

Isolation and molecular characterization of *Naegleria* species in water bodies of North-Western province of Sri Lanka

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Free-living amoebae are ubiquitous protozoa that have been isolated from most regions of the world. They are widely distributed in the environment; as such, humans are likely to be frequently exposed to these organisms. *Naegleria*, *Acanthameba* and *Balamuthia* have been recognized as opportunistic pathogens of humans and other animals and are known to cause a spectrum of infections.

Although there are several species in this genus, to date, *N. fowleri* is the only species known to cause human disease. The organism penetrates through the cribriform plate and can cause fulminant and rapidly fatal primary amoebic meningoencephalitis (PAM). The disease is generally acquired while swimming, diving and total submersion for bathing in freshwater-lakes and ponds.

Sri Lanka is a tropical country with large numbers of water bodies which are used by the people for their daily needs. However, there is no systematic study that has been carried out to document the prevalence of these organisms so far.

This study was carried out to isolate *Naegleria* species from water bodies (frequently used by the people) in the North – Western province. Culture and molecular techniques (PCR and DNA sequencing) were done to identify the species. 282 samples from 47 randomly selected freshwater lakes from this region were cultured and examined for trophozoites. Observed all positive growths were tested for enflagellation detected *Naegleria*. All positive growths were tested with the genus specific PCR, and the positive PCRs were sequenced to identify the possible species.

180 samples were positive fortrophozoites. Of those positive samples, 37 samples showed enflagellation. Of these 37 samples, 9 were identified as *Naeglaria* based ongenus specific PCR assay. PCR sequencing results indicated that the 8 isolates were non-pathogenic *Naegleria* species and only one sample closely correlated to *Naegleria fowleri*gene sequence. This is the first documentation of pathogenic *Naeglaria* spp, *N.fowleri* in Sri Lanka.