



## **PCR Detection and Analysis of Naegleria in Taiwan spring recreation areas**

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Naegleria, the free-living thermotolerant amoebae, pose a significant health risk to people who soak and swim in habitats suitable for their growth, such as hot springs. Several species within Naegleria are recognized as potential opportunistic human pathogens. In this study, we identified Naegleria using various analytical procedures and investigated their occurrence at a spring recreation areas of Taiwan. We investigated factors potentially associated with the prevalence of the pathogens, including various water types, and physical and microbiological water quality parameters. Naegleria were detected in 18.7%. The identified species of Naegleria included *N. australiensis* and its sister groups, and two other isolates referred to a new clade of Naegleria genotypes. Significant differences (Mann–Whitney U test,  $P < 0.05$ ) were observed between the presence/absence of Naegleria and heterotrophic plate counts. This survey confirms that pathogenic free-living amoebae, Naegleria, are prevalent in Taiwan spring recreation area. The presence of pathogens should be considered a potential health threat when associated with human activities in spring water.