

**Título:** DISTRIBUTION AND PATHOGENICITY OF FREE LIVING AMOEBAE FROM ENVIRONMENTAL SOURCES IN JAMAICA, WEST INDIES

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**Localización:** DISTRIBUTION AND PATHOGENICITY OF FREE LIVING AMOEBAE FROM ENVIRONMENTAL SOURCES IN JAMAICA, WEST INDIES

**Resumen:** Free living amoebae (FLA) are amphizoic protozoa that are ubiquitous in nature. More than 80% of the human population exhibit antibodies against Acanthamoeba, which is indicative of frequent exposure. Infection with FLA may result in fatal neurological, ocular and skin diseases, including otitis and sinusitis in persons with human immunodeficiency virus (HIV). Further, FLA display a symbiotic relationship with bacteria and serve as reservoirs and Trojan horses in their transmission to humans. This has serious implications for water treatment because FLA are also highly resistant to chlorine due to their ability to form a resistant cyst stage. The distribution of FLA in the environment; including soil, domestic and recreational water sources in Jamaica is unknown, although at least one serious case of human infection has been diagnosed. Therefore the true public health significance of the parasites may be underestimated.

Soil, recreational and domestic water were collected from Jamaica to investigate the distribution of FLA types in these environmental sources. Thermotolerant and omotolerant assays were utilized to investigate the pathogenic potential of the Acanthamoeba isolates. PCR and sequencing of the DF3 region were done to genotype the

isolated strains of *Acanthamoeba*. Amplifications and sequencing of the products of the 18S rDNA of FLA and specific PCRs for *B. mandrillaris* and Vahlkampfiidae were also carried out.

Of the FLA investigated in this study *Acanthamoeba* spp., *Balamuthia mandrillaris*, *Platyamoeba placida*, *Vannella epipetala*, Hartmannellidae belonging to *Saccamoeba* genus and *Vermamoeba* (*Hartmannella*) *vermiformis*, and Vahlkampfiidae amoebae were successfully isolated. *Acanthamoeba* spp. was isolated from 63.9%, 51.2% and 17.1% of soil, recreational and domestic water, respectively. This is the seventh report on the environmental isolation of *Balamuthia mandrillaris*, the first report on *Balamuthia mandrillaris*, *Platyamoeba placida*, *Vannella epipetala*, *Vermamoeba vermiformis* and *Saccamoeba* spp. in the Caribbean, and the first report on Vahlkampfiidae amoebae in the West Indies.

Sequencing of the DF3 region of the 18S rDNA resulted in the identification of genotypes T3, T4, T5, T10 and T11 and five species of *Acanthamoeba*; *A. triangularis*, *A. griffini*, *A. lenticulata*, *A. hatchetti* and *A. culbertsoni*. T4 genotype was most frequently isolated and this is the first report of T3 and T10 genotypes in the Caribbean. Most isolates were thermotolerant or both thermotolerant and osmotolerant, indicating that they may present the potential to cause disease in humans and other animals.