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APPENDICES

Appendix A

Table A: Response current of modified SPCE with different modification parameters

Run	Concentration of GOx (U/mL)	Concentration of pyrrole (mM)	Current (μA)
1	100.00	40.00	1.0
2	100.00	10.00	2.5
3	250.00	10.00	3.0
4	250.00	40.00	1.2

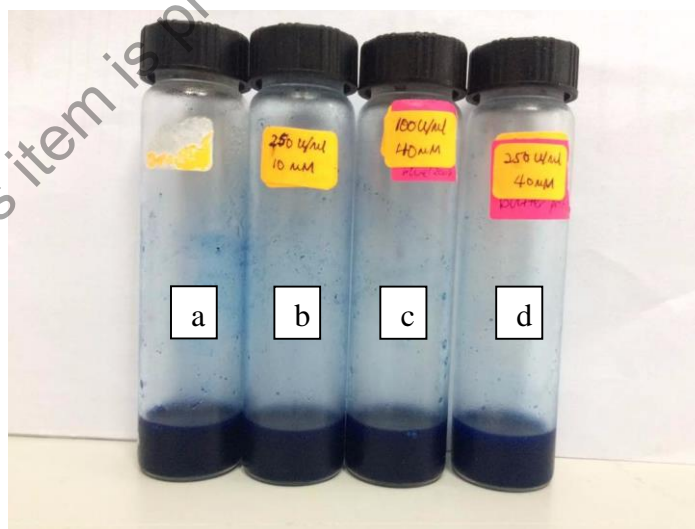


Plate A: Solution used for modification of SPCE

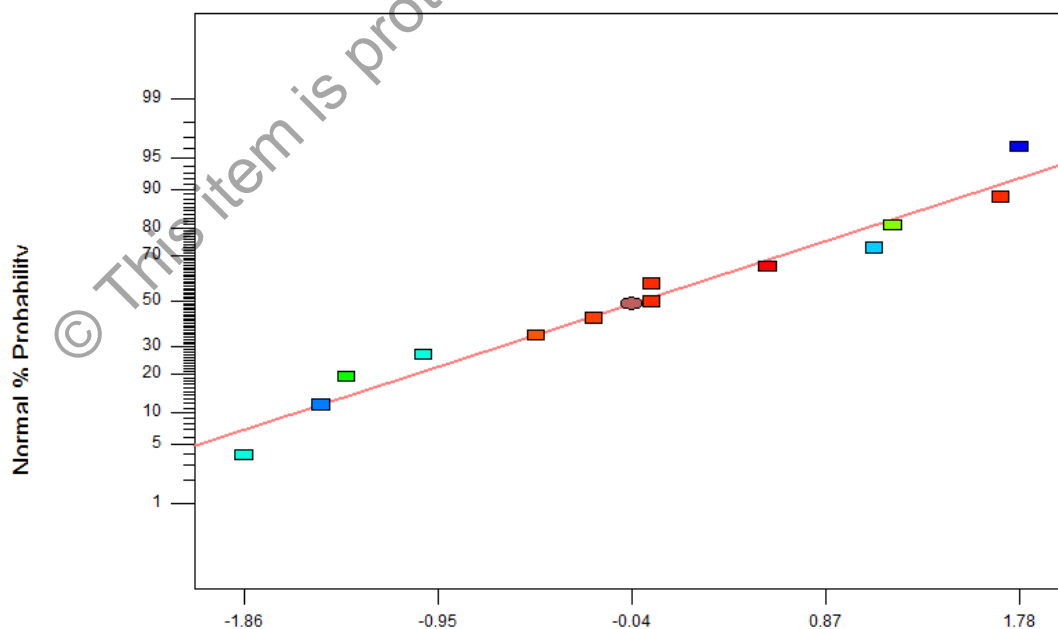
Appendix B

Appendix B(i): DOE analysis run with different parameters

Run	Concentration of GOx (U/mL)	Concentration of pyrrole (mM)	Response current (μ A)
1	225.00	10.00	2.64
2	285.36	20.00	2.97
3	250.00	34.14	2.5
4	250.00	5.86	2.6
5	250.00	20.00	2.97
6	250.00	20.00	2.96
7	225.00	30.00	2.56
8	250.00	20.00	2.97
9	214.64	20.00	2.81
10	275.00	10.00	2.75
11	275.00	30.00	2.64
12	250.00	20.00	2.95
13	250.00	20.00	2.99

Table B(ii): ANOVA for response surface quadratic model

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	Remark
Model	0.40	5	0.080	47.23	<0.0001	Significant
A-Concentration of Gox	0.022	1	0.022	12.79	0.0090	
B-Concentration of pyrrole	0.014	1	0.014	8.11	0.0248	
AB	2.250E-004	1	2.250E-004	0.13	0.7262	
A ²	0.023	1	0.023	13.41	0.0081	
B ²	0.36	1	0.36	211.95	<0.0001	
Residual	0.012	7	1.693E-003			
Lack of fit	0.011	3	3.657E-003	16.62	0.0101	Significant
Pure error	8.800E-004	4	2.200E-004			

**Figure B: Normal plot of residuals (RSM)**

Appendix C

Table C: Response current of modified SPCE at different glucose concentration

Glucose concentration (mM)	Current (μA)
5	0.96
10	1.6
15	2.27
20	2.96
25	3.7
30	4.63

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Appendix D

Table D: Lineweaver-Burk plot

1/S (1/mM)	1/V (1/ μ A)
0.200	1.042
0.100	0.625
0.067	0.441
0.050	0.338
0.040	0.270
0.033	0.216

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Appendix E

Table E: Stability of modified biosensor for 14 consecutive days

Day	Current (μA)											
	5 mM glucose				10 mM glucose				20 mM glucose			
	1	2	3	Average	1	2	3	Average	1	2	3	Average
0	0.96	0.97	0.96	0.96	1.60	1.60	1.60	1.60	2.95	2.96	2.97	2.96
1	0.95	0.95	0.96	0.95	1.60	1.62	1.61	1.61	2.96	2.98	2.96	2.97
2	0.97	0.96	0.95	0.96	1.65	1.63	1.60	1.63	2.97	2.96	2.96	2.96
3	0.98	1.00	0.95	0.98	1.62	1.6	1.58	1.60	2.98	2.99	2.97	2.98
4	0.96	0.96	0.97	0.96	1.62	1.62	1.61	1.62	2.96	2.96	2.96	2.96
5	0.97	0.95	0.95	0.96	1.63	1.61	1.61	1.62	2.96	2.99	2.98	2.98
6	0.97	0.96	0.96	0.96	1.60	1.60	1.60	1.60	2.95	2.95	2.96	2.95
7	0.95	0.98	0.96	0.96	1.58	1.59	1.58	1.58	2.96	2.96	2.98	2.97
8	0.95	0.95	0.96	0.95	1.61	1.60	1.60	1.60	2.96	2.97	2.96	2.96
9	0.94	0.96	0.97	0.96	1.6	1.60	1.61	1.60	2.95	2.95	2.96	2.95
10	0.94	0.94	0.94	0.94	1.6	1.56	1.58	1.58	2.93	2.95	2.93	2.94
11	0.94	0.92	0.92	0.93	1.56	1.54	1.56	1.55	2.91	2.91	2.91	2.91
12	0.90	0.91	0.91	0.91	1.52	1.51	1.52	1.52	2.88	2.87	2.86	2.87
13	0.85	0.86	0.87	0.86	1.52	1.50	1.52	1.51	2.88	2.86	2.86	2.87
14	0.85	0.85	0.87	0.86	1.51	1.49	1.49	1.50	2.85	2.85	2.82	2.84

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