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APPENDICES

Appendix 1

Turk Island Salt Solution + modified BG_{11} medium contained the following components:

1. Preparation of Turk Island Salt Solution

Stock Solution A:	KCl	33.3 g
	$MgCl_2.6H_2O$	275.0 g
	$CaCl_2.2H_2O$	73.3 g
	and made up to 5 litres with distilled water	
Stock Solution B:	$MgSO_4.7H_2O$	347.0 g
	and then made up to 5 litres with distilled water	

To make Turk Island Salt Solution, 500 ml of Stock Solution A was added to 500 ml of Stock Solution B. To this mixture 140.8 g of NaCl was added and the final volume was made to 5 litres ditilled water.

2. Composition of modified BG_{11} medium (BG_{11} medium + $NaNO_3$ solution)

$NaNO_3$	(75 g/500 ml)	50 ml
KH_2PO_4	(8 g/200 ml)	5 ml
$MgSO_4.7H_2O$	(15 g/200 ml)	5 ml
$CaCl_2.2H_2O$	(7.2 g/200 ml)	5 ml
Na_2CO_3	(4 g/200 ml)	5 ml
Citric acid	(1.2 g/200 ml)	5 ml
EDTA.Na2	(0.2 g/200 ml)	5 ml
FeSO4.7H2O	(1.2 g/200 ml)	5 ml
*Trace element A5 Solution + Co		5 ml

*Trace element A5 Solution + Co contained the following component in gram per litre H_3PO_4: 2.86; $ZnSO_4.7H_2O$: 0.2; $CuSO_4.5H_2O$: 0.08; $MnCl_2.4H_2O$: 1.81; $Na_2MnO_4.2H_2O$: 0.39; $Co(NO_3)_2.6H_2O$: 0.049

Culture medium of *Aphanothece halophytica* was prepare by adding all solution of item 2 at indicated volume to 5 litres of Turk Island Salt Solution and the pH was adjusted to 7.6 by slowly adding 2 M NaOH. The medium was sterilized by autoclaving at 15 lb/in^2 for 15 minutes.

Appendix 2

Scintillation fluid (1,000 ml) as follows:

Dissolve 5.5 g PPO (2,5-diphenyloxazole) and 0.1 g POPOP [1,4-bis (5-phenyloxazole-2-yl) benzene] in 1,000 ml of a solution composed of 667 ml Toluene and 333 ml Triton X-100. Make certain that the contents are completely dissolved before the solution is used. The solution should be stored in a brown bottle in a cool dark place.

Appendix 3

Preparation of polyacrylamide gel electrophoresis:

1. Stock reagents

30% Acrylamide, 0.8% bis-acrylamide, 100 ml

acrylamide	29.2 g
N,N'-methylene-bis-acrylamide	0.8 g

Adjusted volume to 100 ml with distilled water.

1.5 M Tris-HCl pH 8.8

Tris (hydroxymethyl)- aminomethane	18.2 g

Adjusted pH to 8.8 with 1 M HCL and adjusted volume to 100 ml with distilled water.

2 M Tris-HCl pH 8.8

Tris (hydroxymethyl)- aminomethane	24.2 g

Adjusted pH to 8.8 with 1 M HCL and adjusted volume to 100 ml with distilled water

0.5 M Tris-HCl pH 6.8

Tris (hydroxymethyl)- aminomethane	6.1 g

Adjusted pH to 8.8 with 1 M HCL and adjusted volume to 100 ml with distilled water.

1 M Tris-HC pH 6.8

Tris (hydroxymethyl)- aminomethane	12.1 g

Adjusted pH to 8.8 with 1 M HCL and adjusted volume to 100 ml with distilled water.

Solution B (SDS-PAGE)

2 M Tris-HCl pH 8.8	75	ml
10% SDS	4	ml
distilled water	21	ml

Solution C (SDS-PAGE)

1 M Tris-HCl	50	ml
10% SDS	4	ml

2. Non-denaturing PAGE

12.0 % Separating gel

30% acrylamide solution	4.17	ml
1.5 M Tris-HCl pH 8.8	2.50	ml
distilled water	3.33	ml
10% $(NH_4)_2S_2O_8$	50	µl
TEMED	5	µl

5.0% stacking gel

30% acrylamide solution	1.67	ml
0.5 M Tris-HCl pH 8.8	2.50	ml
distilled water	5.80	ml
10% $(NH_4)_2S_2O_8$	50	µl
TEMED	5	µl

Sample buffer

0.5 M Tris-HCl pH 6.8	1.0	ml
glycerol	0.8	ml
0.5% bromophenol blue	0.5	ml

distilled water	5.8 ml

Electrophoresis buffer, 1 litre

(25 mM Tris, 192 mM glycine)

Tris (hydroxymethyl)-aminomethane	3.0 g
Glycine	14.4 g

Dissolved in distilled water to 1 litre. Do not adjust pH with acid or base (final pH should be 8.3).

3. SDS-PAGE

12.0% separating gel

30% acrylamide solution	4.17 ml
solution B	2.50 ml
distilled water	3.33 ml
10% $(NH_4)_2S_2O_8$	50 µl
TEMED	5 µl

5.0% stacking gel

30% acrylamide solution	1.67 ml
solution C	2.50 ml
distilled water	5.80 ml
10% $(NH_4)_2S_2O_8$	50 µl
TEMED	5 µl

Sample buffer

1 M Tris-HCl pH 6.8	0.6 ml
glycerol	5.0 ml
10% SDS	2.0 ml

2-mercaptoethanol	0.5 ml
1% bromophenol blue	0.5 ml
distilled water	5.8 ml

One part of sample buffer was added to four parts of sample. The mixture was heated 5 minutes in boiling water before loading to the gel.

Electrophoresis buffer, 1 litre

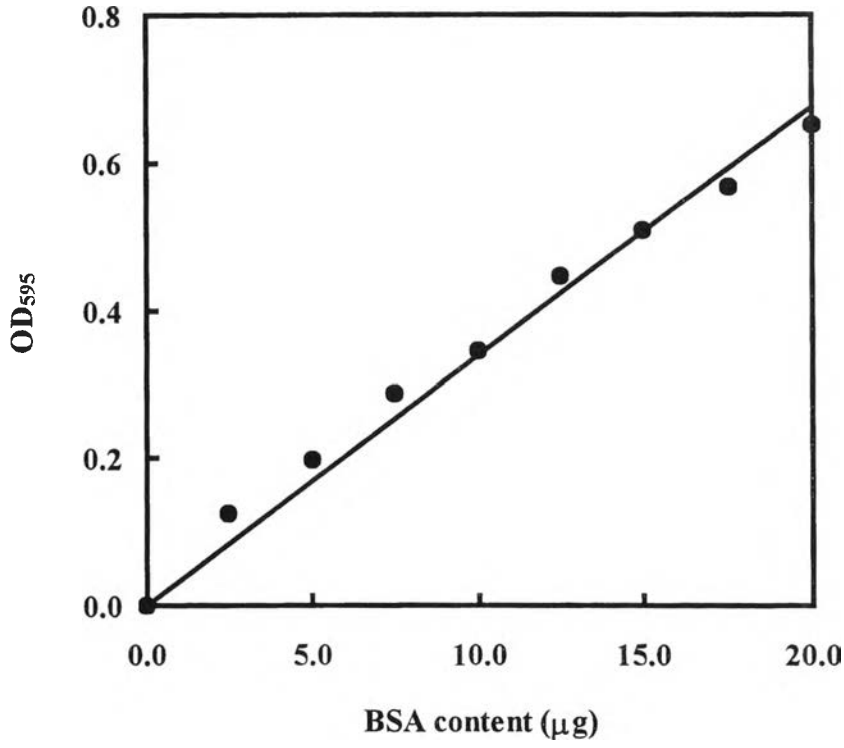
(25 mM Tris, 192 mM glycine)

Tris (hydroxymethyl)-aminomethane	3.0 g
Glycine	14.4 g
SDS	1.0 g

Dissolved in distilled water to 1 litre. Do not adjust pH with acid or base (final pH should be 8.3).

Appendix 4

Standard curve of BSA by Bradford assay



BIOGRAPHY

Mr. Aphichart Thartdee was born on August 24, 1976 in Bangkok, Thailand. He graduated with a Bachelor Degree of Science in Chemistry from Faculty of Science, Ramkhamhaeng University, Bangkok, Thailand in 1998 and studied for a Master Degree in Biochemistry program since 1999.