

Detection of Crimean-Congo Hemorrhagic Fever Virus CCHFV-Specific IgG Antibodies using Enzyme-Linked Immunosorbent Assay ELISA in Sheep, Albania

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Abstract—Crimean-Congo hemorrhagic fever (CCHF) is a tick borne disease named for the causative agent, Crimean-Congo hemorrhagic fever virus (CCHFV), which is a member of the genus *Nairovirus* (family *Bunyaviridae*). CCHF virus circulates in nature in an enzootic tick-vertebrate-tick cycle. Migrating birds and livestock transferred from endemic to non-endemic areas may carry large numbers of infected ticks thus spreading the CCHF virus into novel areas. As the antibody prevalence in animals is a good indicator for the presence or absence of the virus in a region, seroepidemiological studies can be used for the definition of risk areas for CCHFV. The aim of this study was to examine the distribution of CCHFV among sheep in different districts of Albania. This survey was carried out in 2013. Blood samples were taken from the jugular vein of 29 sheep in Kolonje-Erseke, 7 sheep in Pogradec-Buzaisht, 13 sheep in Korce-Shigjitas, 15 sheep in Korce-Libonik, 9 sheep in Lezhe-Ishull-Shengjin, 9 sheep in Lezhe-Torovice, 10 sheep in Lezhe-Kolojak and 10 sheep in Lezhe-Ishull-Lezhe. A total of 102 samples were immediately taken to the laboratory and their serum separated by centrifugation with 3500 rpm in 10 minutes. The sera were kept in the Faculty of Veterinary Medicine, Agricultural University of Tirana, at -20°C until analysis. They were tested with an immunological method using a CCHF animal IgG enzyme-linked immunosorbent assay (ELISA) kit at Friedrich-Loeffler-Institute (FLI), Greifswald, Germany. Through this technique it was possible to identify CCHFV-specific IgG antibodies in serum samples of infected animals. The results showed a high level of CCHF infection, respectively with a total prevalence of 42.2% in sheep. This study confirms the exposure of sheep to CCHF infection in Albania and identifies potential risk factors associated with the disease. It is recommended a better knowledge and awareness of the disease, in general population, especially in high-risk groups and particularly among health-care workers.

Keywords— CCHFV, *Nairovirus*, *Bunyaviridae*, Sheep, Indirect ELISA.