



ABSTRACT

Free-living amoebae (FLA) are commonly distributed protists in the environment. They are amphizoic amoebae due to their ability to live freely in environment and inside host as parasite as well. FLA cause severe diseases such as encephalitis, keratitis and skin lesions in human and animal population. FLA include distinct medically significant genera such as *Naegleria*, *Acanthamoeba* etc.

The present study was conducted to estimate the prevalence of FLA in drinking water including 13 filtered and 46 tap samples from Lahore district. Samples were cultured for detection of FLA using non-nutrient agar (NNA). The isolates of FLA were microscopically identified to the genus level based on the morphological basis.

Five samples were positive for amoebae. Samples of Allama Iqbal Town and Shadara showed flat-shaped trophozoites with discrete granules and spine like structure acanthopodia in water. Size of trophozoites were 25 μ m to 30 μ m while cyst size was measured from 10 to 20 μ m. They have double walled cyst. Outer layer is smooth and inner layer is irregular. Samples of Chauburji and Islampura showed monopodial morphotype indicating *Hartmanella*-like characteristics. Trophozoites were elongated having single nucleus and contractile vacuoles in the cytoplasm. The motility was sluggish. Cysts were single walled and rounded in shape. Cysts differed in size and shape. Cyst size range from 11 to 16 μ m. Eruptive form was observed in Bund road sample and all other characteristics were similar to monopodial morphotype confirming genus *Hartmanella*.

Thermotolerance and viability assays were performed to determine the pathogenicity of amoebae. Growth was observed at 37°C and 40°C temperature. For viability, amoebae were exposed to different temperature for various time intervals. As a result, *Acanthamoebae* trophozoites and cysts were more resistant to temperature as compare to genus *Hartmanella*.