

# Parásitos oportunistas y emergentes

PRESENCE AND DISTRIBUTION OF *Enterocytozoon bieneusi*  
SPORES ACROSS DIFFERENT SOIL TYPES FROM ALCALÁ DE HENARES (SPAIN)

ANTONIO PEÑA-FERNÁNDEZ<sup>1</sup>, MANUEL HIGUERAS<sup>2,3</sup>,  
MARÍA CARMEN LOBO-BEDMAR<sup>4</sup>, FERNANDO IZQUIERDO<sup>5</sup>, UMAR ANJUM<sup>1</sup>

<sup>1</sup> Leicester School of Allied Health Sciences, De Montfort University, Leicester, Reino Unido

<sup>2</sup> Scientific Computation & Technological Innovation Center (SCoTIC), Universidad de La Rioja, Logroño, España

<sup>3</sup> Departamento de Matemáticas y Computación, Universidad de La Rioja, Logroño, España

<sup>4</sup> Departamento de Investigación Agroambiental. IMIDRA. Finca el Encín, Alcalá De Henares, España

<sup>5</sup> Facultad de Farmacia, Universidad San Pablo CEU, Boadilla Del Monte, Madrid, España

## ABSTRACT | RESUMEN

Humans could be potentially exposed to a myriad of emerging biological hazards in topsoils when playing or spending time in urban parks. However, the presence of *Enterocytozoon bieneusi* in urban topsoils has been little studied despite increasing reports of infection by this pathogen. 227 topsoil samples were collected in July 2017 across different urban (155) and industrial (60) areas in Alcalá de Henares (Spain), and in a public garden in the city centre (12). DNA was extracted by disrupting the spores using Fast-Prep for Soil<sup>®</sup>, followed by SYBR Green real-time PCR. Organic matter content (OM), pH, electric conductivity (EC) and the texture (percentages of sand, clay and silt) were determined in the soils according to standard methods. *E. bieneusi* was detected in 9 of the soil samples monitored (5 urban, 4 industrial). Spores were not found in any of the samples monitored in public gardens, although this might be attributed

to the processes of the compost used for fertilising. OM and silt were significantly higher in industrial vs. urban soils, meanwhile percentages of clay and sand were significantly higher in urban areas; CE and pH did not show any differences between them. The presence of spores was associated within urban soils that presented lower EC (0.50 vs 0.71; p-value=0.011), as this factor may provide a richer environment for the survival of the spores. Although no relationship was found between the presence of *E. bieneusi* and soil textural factors, certain soil fungi species have been positively related to organic matter, sand and clay content, which could explain the higher presence of *E. bieneusi* detected in the urban areas of Alcalá. A better understanding of the presence and circulation of microsporidia in urban soils is necessary to assess the potential risks on the population.

KEYWORDS: *Enterocytozoon Bieneusi*, Urban Topsoils, Presence, Circulation, Risks.

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