

Viral dynamics during a phytoplankton bloom event

Choon Weng Lee^{1,2}, Joon Hai Lim^{1,2,3}, Pei Li Heng¹

¹ Laboratory of Microbial Ecology, Institute of Biological Sciences, Faculty of Science, University of Malaya. Tel: +60-3-79675841, E.mail: lee@um.edu.my

² Institute of Ocean and Earth Sciences, University of Malaya

³ Institute of Graduate Studies, University of Malaya

Sampling was carried out in a tropical Klang estuary in order to observe for the periodic spikes in chlorophyll *a* (Chl *a*) concentration that is known to occur during rainy season. Sampling was at the Klang river mouth, and was from April until September 2010 (six samplings), from July until November 2011 (11 samplings) and from October until November 2012 (8 samplings). In the year 2011 and 2012, we observed spikes in Chl *a* concentration up to 26.3 $\mu\text{g l}^{-1}$ (2011) and 22.9 $\mu\text{g l}^{-1}$ (2012). Viral abundance was observed as virus like particles (VLP) via epifluorescence microscopy after staining with SYBR Green. Viral counts ranged from 0.7×10^7 to 12.5×10^7 VLP ml^{-1} , and averaged 3.8×10^7 VLP ml^{-1} . Viral growth rates were also measured using the dilution method, and ranged 0.013 - 0.206 h^{-1} (mean = 0.079 h^{-1}). Preliminary data analysis showed that the dynamics of viral abundance was not related to the bloom event but more likely due to the tight coupling with bacteria ($R^2 = 0.501$, $p = 0.004$). Other possible drivers of viral dynamics will be discussed.

Keywords: Phytoplankton bloom, viral abundance, viral production, virus-bacteria coupling