

Toxocara sp. egg contamination of allotment-grown vegetables in the UK: A pilot study

Healy, S. [1], Betson, M. [2], Morgan, E. [3], and Prada, J. [4]

[1] School of Veterinary Medicine, University of Surrey

[2] School of Veterinary Medicine, University of Surrey

[3] School of Biological Sciences, Queen's University Belfast

[4] School of Veterinary Medicine, University of Surrey

Toxocara canis and *Toxocara cati* are zoonotic roundworm parasites of dogs, cats and foxes. These definitive hosts pass eggs in their faeces, which contaminate the environment and can subsequently be ingested via soil or contaminated vegetables. In humans, infection with *Toxocara* can have serious health implications, including brain disorders and blindness. This proof-of-concept study investigated the presence of *Toxocara* eggs on vegetables sampled from allotments (community gardens) in southern England between May 2021-July 2021. This is the first time that vegetable contamination with *Toxocara* eggs has been investigated in the UK, or in allotments anywhere.

Sixteen allotment sites participated, providing 82 vegetable samples for testing. For eight of the vegetable samples, sufficient soil from where the sample originated was additionally available in the sample bag for analysis. Study participants also completed an anonymous questionnaire on observed visits to the sites by definitive hosts of *Toxocara*. Comparison of egg recovery methods was performed using lettuce samples spiked with a series of *Toxocara* egg concentrations, with sedimentation and centrifugal concentration retrieving the highest number of eggs. This method was subsequently used to analyse the vegetable samples collected from the allotment sites.

Two lettuce samples tested positive for *Toxocara* eggs, and one sample among the eight soil samples tested was also positive. Questionnaire data revealed that 88% of respondents had seen a definitive host species or the faeces of a definitive host on their site. This is the first study demonstrating the presence of *Toxocara* eggs on vegetables grown in the UK, as well as within the soil where these vegetables originated, highlighting the biosecurity risks in allotment sites.

This pilot study provides a method for assessment of *Toxocara* eggs on vegetable produce and paves the way for larger-scale investigations of *Toxocara* egg contamination of field-grown vegetables.