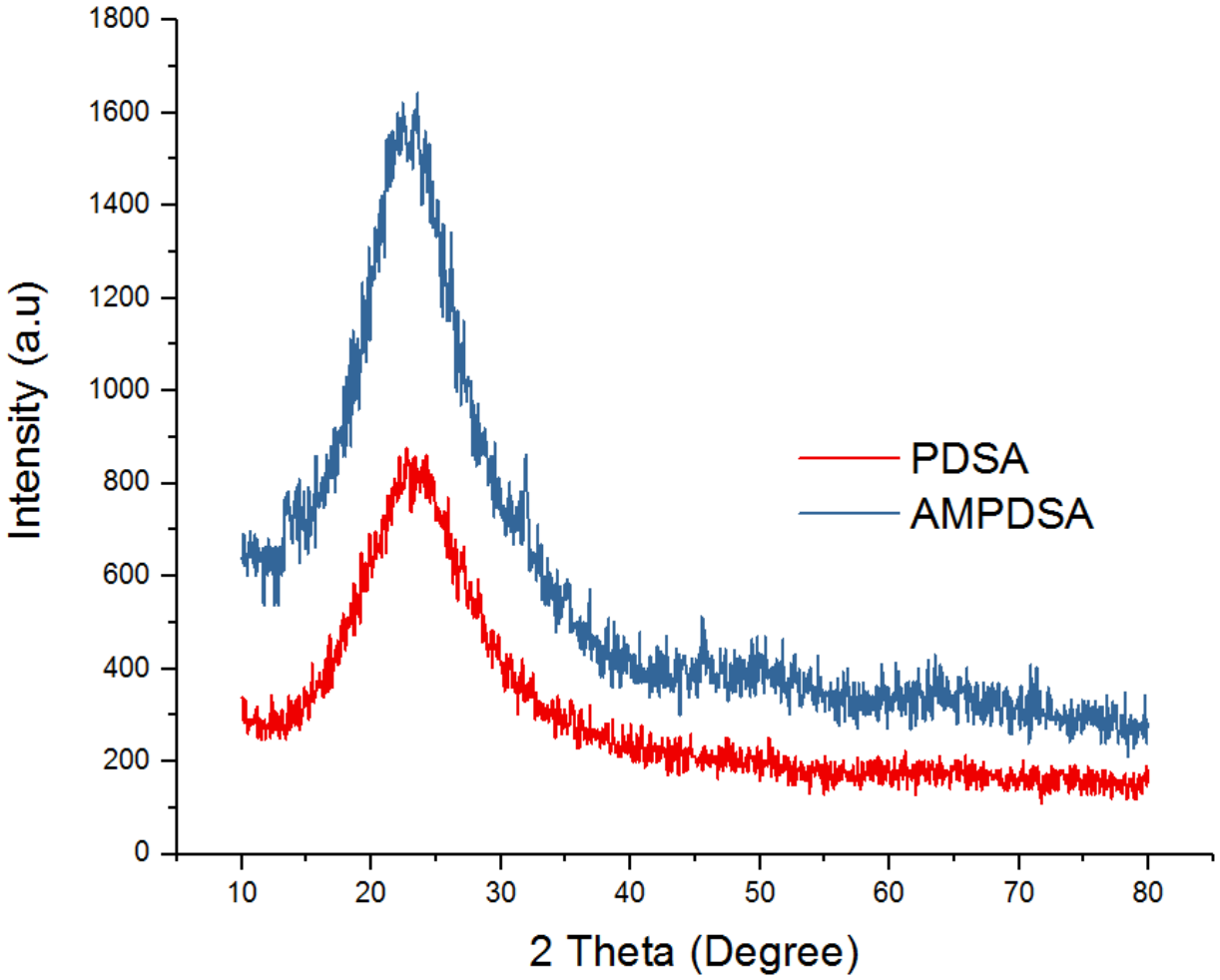


Fig. S2. XRD pattern of PDSA and AMPDSA

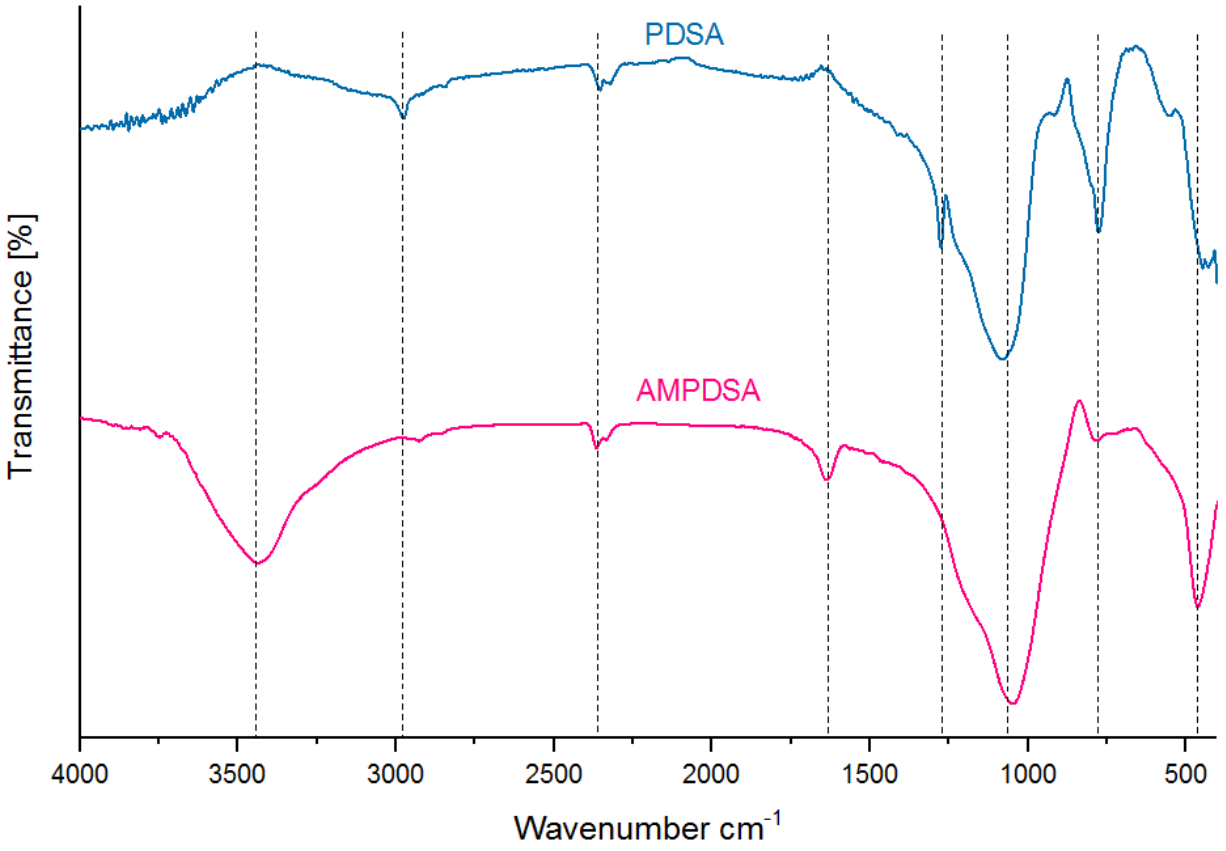
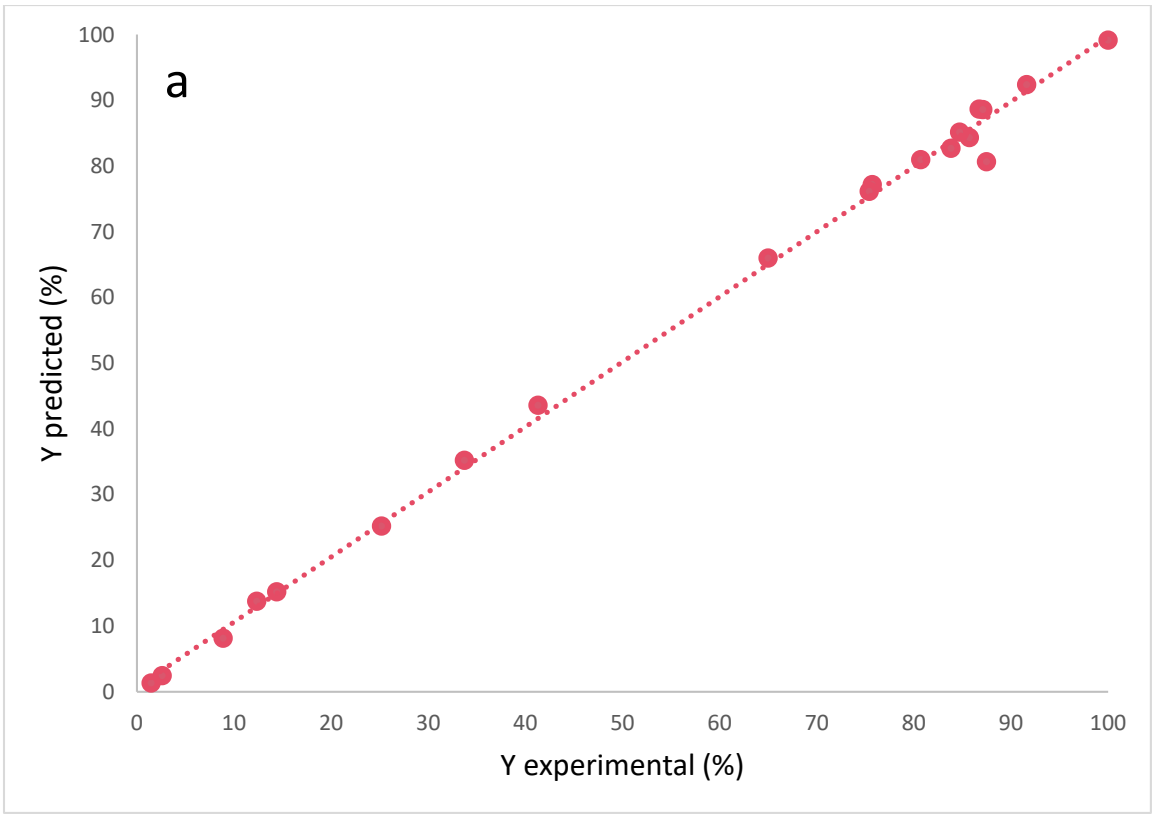
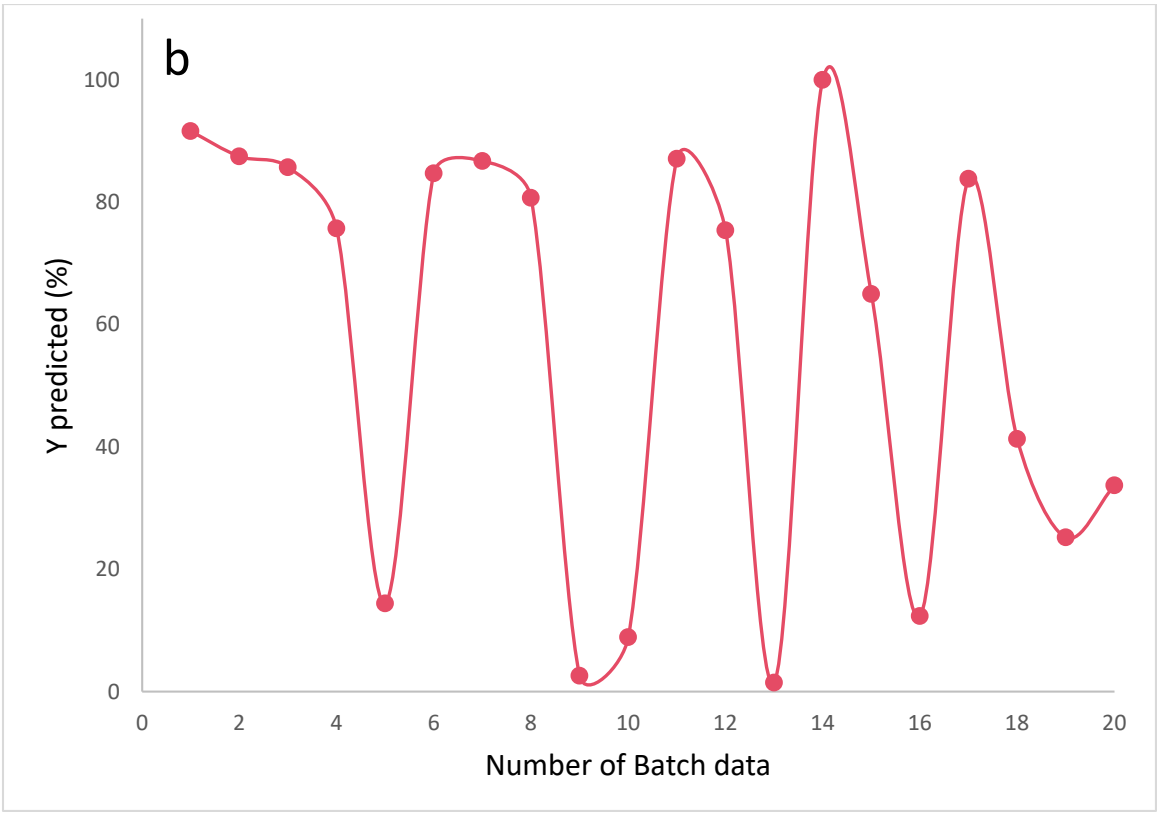


Fig. S3. FTIR spectra of PDSA and AMPDSA


a
Y predicted (%)
Y experimental (%)
0
10
20
30
40
50
60
70
80
90
100


b
Y predicted (%)
Number of Batch data
0
20
40
60
80
100
0
2
4
6
8
10
12
14
16
18
20

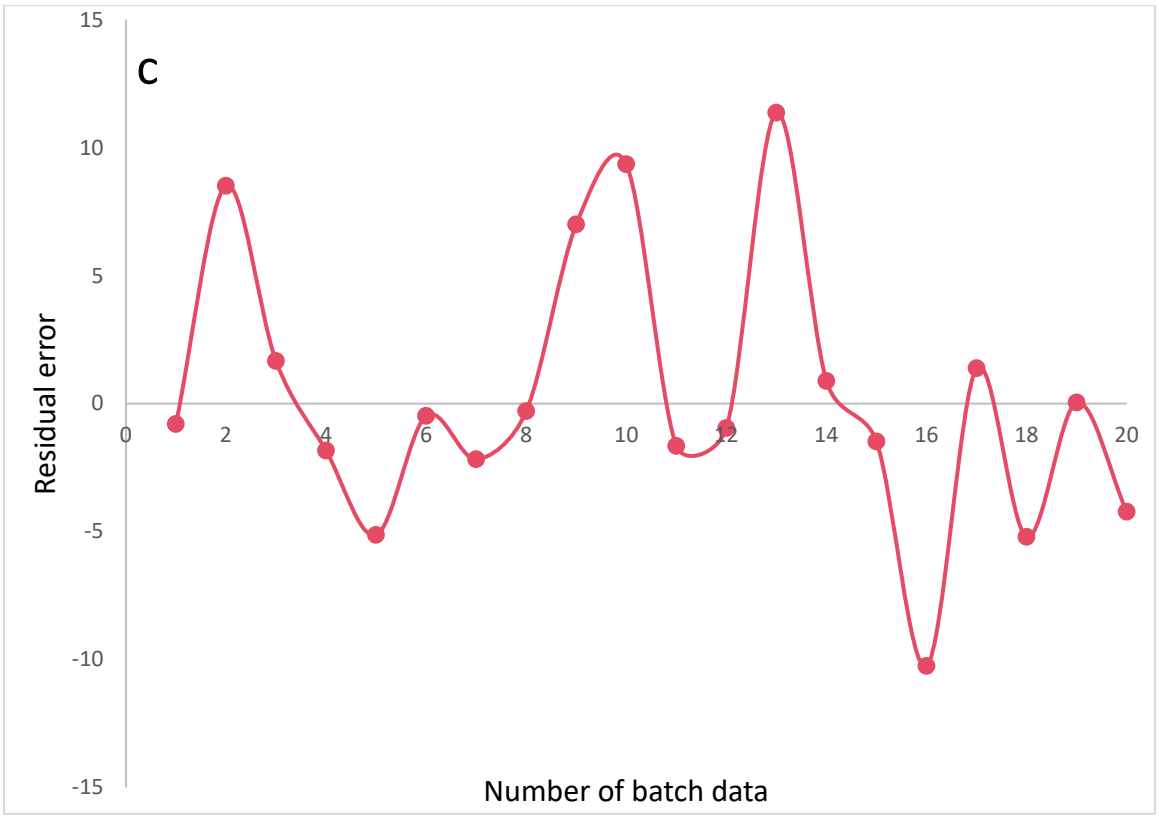


Fig. S4. Correlations between the predicted values and the batch experimental data (a), number of batch data with predicted values (b) and residual errors (c)