

## ABSTRAK

RAHMI. Analisis Aktivitas Bakteri Pada Penyakit Karang di Kepulauan Spermonde (Dibimbing Oleh Jamaluddin Jompa, Akbar Tahir dan Alexander Rantetondok).

Penelitian ini bertujuan untuk mengisolasi dan mengidentifikasi jenis bakteri penyebab Black band disease (BBD) dan Brown band disease (BrB) berdasarkan identifikasi molekuler analisis sekuens gen 16Sr RNA, mengkaji tingkat patogenisitas isolat bakteri untuk menentukan kandidat bakteri pemicu BBD dan BrB dan menganalisis secara histologi jaringan sel karang secara mikroskopik serta mengevaluasi interaksi suhu dan patogen terhadap munculnya serangan penyakit BBD pada *Pachyseris* sp dan BrB pada *Acropora* sp. Bakteri yang diisolasi pada karang *Pachyseris* sp yang sehat adalah *Halomonas* sp K0116, *Psychromonas* sp CNPT3, *Thiobacillus denitrificans* ATCC25259 dan *Pseudoalteromonas* sp SQN1 sedangkan pada Pita BBD pada karang *Pachyseris* sp adalah bakteri *Flavobacterium columnare* FK401, *Desulfovibrio salexigens* DSM2638, *Shewanella piezotolerans* WP3 dan *Bacillus farraginis* R8030. Bakteri yang diisolasi dari bagian karang *Acropora* sp yang sehat adalah *Enterococcus casseliflavus* SR030 dan *Lysinibacillus spehaericus* NCIM2478 sedangkan pada pita BrB pada karang *Acropora* sp adalah *Streptococcus* sp YM395, *Enterococcus faecalis* C56, *Acinetobacter* sp RA3849 dan *Vibrio alginolyticus* H2X5 sedangkan pada karang mati *Pachyseris* sp dan *Acropora* sp yang mati tidak ditemukan koloni bakteri. Hasil pengujian patogenisitas secara in vitro menunjukkan bahwa bakteri *Desulfovibrio salexigens* sebagai pemicu penyakit BBD dan Bakteri *Acinetobacter* sp sebagai pemicu penyakit BrB, sedangkan infeksi bakteri *D. salexigens* pada *Pachyseris involuta* pada suhu 31°C menghasilkan laju infeksi lebih tinggi dibandingkan suhu 29 °C demikian halnya dengan bakteri *Acinetobacter* sp pada *Acropora cervicornis*. Terdapat interaksi antara suhu dan konsentrasi bakteri terhadap laju infeksi fragmen karang. Berdasarkan hasil yang diperoleh, perlu penelitian lanjutan tentang efek interaksi patogen dan lingkungan (khususnya salinitas dan kombinasi salinitas dan suhu).

Kata Kunci : Black band disease, Brown band disease, Karang, Bakteri, Kepulauan Spermonde

## ABSTRACT

RAHMI. Analysis of Bacteria Activity on Coral Disease in Spermonde Islands (Supervised by Jamaluddin Jompa, Akbar Tahir and Alexander Rantetondok).

This study is aimed to isolate and identify the types of bacterium that cause BBD and BrB based on 16S rRNA gene sequence analysis, assess the level of pathogenicity of bacterium to determine which bacteria trigger Black band disease (BBD) and Brown band disease (BrB) and histologically analyzed coral tissue cells microscopically and to evaluate the interaction of temperature and pathogen to the emergence of the BBD disease on *Pachyseris* sp and BrB on *Acropora* sp. The isolated bacterium from the healthy coral of *Pachyseris* sp were *Halomonas* sp K0116, *Psychromonas* sp CNPT3, *Thiobacillus denitrificans* ATCC25259 and *Pseudoalteromonas* sp SQN1 while from the band of BBD on coral *Pachyseris* sp were *Flavobacterium columnare* FK401, *Desulfovibrio salexigens* DSM2638, *Shewanella piezotolerans* WP3 and *Bacillus farraginis* R8030. The bacteria that were isolated from the healthy coral of *Acropora* sp were *Enterococcus casseliflavus* SR030 and *Lysinibacillus spephaericus* NCIM2478 while from the band of BrB on coral *Acropora* sp were *Streptococcus* sp YM395, *Enterococcus faecalis* C56, *Acinetobacter* sp RA3849 and *Vibrio alginolyticus* H2X5. There was not any colonies of bacterium was discovered from the dead *Pachyseris* sp and *Acropora* sp. Result of in vitro pathogenicity test showed that *Desulfovibrio salexigens* reacts as triggers of BBD disease and *Acinetobacter* sp as a trigger of BrB disease. The infection rate of pathogenic bacteria *D. salexigens* of *Pachyseris involuta* on their host were higher at temperature 31 °C than at 29 °C, the same case with *Acinetobacter* sp on *Acropora cervicornis*. There was a significant interaction between temperature and bacteria concentration with the infection rate of bacteria on coral fragments. Based on the results obtained in this study, the effect of interaction between pathogens and environment (e.g., salinity, salinity and temperature combinations) should to be conducted.

Keywords : Black band disease, Brown band disease, coral, Bacteria, Spermonde island