Removal of Pharmaceuticals Micropollutants by Integrated Biochar and Marine Microalgae

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Figure S1 illustrates the cultivation process of micro algae in our study.

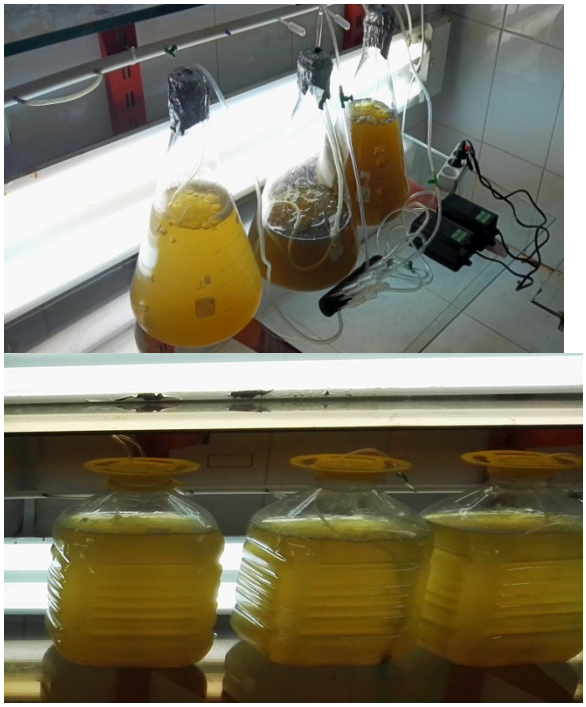


Figure S1. Cultivation microalgae before treatments.

Topology of ANN model in this study is shown in Figure S2.

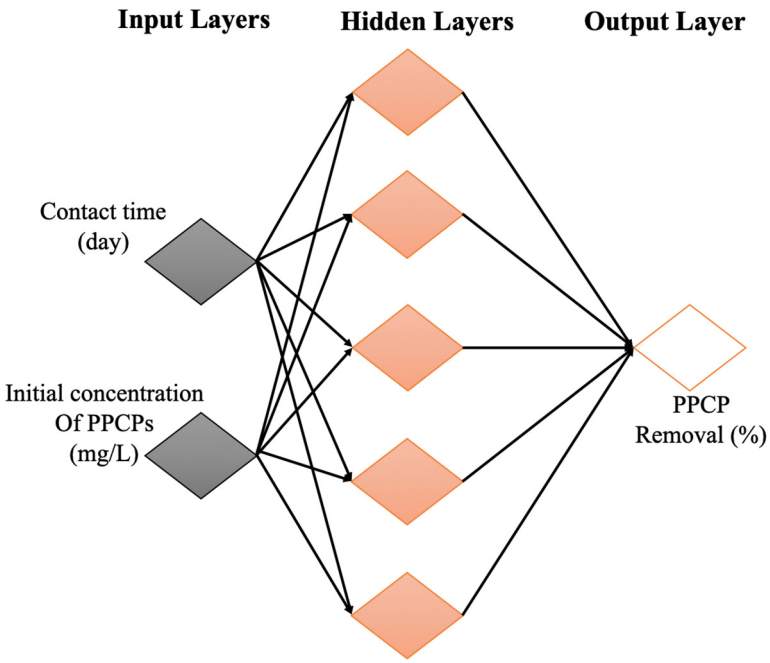
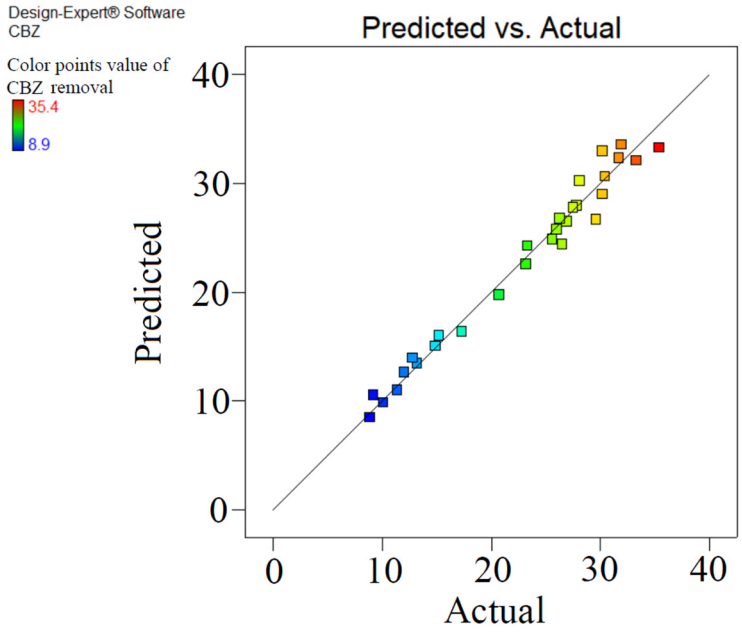
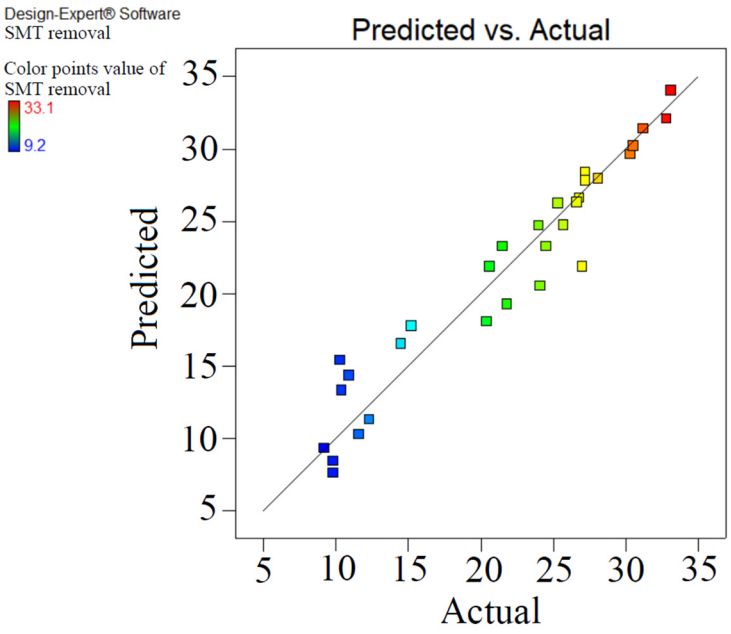


Figure S2. The schematic of ANN model.

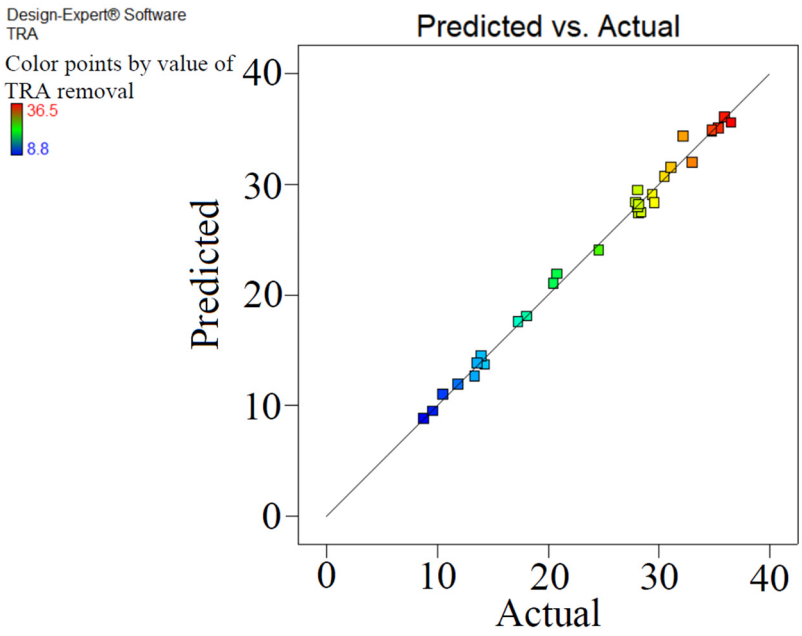
The distributions of predicted data and experimental data in RSM model are shown in Figures S3 to S4.


Design-Expert® Software
CBZ
Color points value of
CBZ removal
35.4
8.9
Predicted vs. Actual
Predicted
Actual
0
10
20
30
40

(a)

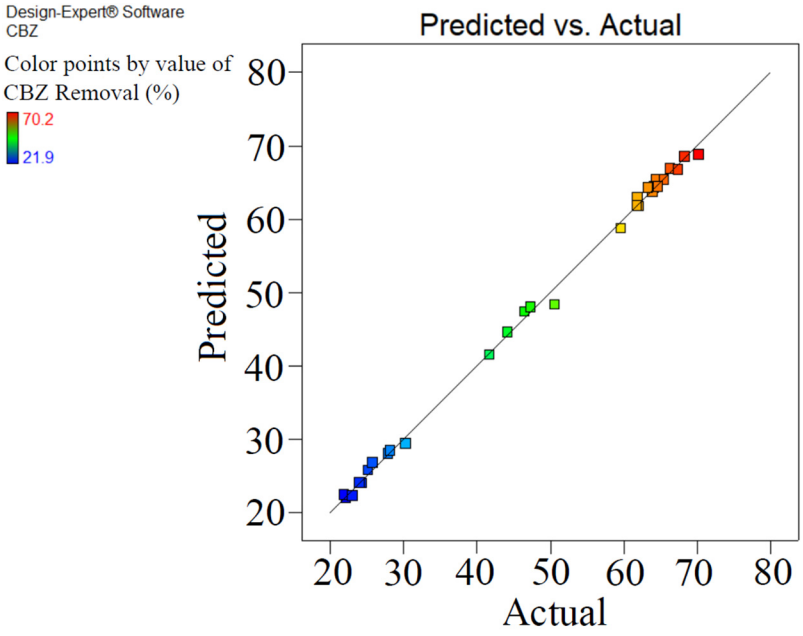

Design-Expert® Software
SMT removal
Color points value of
SMT removal
33.1
9.2
Predicted vs. Actual
Predicted
Actual
5
10
15
20
25
30
35

(b)

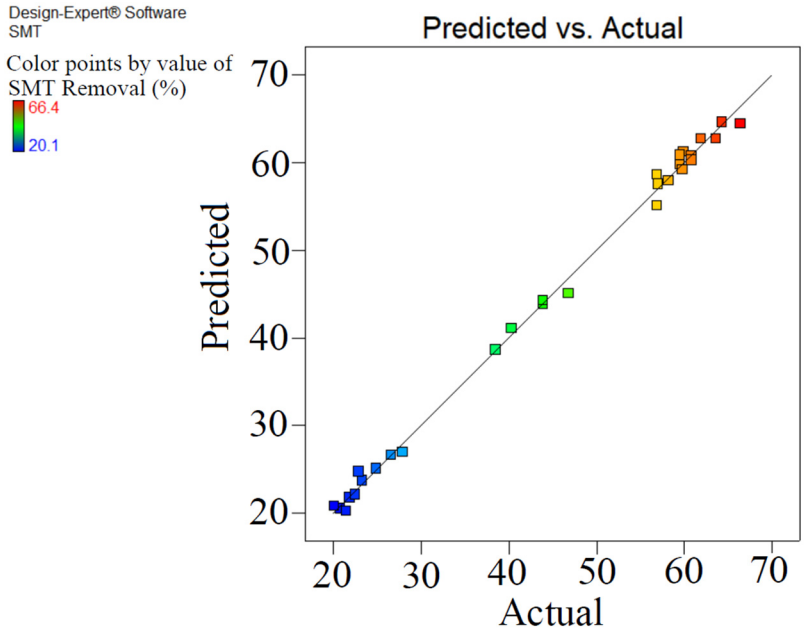


(c)

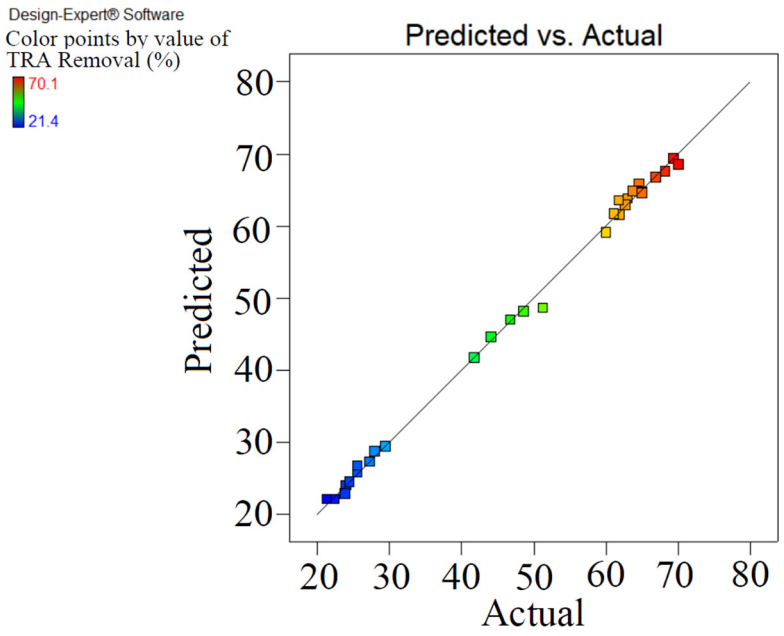
Figure S3. Data distribution for removal of CBZ (a), SMT (b) and TRA (c) by the first reactor; RSM model.



(a)



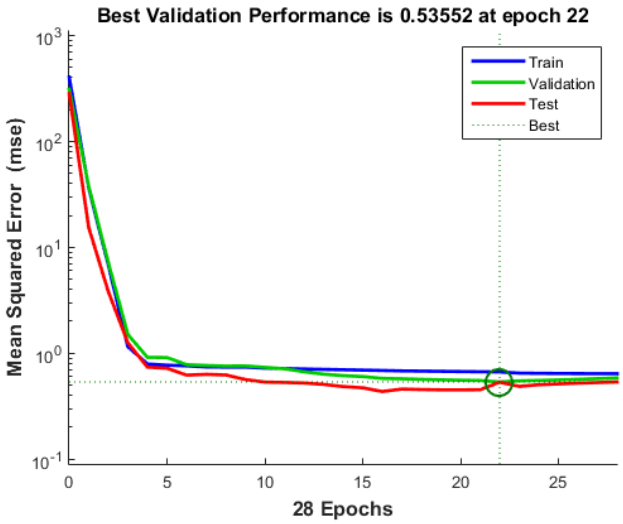
(b)



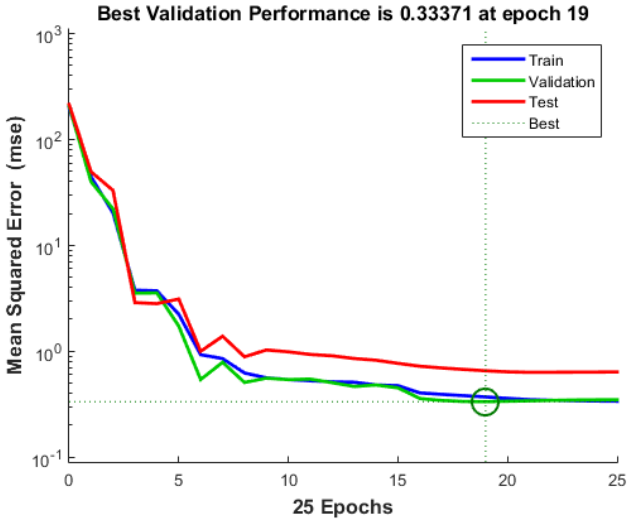
(c)

Figure S4. Data distribution for removal of CBZ (a), SMT (b) and TRA (c) by the second reactor; RSM model.

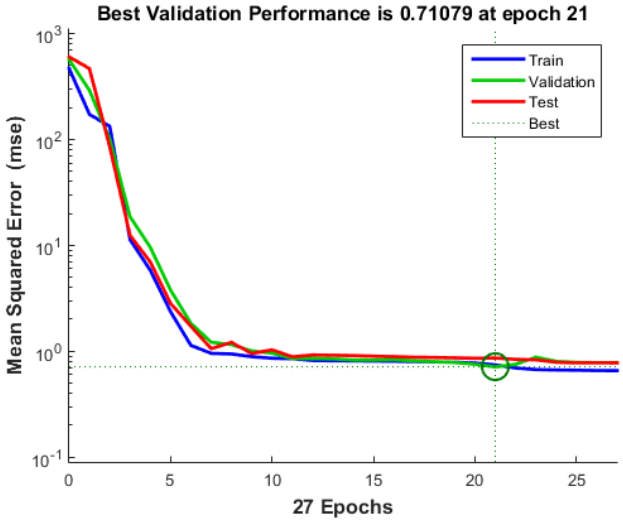
During ANN modeling for optimising performance of the first reactor, MSE plots and error histogram are shown in Figures A.5 and A.6. And Figures A.7 and A.8 display the error histogram and MSE plots for optimisation performance of second reactor.



(a)

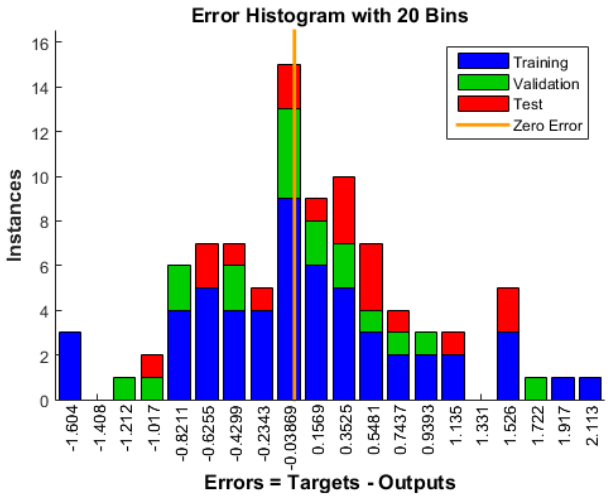


(b)

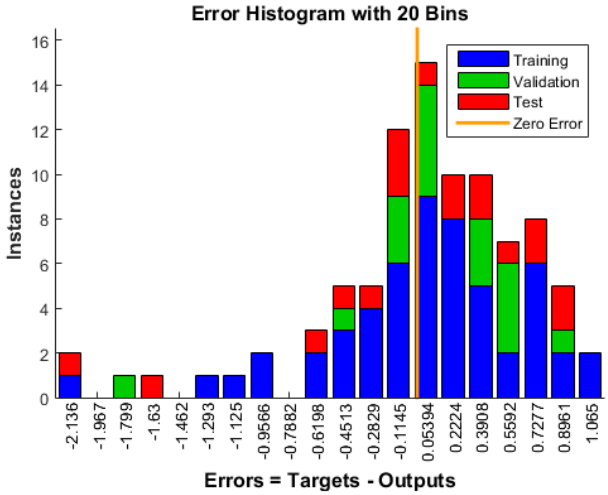


(c)

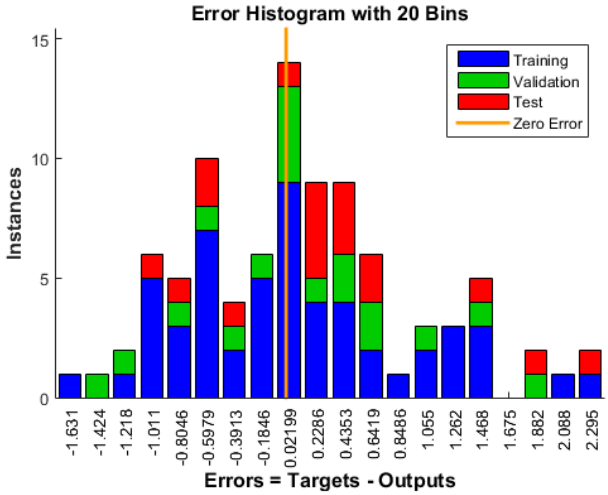
Figure S5. The MSE plots during modeling with ANN for removal of CBZ (a), SMT (b) and TRA (c) by the first reactor.



(a)

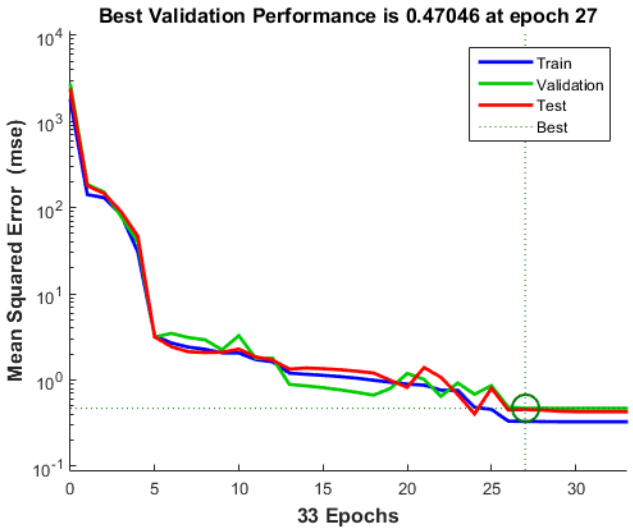


(b)

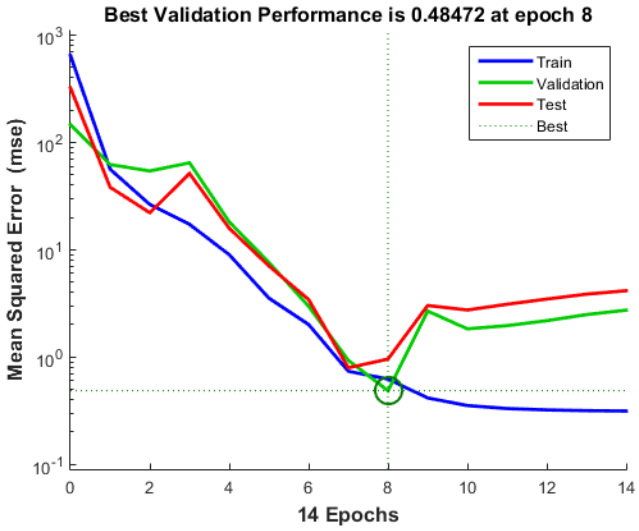


(c)

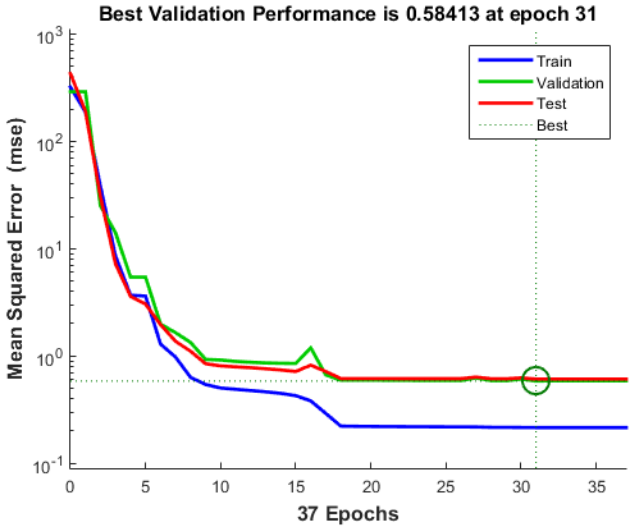
Figure S6. The error histogram during modeling with ANN for removal of CBZ (a), SMT (b) and TRA (c) by the first reactor.



(a)



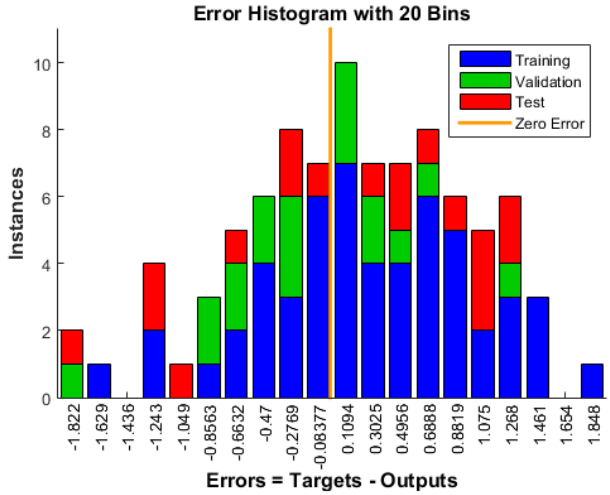
(b)



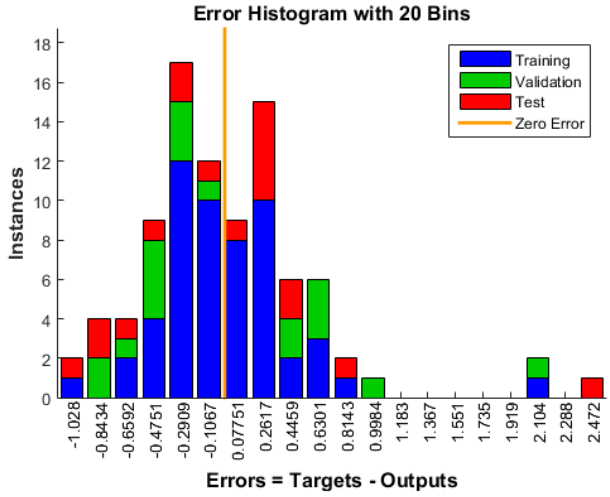
(c)

Figure S7. The MSE plots during modeling with ANN for removal of CBZ (a), SMT (b) and TRA (c) by the first reactor.

(a)



(b)



(c)

Figure S8. The error histogram during modeling with ANN for removal of CBZ (a), SMT (b) and TRA (c) by the first reactor.