



Serum prevalence of brucellosis based on history of abortion in sheep and goat using serological tests in Piranshahr

Amir Tukmechi¹ , Hasan Arman Far¹ 

1. Department of Microbiology, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran

ABSTRACT

Background and Aim: Brucellosis is a common human-animal disease caused by *Brucella* bacteria. This study was performed to evaluate the serum prevalence of brucellosis in sheep and goats with a history of abortion in Piranshahr.

Materials and Methods: One of the essential methods for detection is polymerase chain reaction in which Multiplex-PCR method is the fastest way to achieve the desired results. Despite the PCR test simplicity, it can be performed on a large number of samples due to high sensitivity and specificity. This technique was used to simultaneously identify four species of the *Brucella* family, *Brucella mellitensis*, *Brucella abortus*, *Brucella ovis* and, *Brucella suis* in sheep and goat abortion specimens. 200 serum samples were collected from the Piranshahr region and were first examined for *Brucella* infection by the Rose Bengal test. Then, in the next step, DNA serum samples were extracted for final confirmation and, specific primers designed based on the *16s rRNA* gene were used to detect *Brucella*. Specific primers of each species were used to identify *Brucella* species.

Results: According to Rose Bengal test, the results show that 86 samples (43%) of the serum samples (39% of sheep samples and 4% of goat samples) were positive for *Brucella*. The results of this study were positive for *Brucella* based on multiple PCR tests of 33 samples (16.5%). Prevalence of infection with different species of *Brucella* based on multiple PCR tests is as follows: 19 samples (22%) of *Brucella abortus* species, ten samples (11.6%) of *B. mellitensis* species, four samples (4.6%) of the samples were infected with *B. ovis*. The results also showed a significant relationship between abortion and the type of livestock ($p < 0.05$). Abortion occurred more in sheep than in goats by *Brucella* bacteria.

Conclusion: Finally, none of the samples were infected with *Brucella* Swiss. As a results, *Brucella abortus* one biovar and *B. melitensis* one biovar are common among sheep and goats in Piranshahr region. Moreover, the use of multiplex polymerase chain reaction methods in diagnostic laboratories improves the quality level and increases the detection speed. Finally, the results showed that brucellosis is endemic in flocks of sheep and goats in Piranshahr region.

Keywords: Sheep and goat, serum, *B. abortus*, *B. melitensis*, *B. ovis*, *B. suis*

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**Corresponding
Information:**

Amir Tokmechi, Department of Microbiology, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran. Email: a.tukmachi@urmia.ac.ir



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