

Supplementary Materials

Table S1. The Dependent Variables Included in the Central Composite Design Experiments and Their High, Medium, Low Concentrations

Factor	Name	Units	Type	Low Actual	High Actual	Low Coded	High Coded
A	Temperature	deg C	Numeric	34.00	39.00	-1.000	1.000
B	pH		Numeric	4.00	9.00	-1.000	1.000

Table S2. Central Composite Design Variables

Run	A: Temperature deg C	B: pH
1	36.5	6.5
2	36.5	2.96
3	36.5	6.5
4	34	4
5	36.5	6.5
6	36.5	6.5
7	34	9
8	39	4
9	36.5	6.5
10	40.04	6.5
11	32.96	6.5
12	36.5	10.04
13	39	9

Table S3. Statistical Analysis of RSM and Cybernetic Models for SNaD under CN⁻ Conditions

Model	Std Dev	SE Mean	R-squared	Adjusted R-squared	Predicted R ²
RSM	12.11	5.284	0.9240	0.8697	0.46
Cybernetic	0.012391	0.0035	0.966119	0.962731	-

Two-sided Confidence = 95% Population = 99%