



Impact of climate change in the adaptation and virulence of marine luminous bacterium *Vibrio campbellii*

Pimonsri Mittraparp-arthorn^{1,2}, Jiranan Pattano², Komwit Surachat^{1,3}

¹ *Molecular Evolution and Computational Biology Research Unit, Faculty of Science, Prince of Songkla University, Hat Yai 90110, Songkhla, Thailand*, ² *Division of Biological Science, Faculty of Science, Prince of Songkla University, Hat Yai 90110, Songkla, Thailand*, ³ *Division of Computational Science, Faculty of Science, Prince of Songkla University, Hat Yai 90110, Songkhla, Thailand*

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Vibrio campbellii is a lumionous marine bacterium that occur in marine environments worldwide and is capable to survive and persist under unsuitable conditions such as seasonal change and salinity fluctuation. Some strains are highly pathogenic causing massive loss in shrimp during hatchery and on-growing phases. Climate change can result in outcomes that favor bacterial survival and virulence. The metabolism, fitness, and virulence of many marine pathogens has been previously reported to be correlated with the elevated ocean temperatures driven by climate change. Since this bacterium is globally distributed, this may allow it to infect a broader range of marine organisms.

In our study, *V. campbellii* HY01 isolated from shrimp that died with luminous vibriosis in Thailand was selected as a representative strain for the study of its metabolism, transcriptome profile, and virulence under changing environmental conditions (temperature, salinity, and pH). The differences in adaptation were also compared with a strain isolated from difference climate and geographical origins.

The results showed that temperatures, salinity, and pH are important for the light production, growth, hemolytic activity, biofilm formation, and virulence of *V. campbellii*. Therefore, this will be useful for environmental control of this pathogen in shrimp aquaculture and given the ongoing concerns about impact of climate change on disease in marine ecosystems.