

DENSITY INDEX AND SPECIES IDENTIFICATION OF *Vibrios*  
AT CORAL REEFS OF TERENGGANU

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SCHOOL OF MARINE SCIENCE AND ENVIRONMENT  
UNIVERSITI MALAYSIA TERENGGANU

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**DENSITY INDEX AND SPECIES IDENTIFICATION OF *Vibrios* AT CORAL  
REEFS OF TERENGGANU**

**By**

**Nurzahirah binti Kamarudin**

**Research Report submitted in partial fulfillment of  
the requirements for the degree of  
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**DECLARATION AND VERIFICATION REPORT**  
**FINAL YEAR RESEARCH PROJECT**

It is hereby declared and verified that this research report entitled **Density Index and Species Identification of *Vibrios* at Coral Reefs of Terengganu** by **Nurzahirah binti Kamarudin**, Matric No. **UK25982** have been examined and all errors identified have been corrected. This report is submitted to the School of Marine Science and Environment as partial fulfillment towards obtaining the **Degree of Science (Marine Biology)**, School of Marine Science and Environment, Universiti Malaysia Terengganu.

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## LIST OF ABBREVIATIONS

cm	-	centimeter
μL	-	microliter
mL	-	milliliter
cfu	-	Colonial forming unit
UMT	-	University Malaysia Terengganu
ppt	-	part per thousand
°C	-	celcius
McF	-	McFarland

## DENSITY INDEX AND SPECIES IDENTIFICATION OF *Vibrios* AT CORAL REEFS OF TERENGGANU

### ABSTRACT

This study investigated the density index of *Vibrio* species at coral reefs area in Terengganu by using Coral Health Index metric. High density of *Vibrio* is closely related to human activities and pollution, and these reflect the health of coral reefs. On the other hand, *Vibrio* was reported not only responsible for human illness but also affect other marine life including mammals, mollusks and the zooxanthellae of corals. *Vibrios* were collected in water sample at reefs environment and cultured on Thiosulphate Citrate Bile Salt Agar (TCBS Agar), a selective agar for *Vibrio* spp. From colonial forming unit count, the highest density was in Pulau Bidong and the lowest was in Pulau Redang. All nine study sites showed scores of 1 for the density index and this show that the coral reefs are in very healthy state by mean of microbe's measurement. *Vibrio alginolyticus* was been identified to present at coral reef areas from this study and this species was been reported to involve in coral disease in Caribbean and Pacific. Most reports stated that *V.alginolyticus* involved in Yellow Band Disease (YBD) in Caribbean as well.

# INDEKS KETUMPATAN DAN IDENTIFIKASI SPESIES *Vibrio* DI KAWASAN TERUMBU KARANG DI TERENGGANU

## ABSTRAK

Kajian ini adalah untuk mengkaji ketumpatan indeks *Vibrio* di kawasan terumbu karang di Terengganu dengan menggunakan metrik Coral Health Index. Ketumpatan *Vibrio* yang tinggi amat berkait rapat dengan aktiviti manusia dan pencemaran, dan ia mempengaruhi kesihatan terumbu karang. Di samping itu, laporan menyatakan *Vibrio* bukan sahaja menyebabkan dan menyumbang kepada penyakit manusia malahan kepada kehidupan marin lain termasuk mamalia, moluska dan zooxanthellae batu karang. *Vibrio* diambil dari sampel air di kawasan terumbu karang dan dikultur di atas Thiosulphate Citrate Bile Salt Agar (TCBS Agar). Kesemua sembilan kawasan kajian menunjukkan skor 1 bagi indeks ketumpatan dan ia menunjukkan bahawa keadaan teumbu karang adalah dalam keadaan yang sangat baik dalam pengukuran mikrob. *Vibrio alginolyticus* adalah spesies yang diidentifikasi dalam kajian ini dan ia telah dilaporkan bahawa ia terlibat dengan penyakit terumbu karang di Caribbean dan Pasifik. Kebanyakan laporan menyatakan juga *V. alginolyticus* ini terlibat dalam penyakit Yellow Band Disease (YBD) di Caribbean.