

## Identification of *Acanthamoeba* Species in Water Sources by PCR

Kavous Solhjoo\*<sup>1</sup>; Shekofah Ghadar-ghadr<sup>2</sup>; Samanah Zia-Jahromi<sup>3</sup>

1- Department of Microbiology, Jahrom University of Medical Sciences, Jahrom, Iran

2- Shiraz Water and Waste Water Company, Microbiology Laboratory, Shiraz, Iran

3- Jahrom University of Payamenoor, Jahrom, Iran

shekoofehghadarghadr@yahoo.com

**Background & Objectives:** *Acanthamoeba* spp are opportunistic pathogens that are able to carry some pathogenic bacteria and transport to water sources and cause human serious diseases. So, according to its medical importance, identification of *Acanthamoeba* spp in water sources is necessary, by fast techniques such as PCR.

**Methods:** Water samples were collected from 70 water wells, 30 water sources and 20 water supply networks in the first six months of 2010. Then the samples were cultured on non-nutrient agar and amoebas were collected. After DNA extraction by phenol-chloroform Methods, the amoebas were identified with amplification of 18SrRNA by PCR (Forward primer: 5'CGC GGT AAT TCC AGC TCC AAT AGC 3'; Reverse primer: 5' CAG GTT AAG GTC TCG TTC GTT AAC 3').

**Results:** Forty two samples (35%) were contained free living amoeba and the wells were more infected than others (44.40%). PCR results showed that 22 samples were infected with *Acanthamoeba* spp (40.64%) and water sources were polluted with pathogenic species such as *Acanthamoeba polyphaga*, *Acanthamoeba castellani* and *Acanthamoeba astronyxis*.

**Conclusion:** The results showed that various species of *Acanthamoeba* are able to identify by amplification of 18SrRNA gene by PCR in water sources and these should be filtered and disinfected by suitable Methods for prevention of human infection.

**Keywords:** Free Living Amoeba; *Acanthamoeba*; water Sources; PCR