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Investigation of *Babesia microti* parasite by PCR method and determining the sequence of 18S rDNA gene in Ixodidae in Khuzestan province

Maryam Mahmoodipour[1], Hossein hamidinejat[2*] and mohammadreza tabandeh[3]

[1] PhD Student of Parasitology, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran
[2] Professor, Department of Parasitology, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran
[3] Associate Professor, Department of Basic Sciences, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran

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Abstract

Babesiosis is a tick-borne disease in domestic and wild animals worldwide. This disease is caused by different species *Babesia*, including *Babesia microti*, which is zoonotic and can be transmit between humans and animals due to their ability to be transmitted from blood. Limited information is available regarding the presence of *Babesia microti* in ticks in Iran. The aim of this study was to investigate the presence of *Babesia microti* in ticks of Khuzestan province and to determine their molecular and genotypic characteristics. The present study was a field-descriptive-cross-sectional study that was conducted for 16 months from June 2017 to September 2018 in Khuzestan province. The ticks (No = 620) were collected from cows, sheep, goats and horses in Khuzestan province and their characteristics were determined using valid keys. The presence of *Babesia microti* infection and its genotype in collected ticks were investigated by polymerase chain reaction (PCR) using 18S rDNA gene, amplifying a PCR product of 149 bp in length. A total of 620 salivary gland samples collected from ticks included *Rhipicephalus turanicus* (150), *Rhipicephalus sanguinus* (60), *Hyalomma anatolicum* (310) and *Hyalomma exquavatum* (100). Ten samples were pooled as one sample for DNA extraction. The results of PCR showed that the infection rate of *Babesia microti* in *Hyalomma anatolicum* species is 64%. The results of the sequencing of 4 PCR positive samples of *Babesia microti* from 4 regions of Khuzestan province (Ahvaz, Behbahan, Elahaye and Lali) showed that there are 2 mutations at position (A>G) 465 and (A>C) 517 in Ahvaz isolate. The results of this study also showed the presence of *Babesia microti* infection in the ticks of domestic animals in Khuzestan province, which should be considered in terms of transmission to humans.

Key words: Phylogeny, *Babesia microti*, 18S rDNA, Ixodidae

[*] **Corresponding Author**: Hossein hamidinejat, Professor, Department of Parasitology, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran
E-mail: hamidinejat@scu.ac.ir

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