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Tick-borne encephalitis virus in ticks from Latvia

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Ticks are important parasites of economic and public health due to their ability to transmit zoonotic diseases. Tick-borne encephalitis virus (TBEV) is a Flavivirus with five main subtypes of which three, the European (TBEV-EU), the Siberian (TBEV-Sib) and the Far Eastern subtypes (TBEV-FE) are supposed to circulate in Latvia. Several hard tick species are involved in TBEV circulation and transmission in nature. In Latvia, only few studies concerning TBEV circulation have been conducted and knowledge about the distribution of TBEV subtypes is at best fragmentary.
The aim of the present study was detecting and characterizing the TBEV subtypes circulating in Latvian ticks. In 2019 and 2021 to 2023, ticks were collected by flagging in two Latvian regions. Ticks were morphologically identified and pooled (10 ticks/pool) and screened for TBEV RNA using a RT-qPCR. The positive pools were further investigated by sequencing the full genome and virus isolation. Totally, 2,421 ticks were collected, with Ixodes ricinus as the dominant species (2,287 specimens) followed by Ixodes persulcatus (130 specimens) and Dermacentor reticulatus (4 specimens). Ixodes ricinus carried TBEV-EU and TBEV-Sib, while I. persulcatus carried only TBEV-Sib. In conclusion, two TBEV subtypes were detected and isolated in Latvia. Further investigations are necessary to better understand the natural transmission and the medical importance of these TBEV.

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Professional Status of the Speaker

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No, I am not a Junior Scientist.

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