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Identification of bacterial infection from Malaysian freshwater lobster Redclaw Crayfish (*Cherax quadricarinatus*)

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Structured Abstract

Background: Redclaw crayfish was introduced in Malaysia as developing aquaculture industry since 1980s and began its commercial activity in 2003. It was estimated to produce a total of 12 tonnes yearly from the farming activities in Malaysia. Subsequently, tail blister was identified as a common disease in Redclaw crayfish industry with sporadic outbreak and high capability to infect tonnes of stocks rapidly. Therefore, this study aimed to determine the bacterial agents that caused tail blister in this species.

Methods: Twenty samples of infected tail blister in Redclaw crayfish were collected from aquatic farmer in Krubong, Melaka. The outer skins were sterilised and swab with cotton bud moistened with 70% alcohol. The fluid of the blisters were pipette out, streaked onto NA agar and incubated at 37ºC for overnight. Single colonies observed on plate were transferred into nutrient broth and incubated at 37ºC overnight. Morphological, biochemical and molecular characterisation were performed according to the standard method.

Results: Four bacterial colonies were obtained from the tail blister samples namely BW, BY, BY1 and BY2. BW was observed as white colonies while BY, BY1 and BY2 were yellow colonies morphologically. Microscopic observation identified BW as coccus-like rod shape and positive for citrate and catalase test but negative for starch hydrolysis test. Subsequent PCR 16sRNA gene amplification of verified BW as *Acinobacteria sp*. For the yellow colonies (BY, BY1 and BY2), microscopic observation indicates they are Gram-negative bacteria and tested negative for citrate test but positive in starch hydrolysis and catalase test. Subsequent PCR 16sRNA gene amplification of verified BW as *Aquitalea sp*.

Conclusion: Based on morphological, biochemical and molecular data indicates that there were 2 different pathogenic bacteria involved in this disease. Since more than one colony were obtained, it can be concluded that tail blister disease in Redclaw crayfish were caused by at least these two opportunistic bacterial pathogens, the *Acinobacter* and *Aquitalea sp*.

Keywords: Redclaw crayfish, tail blister, bacterial pathogen

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