

# Identification of ticks vectoring *Cercopithifilaria* and *Hepatozoon* in Hamedan and Kermanshah

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## Abstract

- Infestation of dogs with ticks and tick-borne infections are common in kennels.
- Previously we found infection of dogs in different regions of Iran with tick-borne infections including *Cercopithifilaria bairae* and *Hepatozoon canis*.
- We aim to examine ticks infesting dogs in Hamedan and Kermanshah for these pathogens by microscopical, histological and molecular techniques in order to identify the vectors for the first time in Iran.
- A total of 1,386 ixodid ticks were collected from 61 dogs in four kennels of Hamedan and Kermanshah and some ticks (n=95) from grounds of the Kermanshah Kennel in August 2020, all of them were identified morphologically as *Rhipicephalus sanguineus sensu lato*.
- By the dissection of 105 adult ticks and examination of their hemolymph and body cavity, intermediate stages of *Cercopithifilaria* spp., and *Hepatozoon canis* were not found which could be due to yet early establishment of the infection in ticks. Histology and PCR will shed light on the burden of infection in ticks.

**Table 1.** Number of different stages of ticks collected from kennels

Region	Larvae	Nymph	Male	Female
Hamedan	1	2	261	415
Kermanshah	25	301	186	290

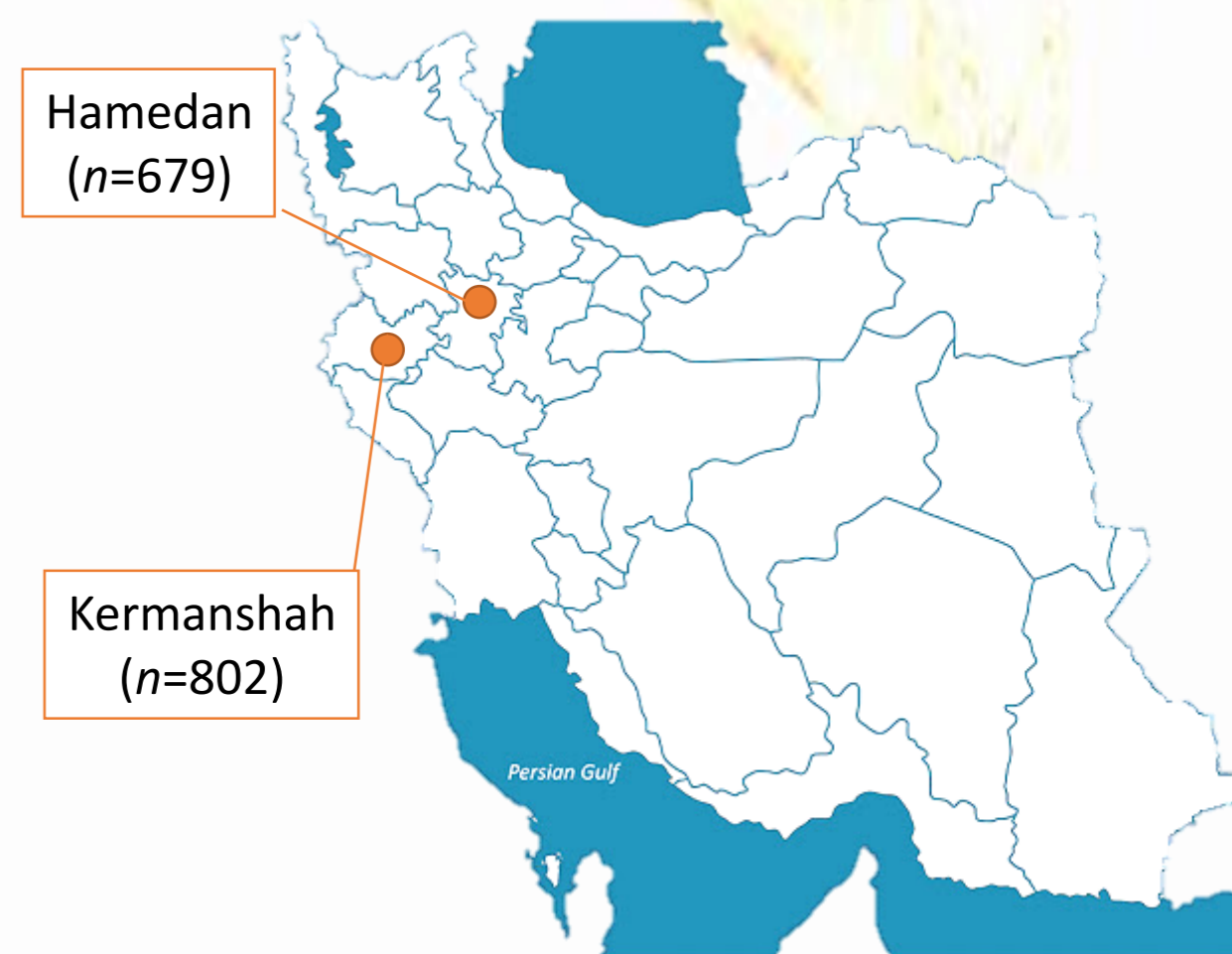
- Tick samples were collected in separate containers and transferred to the Parasitology Laboratory of Faculty of Veterinary Science, Bu-Ali Sina University for identification and examination.
- One-hundred and five ticks of both sexes and different feeding statuses which were collected from individual dogs were dissected and their hemolymph and body cavity were examined under a stereomicroscope for the presence of larval stages of *Cercopithifilaria* and developing stages of *H. canis*.
- From each dog five ticks were fixed in formalin for further histological examinations, and five ticks are kept at -20 °C freezer for PCR.

## Introduction

- Tick are vectors and intermediate hosts of a variety of pathogenic parasites, bacteria and viruses (1).
- Role of the "brown dog tick" *Rhipicephalus sanguineus sensu lato* (s.l.) in the epizootology and epidemiology of several animal and human diseases has been shown (2).
- In recent years, attentions have increased to the species of a neglected genus of nematodes "*Cercopithifilaria*" whose microfilariae can be detected beneath the skin of dogs and is transmitted by *R. sanguineus* s.l. (3).
- *Hepatozoon canis* the causal agent of canine hepatozoonosis is another widespread parasite with *R. sanguineus* s.l. as major vector (4).
- In our previous studies we found infection of dogs in Hamedan, Kermanshah, Amol, Yazd and Ahvaz with tick-borne infections including *Cercopithifilaria bairae* and *Hepatozoon canis* (5-7) however, tick vectors of these parasites are still unknown in Iran.
- In this research we aim to examine ticks infesting dogs in Hamedan and Kermanshah for these pathogens by microscopical, histological and molecular techniques in order to identify the vectors for the first time in Iran.

## Result and Conclusion

- All of the ticks were identified morphologically as *Rhipicephalus sanguineus sensu lato* (Table 1).
- By the dissection of 105 adult ticks and examination of their hemolymph and body cavity, intermediate stages of *Cercopithifilaria* spp., and *Hepatozoon canis* were not found which could be due to yet early establishment of the infection in ticks (4).
- At moment we are examining the histosections of ticks for the presence of the parasites.
- Histological examinations along with PCR will shed light on the dynamics of these tick-borne infections in Hamedan and Kermanshah.



## Material and Methods

During August 2020, a total of 1,481 ixodid ticks i.e. 679 in Hamedan and 802 in Kermanshah were collected from 61 dogs and grounds in four kennels in Hamedan and Kermanshah.

## References

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