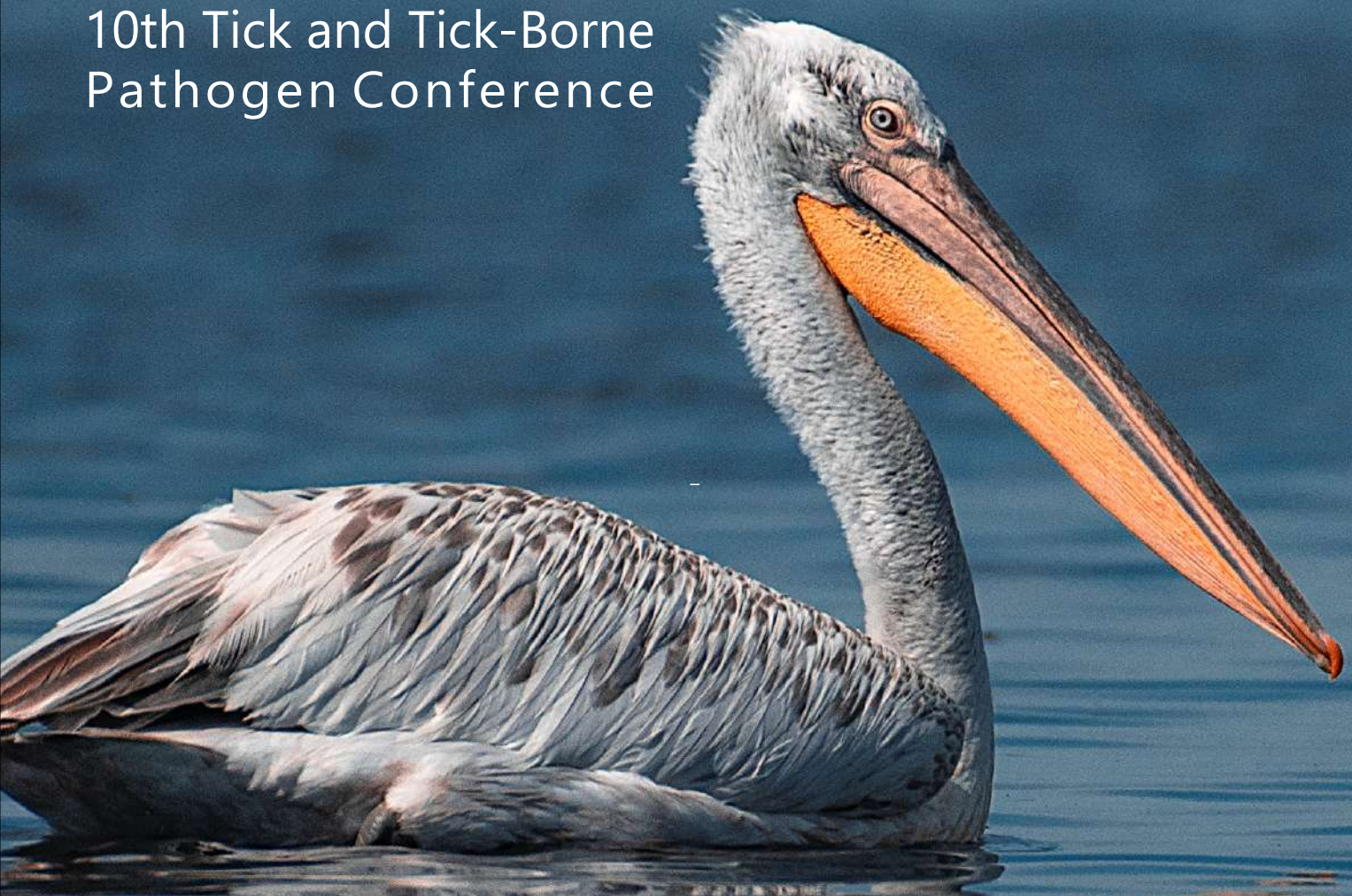
TTP.10

10th Tick and Tick-Borne Pathogen Conference



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Abstracts

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P49 Tick-borne encephalitis virus infection (TBEV) in milk and milk products from domestic ruminants in Europe: a systematic review

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Tick-borne encephalitis virus (TBEV) is a Flavivirus responsible for one of the most important zoonoses in Europe, whose incidence is increasing. Although tick-borne encephalitis (TBE) is a vector-borne disease and is mainly transmitted to humans through the bite of infected ticks, it can also be contracted through the consumption of raw milk and dairy products from viremic domestic ruminants. We conducted a systematic review to assess the prevalence of TBEV in milk and milk products in Europe, and to evaluate the usefulness of monitoring TBEV infection in dairy products for the early identification of the viral circulation. Following protocol registration (PROSPERO: CRD 42021279317), a comprehensive search was performed in three databases (Medline, Embase and CAB Abstracts) to identify relevant publications. Screening, data extraction and critical appraisal was conducted independently by two reviewers. TBEV prevalence was calculated using the number of milk or milk product samples tested for TBEV RNA or specific anti-TBEV antibodies, and number of samples testing positive. A narrative synthesis was performed.381 articles were identified from the searches, of which 52 were selected for full-text screening, and 11 articles were finally included in the review. 34 studies were extracted (28 on milk and 6 on cheese), of which the sample size ranged from a single sample (7 studies) to 1363 samples. In milk, studies with larger samples (N≥29; corresponding to the sample size needed to detect at least one positive sample, with an expected prevalence of 10%, and 95% confidence level) had a median prevalence of infection of 4.5% (range 0% to 20.7%). Overall, 19.2% of cheese specimens were positive (all studies combined). Epidemiological surveillance of TBEV in field ticks and wild vertebrate hosts can be challenging, due the focal nature of TBEV occurrence and to the specific expertise required and limits in laboratory tests. Our systematic review showed that surveillance on milk and milk products from grazing domestic ruminants could be a valuable tool for studying TBEV prevalence and assessing the epidemiological situation in a geographic area. Dairy products can be easily obtained and their testing can be helpful for risk assessment and for the epidemiological surveillance of TBE in a One Health perspective.