Detection of *Acanthamoeba* spp. in water samples collected from natural water reservoirs in the Qinghai Province, China using LAMP assay

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Species of amoebae belonging to the genus *Acanthamoeba* are widely distributed in many parts of the world and known as free-living organisms. Some strains may exist as parasites and represent a risk to human health as causative agents of serious human diseases. So far, detection of the *Acanthamoeba* spp. DNA in environmental samples has been performed mainly using different variants of PCR. LAMP assay, a relatively new molecular tool, has only been successfully used for clinical samples.

The aim of the study was to compare the value of LAMP and conventional PCR for the specific identification of *Acanthamoeba* spp. in surface water samples.

A total of 103 environmental water samples collected in 2015 from natural water reservoirs in the Qinghai Province, China were analyzed. *Acanthamoeba* DNA was identified in 14 (13.59 %) samples using LAMP; and in six samples using PCR. The sequencing analysis found the isolates to represent the T4 genotype, known to be the most common strain related to AK cases.

The results indicate that surface water in China may be a source of acanthamoebic strains potentially pathogenic for humans. Moreover, our results demonstrate that LAMP is much more sensitive than PCR and may be regarded as useful screening tool for environmental studies.