



## Investigation of Dog Filariasis in Ilam Province, Iran

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### Abstract

**BACKGROUND:** Blood filaria is an important arthropod-borne parasite concerning public health and causing disease in the host. Until now, no study has been conducted on the infection of dogs with blood filariasis in Ilam Province, Iran. This province has three different climates and is home to *Culex* species, which are the most prevalent vectors of the parasites reported in this province.

**OBJECTIVES:** The present study investigated the infection of dogs with *Dirofilaria immitis* and *Acanthocheilonema reconditum* (*Dipetalonema reconditum*) in Ilam Province, Iran.

**METHODS:** In this study, blood samples were collected from 139 dogs from Ilam Province. Blood samples were examined using the modified Knott method, and the polymerase chain reaction (PCR) was performed using two pairs of specific primers of the internal transcribed spacer 1 (*ITS1*) gene.

**RESULTS:** In a blood specimen from Sirvan City, microfilaria of *Dirofilaria immitis* (34 microfilariae in 1 mL of blood) was observed by the modified Knott test. The mean length and width of the microfilaria were  $240 \pm 8.72$  and  $5.4 \pm 0.33 \mu$ , with the straight end of the tail. A blood sample from Dehloran City and two samples of Sirvan were positive, and PCR results revealed a specific band at 155 bp in length. Two samples of Ilam City and one sample of Sarablah City were positive for *Acanthocheilonema reconditum*, and an amplicon with a length of 155 bp was observed.

**CONCLUSIONS:** The frequencies of infection with *Dirofilaria immitis* and *Acanthocheilonema reconditum* in Ilam Province were 2.6% and 3%, respectively. In the present study, infected dogs were reported from the cities of Sirvan, Sarablah, and Ilam, whose regions experience moderate winters without serious cold temperatures.

**Keywords:** *Acanthocheilonema reconditum*, *Dirofilaria immitis*, Dirofilaria, Polymerase chain reaction (PCR), *ITS* gene locus

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### Figure Legends and Table Captions

**Table 1.** Sequences of primers used in the present study.

**Figure 1.** Polymerase chain reaction products of  $\beta$ -actin gene (300 bp) of a dog blood on 1.5% agarose gel stained with ethidium bromide.

**Figure 2.** Polymerase chain reaction products of *Dirofilaria immitis ITS1* (155 bp) of a dog blood in sirvan region and DNA marker with a length of 100 bp (Sinaclon, Iran) on 1.5 % agarose gel stained with ethidium bromide.

**Figure 3.** Polymerase chain reaction products of *Dirofilaria immitis ITS1* (155 bp) of a dog blood in dehloran region and DNA marker with a length of 100 bp (Sinaclon, Iran) on 1.5 % agarose gel stained with ethidium bromide.

**Figure 4.** Polymerase chain reaction products of *Acanthocheilonema reconditum ITS1* (155 bp) of a dog blood in sarableh region and DNA marker with a length of 100 bp (Sinaclon, Iran) on 1.5 % agarose gel stained with ethidium bromide.