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Detection and Identification of Acanthamoeba in Taiwan aquatic Environment

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Acanthamoeba is a genus of free-living amoebae that are present ubiquitously in the environment, including water, soil, and air. Some species of *Acanthamoeba* are pathogenic to humans and cause clinically distinct diseases, *Acanthamoeba* keratitis (AK) and granulomatous amoebic encephalitis (GAE), which often being associated with dermal lesions and pneumonitis. Detection of *Acanthamoeba* seems to be essential to prevent infection. The aim of this study is to survey the presence of *Acanthamoeba* and to investigate the distribution of *Acanthamoeba* at different water bodies. In this study, we used PCR amplification molecular method with specific primers to analyze the occurrence of *Acanthamoeba*. We collected 271 samples from rivershed, surface drinking water source, and spring water areas in southern Taiwan. Based on the results of PCR, 44 (16.2%) water samples were detected positive for *Acanthamoeba* species. The most common *Acanthamoeba* genotype isolated from rivershed and spring water was both T4. *Acanthamoeba* mainly detected in surface drinking water source was genotype T5. The high proportion of *Acanthamoeba* keratitis associated with T4 genotype could be attributed to its greater virulence and wide spread in the environment with respect to other genotypes. Therefore, the result shows that the widespread distribution of pathogenic *Acanthamoeba* through the surface aquatic environment should be more conscious in Taiwan.

Keywords: *Acanthamoeba* spp.; free-living amoebae; PCR