

IDENTIFICATION OF BACTERIA ISOLATED ON TCBS AGAR FROM
THE WHITE LEG SHRIMP *Litopenaeus vannamei* CULTURED
IN THE EAST COAST OF PENINSULAR MALAYSIA

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Identification of bacteria isolated on tcb agar from the white leg shrimp *litopenaeus* cultured in the east coast of Peninsular Malaysia / Shahira Ghazali.

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DECLARATION AND VERIFICATION REPORT
FINAL YEAR RESEARCH PROJECT

It is hereby declared and verified that this research report entitled Identification of Bacteria Isolated on TCBS agar from the White leg shrimp *Litopenaeus vannamei* cultured in the East Coast of Peninsular Malaysia by Shahira bt Ghazali, Matric No. UK25580 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 Marine Biology School of Marine Science and Environment, Universiti Malaysia Terengganu.

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LIST OF ABBREVIATIONS

H ₂ S	- Hydrogen Sulphide
IHHNV	- Infectious Hypodermal and Hematopoietic Necrosis Virus
IMN	- Infectious Myonecrosis
MBV	- Monodon Baculovirus
NaCl	- Sodium Chloride
PCR	- Polymerase Chain Reaction
TCBS	- Thiosulfate citrate Bile Salt Sucrose agar
TDH	- Thermostable Direct Haemolysin
TRH	- TDH Related Haemolysin
TSA	- Tryptic Soy Agar
TSV	- Taura Syndrome Virus
WSSV	- White Spot Syndrome Virus
YHV	- Yellow Head Virus

ABSTRACT

Diseases such as the Taura syndrome and White Spot Syndrome Disease (WSSV) causes mass mortalities of cultured shrimp worldwide, resulting to severe economic losses. The white leg shrimp *Litopenaeus vannamei* (Pacific white leg shrimp) a popular cultured species due to their rapid growth, high survival and tolerance to wide range of environmental (Briggs et al., 2004). Nonetheless *L.vannamei* is affected by *Vibrios*, the gram-negative bacteria that cause vibriosis in shrimp and other crustaceans. *V. anguillarum* and *V.harveyi* represent two main *Vibrio* spp found to infect penaeid shrimp. In this study, Thiosulfate citrate Bile Salt Sucrose agar (TCBS) was used to isolate *Vibrio* spp which occur in *L.vannamei* cultured in the East coast of Peninsula Malaysia, work that includes verification of other bacteria that grow on TCBS agar. Six different bacterial species were found on TCBS agar, with their molecular sequence revealing *Bacillus amyloliquefaciens*, *B.thuringiensis*, *B.subtilis*, *Shewanella haliotis*, *Vibrio parahaemolyticus* and *Pseudomonas aeruginosa*. This observation strongly indicates that bacteria other than *Vibrios* grow on TSBC agar.

ABSTRAK

Pengenalan Bakteria diasingkan pada TCBS agar dari Udang Berkaki Putih, *Litopenaeus vannamei* Kultur dari Kawasan Pantai Timur Semenanjung Malaysia

Penyakit seperti sindrom Taura dan White Spot Syndrome telah mengakibatkan kehilangan yang besar dalam industri kultur udang di seluruh dunia. Udang kaki putih, *Litopenaeus vannamei* telah ditenak secara meluas di seluruh dunia disebabkan oleh kadar pertumbuhan yang pesat, kelangsungan hidup yang tinggi dan toleransi kepada pelbagai alam sekitar (Briggs et al., 2004). Walaupun begitu, *L.vannamei* boleh dijangkit oleh *Vibrios*, bakteria gram-negatif yang menyebabkan Vibriosis kepada udang dan krustasia lain. *V. anguillarum* dan *V.harveyi* mewakili dua spesis bakteria utama yang dijumpai menjangkiti udang penaeid. Dalam kajian ini 'Thiosulfate citrate-bile salt sucrose' (TCBS) agar digunakan untuk mengasingkan spesis *Vibrio* yang tumbuh semasa kultur *L.vannamei* dilakukan. Selain itu, bakteria selain daripada *Vibrio* spp yang tumbuh pada TCBS agar juga dikenal pasti. Enam spesies bakteria berbeza telah didapati tumbuh pada TCBS agar, dan dikenal pasti menggunakan 'molecular sequences'. Spesis yang dikenal pasti antaranya ialah *Bacillus amyloliquefaciens*, *B.thuringiensis*, *B.subtilis*, *Shewanella haliotis*, *Vibrio parahaemolyticus* dan *Pseudomonas aeruginosa*. Penemuan ini menunjukkan bahawa ada bakteria lain selain daripada *Vibrios* boleh tumbuh di TSBC agar.