



Molecular identification of *Escherichia coli* in ticks isolated from domestic animals in West Azerbaijan province

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ABSTRACT

Background and Aim: *E.coli* is a rod-shaped Gram-negative bacterium of the Enterobacteriaceae family; Normally, it is an important part of the healthy intestinal tract of humans and warm-blooded animals. It can live in airy or non-airy environments. *Escherichia coli* bacteria can be transmitted through contaminated water or food or contact with animals and people and cause a wide range of infections and cause diarrhea. Hard ticks are obligate blood-feeding parasites that transmit a wide variety of pathogenic microorganisms and cause significant economic losses. Any hard biting human tick is a vector for a different set of infectious agents. They can carry various pathogens and cause important human and animal diseases. Some types of *Escherichia coli* bacteria can cause urinary tract infection, respiratory disease and pneumonia and other diseases. *Escherichia coli* bacteria consists of a diverse group of bacteria. *Escherichia coli* pathogenic strains are classified by pathotype. Six pathotypes are associated with diarrhea and are collectively known as diarrheal *Escherichia coli* bacteria. The aim of this research is to investigate the *16SrRNA* and *papC* genes of *E.coli* bacteria in ticks isolated from domestic animals in West Azarbaijan province.

Materials and Methods: In this research, 350 hard ticks were classified and identified based on diagnostic keys to investigate *E.coli* bacteria in hard ticks. A total of 350 hard ticks including 173 species of *Hyalomma* and 177 species of *Rhipicephalus* were identified. The samples were divided into 70 mixtures based on the tick species and DNA was extracted from the ticks.

Results: Pathogens transmitted by ticks were detected using PCR and the samples were examined for the presence of *E.coli* bacteria. The results showed that *Ripicephalus* ticks with 7 (n=36; 19.44%; 95% CI: 9.75%-35.02%) and *Hyaloma* ticks with 6 (n=34; 25%; 95% CI: 12%-44.90%) infection showed *Escherichia coli* bacteria.

Conclusion: The findings show that these pathogens are transmitted by different species of hard ticks. Ticks and tick-borne diseases are a major public health concern worldwide.

Keywords: West Azerbaijan, tick, PCR, *E.coli*

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