

Makale Adı: The detection and phylogenetic analysis of *Anaplasma phagocytophilum*-like 1, *A. ovis* and *A. capra* in sheep: *A. capra* divides into two genogroups

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RESEARCH



The detection and phylogenetic analysis of *Anaplasma phagocytophilum*-like 1, *A. ovis* and *A. capra* in sheep: *A. capra* divides into two genogroups

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Abstract

In this study, the presence, prevalence, and genotypes of *Anaplasma phagocytophilum*, *A. ovis*, and *A. capra* in sheep were investigated based on 16 S SSU rRNA, *groEL*, and *gltA* gene-specific polymerase chain reaction (PCR), respectively. The sequences of the genes were used for detection of the phylogenetic position of the species. Additionally, a restriction fragment length polymorphism (RFLP) were carried out for discrimination of *A. phagocytophilum* and related variants (*A. phagocytophilum*-like 1 and 2). The prevalence of *Anaplasma* spp. was found as 25.8% (101/391), while it was found that *A. ovis*, *A. phagocytophilum*-like 1, and *A. capra* are circulating in the sheep herds in Kyrgyzstan, according to the PCRs, RFLP and the partial DNA sequencing results. The positivity rates of *A. phagocytophilum*-like 1, *A. ovis*, and *A. capra* genotype-1 were 6.9, 22.5, and 5.3%, respectively. A total of 32 (8.2%) sheep were found to be mix infected. Moreover, phylogenetic analyses and sequence comparison with those available in the GenBank showed that *A. capra* formed two distinct genetic groups (*A. capra* genotype-1 and *A. capra* genotype-2). Considering the zoonotic potential of these species, it may be necessary to make changes in the interpretation of anaplasmosis cases in animals and there is a need for further studies to determine the pathogenicity of the species/genotypes circulating in animals.

Keywords *Anaplasma species* · *Anaplasma capra* genotypes · 16S SSU rRNA · *groEL* · *gltA* · Sheep

Introduction

Anaplasmosis is one of the emerging-tick borne diseases,

and the disease affects both human and animal health. The genus *Anaplasma* (order Rickettsiales, family Anaplasmataceae) includes the species of *A. marginale*, *A. centrale*, *A. bovis*, *A. platys*, *A. ovis*, *A. capra* and *A. phagocytophilum*, the last three of which cause infection in sheep (Friedhoff 1997; Dumler et al. 2001; Liu et al. 2012).

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2021	Five Year
2.816	2.5

JCR Category	Category Rank	Category Quartile
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JCI Category	Category Rank	Category Quartile
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