Geophysical Research Abstracts
Vol. 14, EGU2012-7551, 2012
EGU General Assembly 2012

Detection and Identification of Free-living Amoeba from Environmental Water in Taiwan by PCR Method

H. F. Tsai (1), B. M. Hsu (1), K. H. Huang (1), C. Y. She (1), P. M. Kao (1), S. M. Shen (1), S. F. Tseng (1), and J. S. Chen (2)

(1) National Chung Cheng University, Taiwan, , R.O.C., (2) Centers for Disease Control, Taiwan, R.O.C.

Acanthamoeba, Naegleria, Balamuthia and Hartmannella all belong to free-living amoebae that are present ubiquitously in the environment including water, soil, and air. Free-living amoebae are parasites which can infect humans and can lead to serious illness and even death. The aim of this study is to investigate the presence of free-living amoebae in aquatic environment in Taiwan, and to compare the differences between *Acanthamoeba* and *Naegleria* in diverse cultivation methods and conditions. In this study, we used molecular method by PCR amplification with specific primers to analyze the occurrence of free-living amoebae. We collected 176 samples from environmental water including drinking water treatment plants, stream water, and hot spring recreational areas in Taiwan. Based on the results of PCR, 43 water samples (24.4%) were detected positive for free-living amoebae. The most common *Acanthamoeba* genotype isolated from samples including T2, T4, T5, T12, and T15. N. australiensis and N. lovaniensis were also identified by molecular biology techniques. Furthermore, we found that both *Acanthamoeba* and *Naegleria* can be cultured by PYG in 30˚C, but not all free-living amoebae can be isolated and enriched by using storage-cultivation method. Because of the widespread presence of *Acanthamoeba* and *Naegleria* in aquatic environments, the water quality and safety of aquatic environments should be more conscious in Taiwan and worldwide.

Keywords: free-living amoebae; *Acanthamoeba*; *Naegleria*; *Balamuthia*; *Hartmannella*; PCR