



21-22 November, 2024

THE PREVALENCE OF ANTI-*LEISHMANIA INFANTUM* ANTIBODIES IN DOGS FROM WESTERN ROMANIA

PLESKO, A., SÎRBU, B.A.M., FLOREA, T., IMRE, M., MORARIU, S.

*University of Life Sciences "King Mihai I" from Timisoara, Faculty of Veterinary Medicine,
300645, Calea Aradului no. 119, Timisoara, Romania
E-mail: pleskoanamaria@gmail.com*

Abstract: Canine leishmaniasis (CanL) is caused by the parasite *Leishmania infantum*, which is transmitted by sand flies, with dogs serving as the primary reservoir for the disease. Romania has traditionally been considered non-endemic for CanL; however, climate changes over the past decade have significantly contributed to the increased presence of vectors in the environment, leading to a rise in disease incidence among animals and humans. Due to the zoonotic nature of the disease and the widespread prevalence of vectors, attention to this pathology is growing. The aim of this study was to determine the seroprevalence of CanL in dogs from three counties in Romania. Conducted between February and May 2024 in western Romania, the study involved serum sample collection from 100 asymptomatic dogs from four different shelters and one veterinary clinic, analyzed using indirect immunofluorescence assay techniques. Of all the samples analyzed, 1% tested strongly positive, while 8% showed weakly positive results. Considering these results as well as the increasing reports of the disease in endemic countries among resident animals, we recognize the importance of careful and rigorous monitoring of CanL in Romania.

Keywords: CanL, *Leishmania infantum*, Romania, climate changes, dogs, indirect immunofluorescence.

Introduction

➤ Canine leishmaniasis (CanL) is a zoonotic disease caused by a group of protozoa belonging to the genus *Leishmania*, which attacks the phagocytic immune system of mammals. Transmission occurs mainly through the blood-feeding activity of female sandflies. The disease is widespread, affecting both humans and animals across five continents. The most important reservoir and host for leishmaniasis is the dog.

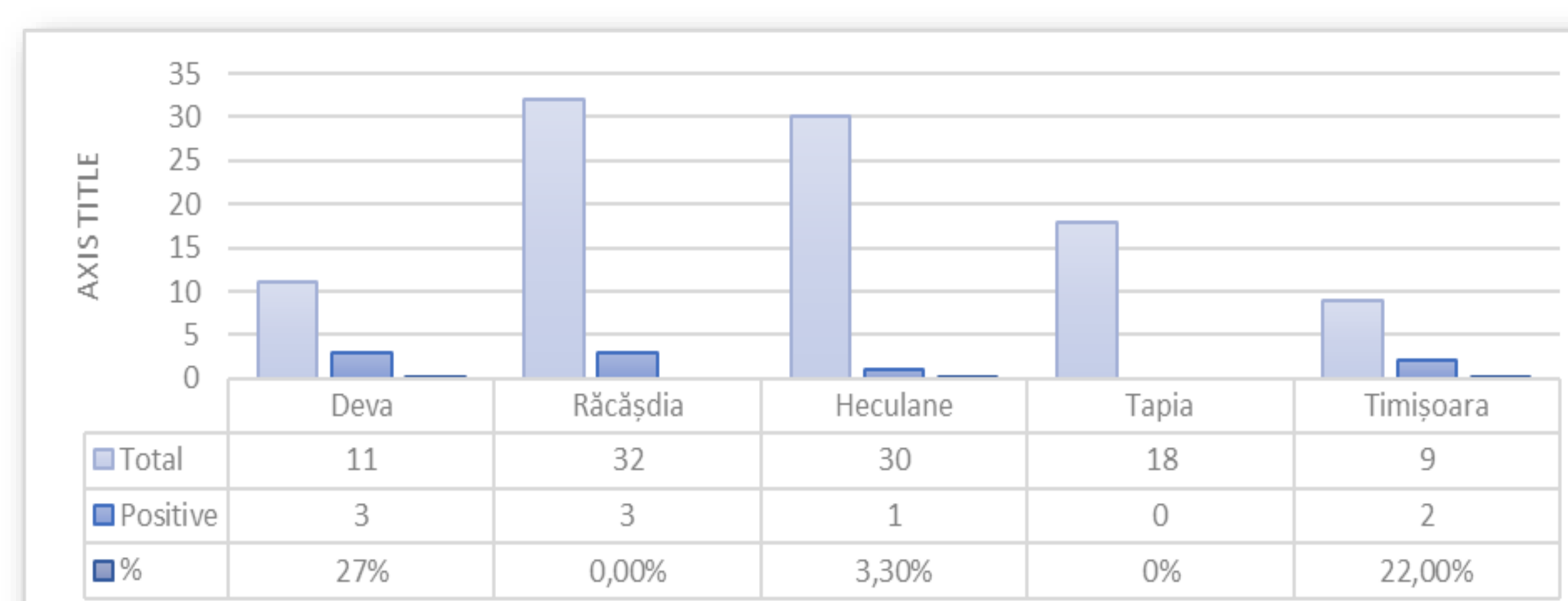
Materials and methods

➤ The study was conducted from February to May 2024 in five localities across three counties located in western Romania. A total of 100 peripheral blood samples were collected from asymptomatic dogs in shelters and veterinary clinics. Each sample was taken in tubes without anticoagulant, labeled individually, transported to the laboratory, and centrifuged at 3000 rpm for 5 minutes. Serum extraction was then performed, with the serum transferred to Eppendorf tubes. Serum samples were stored at -20°C until analysis.

➤ The samples were examined using the Anti-*Leishmania* Antibodies (Leishmaniosis) Kit® by ByoSystems, following the usage guidelines recommended by the manufacturer. Results were interpreted with the imID® fluorescence microscope from BioSystems.

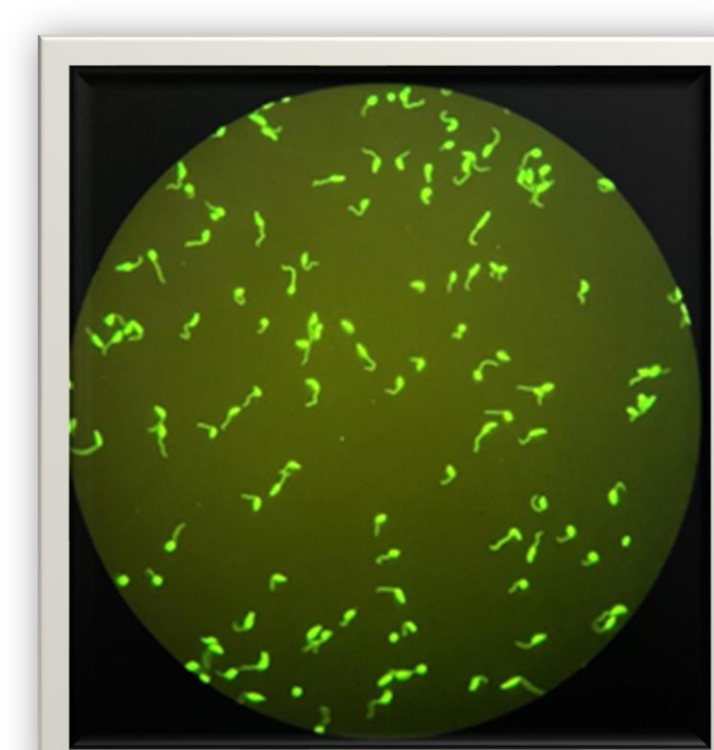
Results and discussions

Intense fluorescence and high homogeneity indicating positivity were noted in one of the 100 samples examined. Microscopic analysis revealed that in 8 of the dogs tested, fluorescence was weaker, but homogeneity remained high. In 24 animals, the results were inconclusive, with some fields showing fluorescence while others had reduced fluorescence, lacking homogeneity. The remaining 67 dogs tested negative.



The highest fluorescence was observed in a 3.6-year-old female dog from a shelter in the locality of Herculane. The shelter is located in a southern point of Caraș-Severin County, at the edge of a forested, rocky area, relatively close to the Danube River. All these characteristics are specific to the presence of vectors, which prefer this type of habitat.

Chargui et al. (2007) analyzed the efficiency of various diagnostic methods for determining the diagnosis of CanL and noted an accuracy of 93.3% with the use of IFAT. Similarly, Camargo et al. (2010) studied the effectiveness of three diagnostic methods for CanL (IFAT, ELISA, and PCR) in Brazil in 2010, observing that specificity was 100% for both IFAT and PCR, while the sensitivity of immunofluorescence was 97.77%, the highest among the three methods.



Conclusions

- ✓ This study confirms the rising incidence and geographic spread of CanL. Monitoring dogs, the primary reservoir of the disease, is essential to implementing timely, geographically targeted prevention measures to limit the spread of canine leishmaniasis in Europe.
- ✓ The use of immunofluorescence for detecting anti-*Leishmania* antibodies is the reference method, as it has high sensitivity and specificity in diagnosis.