

## **APPENDIX A**

### **Buffer and Solutions**

#### **A.1 Ammonium Persulfate (10%)**

Ammonium persulfate (0.1 g) was added into 1.0 mL of ddH<sub>2</sub>O. The solution was freshly prepared prior to each DGGE gel preparation

#### **A.2 Ampicilin (100mg/mL)**

Ampicilin (0.1 g) was dissolve in 1mL ddH<sub>2</sub>O and filter-sterilized with 0.20 µm (pore size) syringe filter. The solution was kept at -20 °C.

#### **A.3 Bromo-chloro-indolyl-galactopyranoside (X-gal, 40mg/mL)**

X-gal (100 mg) was added to a final volume of 2.5mL N’N’-dimethyl formamide (DMF). The solution was stored in aliquots at -20 °C for not more than 6 months.

#### **A.4 Ethidium Bromide for gel staining**

Ethidium Bromide solution (30 µL) was diluted 10, 000X (v/v) with ddH<sub>2</sub>O (300 mL). The solution was prepared in opaque container and stored in dark at RT.

#### **A.5 Ethylenediaminetetraacetic acid solution (EDTA, 0.5 M)**

EDTA.2H<sub>2</sub>O (186.1 g) was added into 800mL of ddH<sub>2</sub>O. The pH of this solution was adjusted to pH 8.0 by adding approximately of 20 g NaOH. The solution was made up to 1L and sterilized by autoclaving at 121 °C for 15 minutes. The autoclaved solution was stored at RT.

#### **A.6 Isopropyl-beta-D-thiogalactopyranoside (IPTG, 100mM)**

IPTG (250 mg) was added with 10.5mL of ddH<sub>2</sub>O and mixed well. The solution was filter-sterilized with 0.20 µm (pore size) syringe filter and store in aliquots at -20 °C.

#### **A.7 SYBR Gold nucleic acid gel stain for DGGE gel**

SYBR Gold solution (40  $\mu\text{L}$ ) was diluted 10,000X (v/v) with 1X TAE (400 mL). The solution was prepared in opaque container and stored in dark at RT.

#### **A.8 Trix-Acetate-EDTA (TAE Buffer, 50X)**

Tris base (242 g), glacial acetate acid (57.1 mL) and 0.5M EDTA (100 mL) were mixed and the solution was top up to 1L with ddH<sub>2</sub>O. The solution was sterilized by autoclaving at 121 °C for 15 minutes. The autoclaved solution was stored at RT.

## **APPENDIX B**

### **Media for Cloning**

#### **B.1 Luria Bertani (LB) agar**

Trypone (4 g), yeast extract (2 g), NaCl (2 g), and bacteriological agar (6 g) was added into 400 mL of ddH<sub>2</sub>O. The medium was autoclaved at 121 °C for 15 minutes. Subsequently, the medium was cooled to 50 – 55 °C, and poured into plates.

#### **B.2 Luria Bertani (LB) broth**

Trypone (4 g), yeast extract (2 g), NaCl (2 g), and bacteriological agar (6 g) was added into 400 mL of ddH<sub>2</sub>O. The medium was autoclaved at 121 °C for 15 minutes.

## **APPENDIX C**

### **Presentations and Publications**

#### **C.1 Poster Presentation**

1. Chong C. W., Convey. P., Tan G. Y. A., Tan I. K. P (2009) Bacterial DGGE diversity variations between penguin rookeries and elephant seal wallows on Signy Island. 4<sup>th</sup> Malaysian International Seminar on Antarctica (MISA4), 1-3 April 2009. Kuala Lumpur. (Best Poster Presenter)
2. Chong C. W., Tan G.Y. A., Convey P., Tan. I. K. P (2008) Influence of marine vertebrates on soil bacterial diversity at Signy Island. Xth Scar International Biology Symposium, 26-31 July 2009. Hokkaido University, Sapporo, Japan.
3. Tan I. K. P., Chong C. W., Wong R. C. S., Convey P., Tan G. Y. A. (2008) Temporal variations of bacterial diversity in ornithogenic soil from Gurlay Peninsula, Signy Island. SCAR/ IASC IPY Open Scientific Conference, 8-11 July 2008. St Petersburg, Russia.
4. Tan G. Y. A., Chong C. W., Salwom L, Tan I.K. P (2006) Bacteria Diversity in Environmental Samples from Antarctica. 2<sup>nd</sup> SCAR Open Science Conference, 12-14 July 2006. Hobart, Australia
5. Chong C. W., Tan G.Y. A., Tan I. K. P (2006) Assessment of Bacteria Community In Antarctic Soils From Ecologically Distinct Environments. Expo Penyelidikan, Rekapipta dan inovasi, 18-20 July 2006. University of Malaya, Kuala Lumpur. (Bronze Medal)

#### **C.2 Oral Presentation**

1. Chong C. W., Pearce D. A., Convey. P., Tan I. K. P (2011) Key environmental parameters which influence soil bacterial communities at Reptile Ridge and Ryder Bay, near Rothera Point, Antarctic Peninsula. 5<sup>th</sup> Malaysian International Seminar on Antarctica (MISA5), 14-15 June 2011. Kuala Lumpur.
2. Tan IKP, Chong CW, Pearce DA, Tan GYA, Convey P (2010) Community structure and taxonomic diversity of dominant bacteria in arid soil from Alexander

Island, Antarctica. SCAR XXXI & Open Science Conference, 30 July – 11 August 2010, Buenos Aires, Argentina

3. Chong C. W., Tan G. Y. A., Tan I. K. P (2009) Spatial heterogeneity of terrestrial bacterial community patterns from maritime Antarctic, Signy Island. International Congress of Malaysian Society for Microbiology, 1-4 December 2009. Park Royal Hotel, Penang.
4. Chong C. W., Tan G. Y. A., Wong R. C. S., Tan I. K. P (2007) Bacterial Diversity in Ornithogenic Soils from Signy Island, Maritime Antarctic- Temporal Variation. 12th Biological Sciences Graduate Congress, 17-19 December 2007. University of Malaya.
5. Tan I. K. P., Chong C. W., Tan G. Y. A. (2007) Assessment of prokaryotes community in soils from various sites around Casey Station, Antarctica. 3rd Malaysian International Seminar On Antarctica (MISA3): “From the Tropics to the Poles”, 21-23 March 2007. Le Meridien Hotel Kota Kinabalu, Sabah.

### **C.3 Journal Publications**

1. Chong C.W., Convey P., Pearce D. A., Tan I. K. P. (2011) Assessment of soil bacterial communities on Alexander Island (in the maritime and continental Antarctic transitional zone). *Polar Biology*. DOI: 10.1007/s00300-011-1084-0
2. Chong C.W., Pearce D. A., Convey P., Tan G. Y. A., Wong R. C. S., Tan I. K. P (2010) High levels of spatial heterogeneity in the biodiversity of soil prokaryotes on Signy Island, Antarctica. *Soil Biology & Biochemistry* 42: 601-610
3. Chong C. W., Dunn M. J., Convey P., Tan G. Y. A., Wong R. C. S., Tan I. K. P (2009) Environmental influences on bacterial diversity of soils on Signy Island, Maritime Antarctic. *Polar Biology* 32:1571-1582
4. Chong C. W., Tan G. Y., Wong R. C. S. Riddle M. J., Tan I. K. P (2009) DGGE fingerprinting of bacteria in soils from eight ecologically different sites around Casey Station, Antarctica. *Polar Biology* 32:853–860

### **C.4 Submitted manuscripts**

1. Chong C.W., Pearce D. A., Convey P., Tan I. K. P. (2011) Key environmental parameters which influence soil bacterial communities at Reptile Ridge and Ryder Bay, near Rothera Point, Antarctic Peninsula. *Antarctic Science*. *Submitted*

2. Chong C.W., Pearce D. A., Convey P., Tan I. K. P (2011) Patterns in the distribution of soil bacterial 16S rRNA gene sequences from different regions of Antarctica. *Microbial Ecology. Submitted*