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First isolation of *Francisella tularensis* subspecies *holarctica* from foxes (*Vulpes vulpes*) in Germany

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Aims: Serological investigations have shown that foxes may well serve as indicators for the occurrence of *Francisella (F.) tularensis* (Höflechner-Pörtl et al., 2000). Our serological and bacteriological examinations of fox samples were supposed to produce up-to-date epidemiological data on the prevalence of tularemia in the federal state of Brandenburg.

Methods: Between 2007 and 2008, organ and serum samples of numerous foxes in the federal state of Brandenburg (around Berlin) have been collected during rabies monitoring and stored at -80°C. 610 organ samples were homogenised immediately after defrosting. 30 µl of the homogenates of each organ sample were applied on Cystine heart blood agar (QUELAB) and Neisseria selective medium PLUS (OXOID) by means of 3 loop streaks. Additionally, a selective enrichment medium (modified medium T) was inoculated.

The identification of suspected colonies as *F. tularensis* was carried out by microscopical, serological and molecular-biological methods. For further characterisation of the isolate, the biochemical properties as well as the sensitivity to erythromycin and further antibiotics were tested. In order to identify the subspecies, an RD1 (region of difference) PCR was carried out and eight variable number tandem repeat (VNTR) locis were analysed.

Results: After examination of organ samples of 305 foxes, only from one liver *F. tularensis* ssp. *holarctica* biovar II could be cultivated so far. The bacterium was isolated from a fox from the region with the highest frequency of positive serological results.

Conclusions: *F. tularensis* ssp. *holarctica* definitely occurs in the federal state of Brandenburg. The gained epidemiological results suggest the existence of endemic regions. Our results confirm, that the fox is well suited as indicator animal for further epidemiological investigations of this significant zoonosis.