



دانشگاه زابل

Zabol University

Graduate school

Faculty of Veterinary Medicine

Department of Clinical Sciences

Title:

**Molecular prevalence and identification of
Anaplasma ovis and phagocytophilum in small
ruminants of Sistan region**

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Abstract

Anaplasma phagocytophilum and Anaplasma ovis are obligate intracellular bacteria transmitted by ticks. Anaplasma phagocytophilum is mainly transmitted by the tick species Ixodes ricinus and causes anaplasmosis in various species such as horses, dogs, cats and tick-borne fever (TBF) in ruminants. In contrast, Anaplasma ovis causes anaplasmosis in sheep and appears to be more host specific than Anaplasma phagocytophilum. This pathogen mainly affects red blood cells of sheep and goats. The prevalence of Anaplasma Ovis and Phagocytophilum blood parasites is high in the world, especially in Iran and Sistan and Baluchistan province due to its border with Pakistan and Afghanistan. This disease causes a lot of economic damage to sheep and goat herds in Sistan city. As a result, the aim of this research is to study the prevalence of Anaplasma ovis and Anaplasma phagocytophilum blood parasites in sheep and goats in Sistan region using PCR method. Random sampling was done from 100 sheep and goats in different regions of Sistan and the questionnaires were filled through interviews with livestock farmers of the region. DNA was extracted from the samples to perform the steps of molecular detection techniques and the PCR process was started. The results were analyzed using SPSS statistical software. The results showed that the prevalence of Anaplasma Ovis in Sistan region was 64% and the prevalence of Anaplasma phagocytophilum was 11% and the total prevalence was 68%. Also, both pathogens were detected in 14% of sheep and goats. In the investigations, it was found that there is no significant difference in both pathogens in terms of age, sex, species (sheep or goat), flock size, presence of ticks, and the area where the flock is kept. Due to the effect of regional climate conditions on the prevalence of Anaplasma, the molecular investigation of the prevalence of these two pathogens in the Sistan region and comparing it with the west of Iran shows that this rate is much higher in the Sistan region. Considering that these two pathogens are more prevalent in tropical regions, probably one of the reasons for this is the warmer climate of Sistan region compared to western Iran. Developing control programs to reduce the prevalence of these two pathogens and necessary measures to eliminate tick carriers in herds can help to better control and reduce the damages caused by these pathogens.

Keywords

Anaplasma ovis, Anaplasma phagocytophilum, small ruminants, Sistan and Baluchistan, PCR