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APPENDICES

Appendix A Effect of Plasma Treatment Time on Contact Angle Measurement

Table A Effect of DBD plasma treatment time on water contact angle values of 2.5% nylon-chitin membranes at treatment time.

Time of plasma treatment (s)	Contact angle value (θ)
0	88.00 ± 7.31134
30	65.69 ± 3.72765
60	37.40 ± 4.54678
90	35.09 ± 5.67223
120	31.39 ± 2.81354

Appendix B Effect of Ratio and Plasma Treatment Time of Nylon-Chitin Membranes on Mechanical Properties

Table B1 Effect of nylon-chitin ratio on mechanical properties of nylon-chitin Membranes non plasma.

Measuring round	Tensile strength (MPa) of Nylon : Chitin in other ratios		
	100 : 0	90 : 10	80 : 20
1	6.358021985	2.029661951	2.054438256
2	7.17744683	2.022838703	2.019649412
3	7.318635406	2.225011411	2.193696102
4	6.566566964	2.171006202	1.951909655
5	7.627606141	2.131180023	1.814274796

Table B2 Effect of nylon-chitin ratio on mechanical properties of nylon-chitin Membranes in plasma treatment time 120 s.

Measuring round	Tensile strength (MPa) of Nylon : Chitin in other ratios		
	100 : 0	90 : 10	80 : 20
1	4.882523302	1.632995294	1.353674265
2	4.398876675	1.677741772	1.848486361
3	4.403425826	1.516850775	1.849601429
4	4.110261064	1.506656514	1.479258009
5	4.419444292	1.498051216	1.760614168

Appendix C Effect of ratio and plasma Treatment Time of chitin coated on nylon mesh on mechanical properties

Measuring round	Tensile strength (MPa) of chitin coated on nylon mesh by immersed in other chitin solutions (%weight)			
	Uncoated chitin	0.5% of chitin coated	1.0% of chitin coated	2.0% of chitin coated
1	60.90255027	67.42639926	58.86750539	64.26255531
2	67.53073661	53.72941588	62.5073181	64.72604833
3	68.57219765	48.45101929	63.05206098	60.88564651
4	72.11382497	51.95745926	43.85273483	51.76933269
5	70.9873021	64.18997729	59.6169725	42.85038296

Appendix D Effect of Chitin Content on Water Sorption of Chitin Coated Nylon Mesh

Table D1 Effect of chitin content on water sorption of chitin coated nylon mesh

Measuring round	water sorption of chitin coated nylon mesh (%weight)			
	Uncoated chitin	0.5% of chitin coated	1.0% of chitin coated	2.0% of chitin coated
1	21.387	21.621	27.722	28.193
2	21.290	20.423	19.125	25.828
3	18.212	14.218	24.398	17.252

Appendix E Standard Calibration Curve of Calcium

Table E1 Raw data of calibration curve in three standards of calcium concentration.

Sample	Concentration (ppm)	Readings			Mean absorbance
		Round I	Round II	Round III	
Standard 1	1.00	0.072	0.071	0.071	0.0710 ± 0.0005
Standard 2	2.00	0.137	0.137	0.135	0.137 ± 0.0011
Standard 3	5.00	0.352	0.354	0.345	0.3500 ± 0.0047

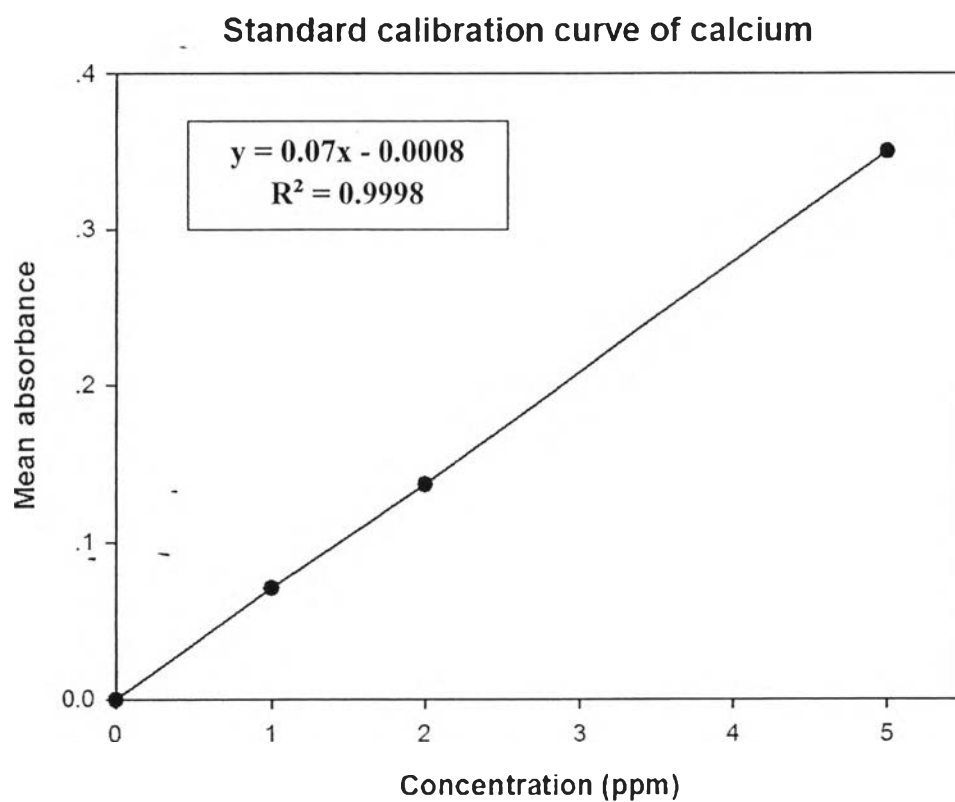


Table E2 Raw data of calcium content in (80:20) nylon:chitin membranes

Sample	Readings			Mean absorbance	concentration (ppm)
	Round I	Round II	Round III		
Round I	0.059	0.058	0.060	0.059 ± 0.0010	0.82
Round II	0.056	0.056	0.055	0.056 ± 0.0005	0.78
Round III	0.057	0.056	0.057	0.057 ± 0.0005	0.80
				Mean concentration	0.80 ± 0.020

Table E3 Raw data of calcium content in 2% chitin coated on nylon mesh

Sample	Readings			Mean absorbance	concentration (ppm)
	Round I	Round II	Round III		
Round I	0.205	0.204	0.206	0.205 ± 0.0010	2.98
Round II	0.210	0.214	0.210	0.212 ± 0.0023	3.07
Round III	0.203	0.205	0.202	0.204 ± 0.0015	2.96
				Mean concentration	3.01 ± 0.058

Appendix F Chitin Content by Thermo-Gravimetric Analysis

Table F1 Percentage residue of nylon-chitin membrane

Sample	Round I	Round II	Round III	% residue (w/w)
(100:0) Nylon membrane	2.48	3.24	3.89	3.20 ± 0.76
(95:5) Nylon : Chitin membrane	5.77	5.49	6.38	5.88 ± 0.46
(90:10) Nylon : Chitin membrane	6.52	7.37	6.75	6.88 ± 0.44
(80:20) Nylon : Chitin membrane	9.92	9.91	10.23	10.02 ± 0.18

Table F2 Percentage residue of chitin coated on nylon mesh

Sample	Round I	Round II	Round III	% residue (w/w)
Uncoated Nylon mesh	4.23	5.20	6.54	5.32 ± 1.16
0.5% Chitin coated on nylon mesh	30.63	32.37	29.51	30.84 ± 1.44
1.0% Chitin coated on nylon mesh	30.09	32.51	31.57	31.39 ± 1.22
2.0% Chitin coated on nylon mesh	30.29	33.63	32.53	32.15 ± 1.70

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Presentations:

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