C15 - Evaluating the presence of free-living human pathogenic amoeba in an urban area in Leicester, UK

Haafizah Hoosen1, Angela Magnet2, Rahi Pancholi1, Sauriga Kukathasan1, Umar Anjum1, Soledad Fenoy3, Fernando Izquierdo3, Dolores Ollero3, M. Carmen Lobo-Bedmar3, M. Ángeles Peña4, Carmen del Águila3, Antonio Peña-Fernández1

E-mail: angela.magnetdaun@ceu.es

1Haafizah Hoosen: School of Allied Health Sciences, De Montfort University, Leicester, LE1 9BH, UK. 2Universidad San Pablo CEU, Laboratorio de Parásitología e Inmunología, Madrid. 3Departamento de Investigación Agroambiental, IMIDRA. Finca el Encín, Ctra. Madrid-Barcelona Km, 38.2, 28800 Alcalá de Henares, Madrid, Spain. 4Universidad de Alcalá, Departamento de Ciencias Biomédicas, Ctra. Madrid-Barcelona Km, 33.6, 28871 Alcalá de Henares, Madrid.

Human pathogenic free-living amoebas include Acanthamoeba spp., Naegleria fowleri and Balamuthia mandrillaris. These FLA are widely distributed protozoa in the environment and are becoming a public health threat as they are resistant to harsh environmental conditions. Despite several studies describing the presence of these organisms in soil and fresh water environments, there is a general lack of knowledge of the distribution of FLA in the environment or their source. Thus, identification of these FLA in the environment to protect the public is therefore necessary, particularly due to fact that they are becoming the natural habitat for humans. The present study investigated whether these FLA were present in an urban area close to the city centre of Leicester (UK). Ten samples of both grass and soil were collected from Bede Park (postcode LE2 7HN) in November 2016. This park is located between two water courses, the Old River Soar and the River Soar, and is frequented by children and adults. An additional ten animal faecal samples were collected from the river bank close to this park in the same period and on dry days to maintain the integrity of the sample. A veterinarian identified the possible animal species as: 5 avian (3 waterfowl, 2 uncertain); 4 canine (3 fox, 1 dog) and 1 cat. Grass and soil samples were appropriately treated with 1% phosphate-buffered saline to extract any possible cysts. DNA was extracted from each sample (faecal and aliquots of soil and grass) using the Fast-DNA-Spin kit following the methodology previously described. PCR inhibitors were removed using the QIAamp micro DNA extraction kit. Extracts were screened for FLA using a triplex real-time TaqMan PCR assay that can simultaneously identify these three amoebae. Positive controls were used for each amoeba. All samples screened for FLA were negative, however the results overall were inconclusive due to the limited number of samples and the small area monitored. Further studies will be needed to protect the public from these emerging human pathogens as recent evidence indicates an increase in infections due to FLA globally.