

## SEROPREVALENCE OF TOXOPLASMA GONDII IN WILD AND DOMESTIC LAGOMORPHS IN SPAIN

***D. B. Vázquez-Calero, DVM<sup>1\*</sup>, S. Castro-Scholten, DVM<sup>2</sup>, D. Cano-Terriza, DVM, PhD<sup>2</sup>, J. A. Aguayo-Adán, BS<sup>3</sup>, C. Rouco, BS, PhD<sup>3</sup>, S. Almería, DVM, PhD<sup>4</sup>, D. Jiménez-Martín, DVM<sup>2</sup>, S. Jiménez-Ruiz, DVM<sup>5</sup>, I. Villena, BSc, PhD<sup>6</sup>, I. García-Bocanegra, DVM, PhD, Dip ECZM (Wildlife Population Health)<sup>2</sup>***

<sup>1</sup> *Clínica Veterinaria ARACAVIA de animales exóticos, Málaga, Spain.*

<sup>2</sup> *Universidad de Córdoba, Grupo de Investigación en Sanidad Animal y Zoonosis (GISAZ), Departamento de Sanidad Animal, Córdoba, Spain.*

<sup>3</sup> *Universidad de Córdoba, Departamento de Botánica, Ecología y Fisiología Vegetal. Área de Ecología, Córdoba, Spain.*

<sup>4</sup> *Food and Drug Administration, Center for Food Safety and Applied Nutrition (CFSAN), Office of Applied Research and Safety Assessment (OARSA), Laurel, USA.*

<sup>5</sup> *Instituto de Investigación en Recursos Cinegéticos IREC (UCLM-CSIC- JCCM), Grupo Sanidad y Biotecnología (SaBio), Ciudad Real, Spain.*

<sup>6</sup> *University of Reims Champagne-Ardenne, National Reference Centre for Toxoplasmosis, Laboratory of Parasitology, Hospital Maison Blanche, Reims, France.*

**Abstract:** Toxoplasmosis is a zoonosis caused by the protozoa *Toxoplasma gondii* which infects warm-blooded species worldwide, including humans. Wild rabbits and hares are very important small game species in Spain and the demand for their meat for human consumption is increasing. In addition, these species are the most important food source for the endangered Iberian Lynx (*Lynx pardinus*), which is a definitive host of *T. gondii*. The domestic rabbit is the third most important species in veterinary clinics in Spain. Its popularization as a pet in recent years evidences that this species could be a good indicator of the possible oocyst contamination in the environment surrounding human beings. A nationwide large-scale cross-sectional study was conducted to assess exposure to *T. gondii* in wild and domestic lagomorphs in Spain. A total of 1,127 serum samples were collected in 16 provinces of Spain between 2018 and 2021 and were assayed for antibodies against *T. gondii* by the modified agglutination test (MAT, cut-off 1:25). Antibodies against *T. gondii* were detected in 50 of 1,127 animals (4.4%; 95%CI: 3.2-5.6) and antibody titres of 1:25, 1:50, 1:100 and  $\geq$ 1:500 were found in 33 (66.0%), 12 (24.0%), 4 (8.0%) and 1 (2.0%) individuals, respectively. By species, the frequency of positives was 10.9% (5/46) in Iberian hare (*Lepus granatensis*), 4.8% (43/898) in wild rabbit (*Oryctolagus cuniculus*), 1.1% (2/178) in domestic pet rabbit (*Oryctolagus cuniculus domesticus*) and 0.0% (0/5) in European hare (*Lepus europaeus*). At least one *T. gondii* seropositive wild lagomorph was detected in 33.7% (30/89) of the analyzed hunting states. Significantly higher seroprevalence was observed in wild lagomorphs (5.1%; 95%CI: 3.7-6.5) compared to domestic ones (1.1%; 95%CI: 0.0-2.7) ( $P = 0.046$ ). No statistically significant differences were observed by age, sex or sampling area. The results obtained indicate a low and moderate *T. gondii* exposure in domestic and wild lagomorphs, respectively. However, the high hunting state prevalence, indicates widespread circulation of this parasite among wild lagomorphs in Spain, which can be of animal and public health concern.

\*Corresponding author:

D. B. Vázquez Calero  
Clínica Veterinaria ARACAVIA de animales exóticos  
Calle Saint Exupery 10  
Málaga, 29007  
Spain  
daniel.vazquez@aracavia.es