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**A molecular and serological survey on akabane virus infection in small ruminants in the Mediterranean
Region of Turkey**

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Highlights

- 1- The seroprevalence of AKAV infection in sheep in the Mediterranean region of Turkey was 44.9% (135/301).
- 2- AKAV genogroup Ib is in circulation in the Mediterranean region of Turkey.
- 2- *Culicoides imicola* may have played a role in transmitting AKAV in the Mediterranean region of Turkey.

ABSTRACT

This study was carried out to explore serological and molecular features of akabane virus (AKAV) in flocks with abortion problems and potential role of the *Culicoides* spp. in the transmission of AKAV. For this purpose, EDTA whole blood (n = 301), sera (n = 301) and aborted fetuses samples (n = 87) were obtained from epidemiologically independent flocks (n = 87) in the Mediterranean region of Turkey during the months of October 2015 and January 2016. *Culicoides* spp. were trapped from October to November 2015. A commercial competitive ELISA kit was used for the detection of AKAV anti-G1 antibodies in sera samples. Real-time reverse-transcriptase PCR was used to detect viral RNA in EDTA whole blood, aborted fetuses and *Culicoides* samples. Genetic characterization of the local AKAV field isolates was conducted by sequencing S segment of AKAV. Antibodies against AKAV were detected in 135 (44.9%) of 301 animals. Among 87 flocks, 68 flocks (78.2%) had one or more seropositive animals. Viral RNA was detected in 11 of the 87 aborted fetuses and *Culicoides* midges. Phylogenetic analysis showed that the field isolates in this study were clustered within genogroup Ib. The sequence analysis of the mitochondrial cytochrome oxidase subunit I gene showed that the species of *Culicoides* in AKAV-positive pools was *Culicoides imicola*. Results of this study showed that AKAV infection plays a role in abortion cases of small ruminants in the Mediterranean region of Turkey. Therefore, a control program is needed against to AKAV infection.

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