Health, zoonotic pathogens and parasites

Wild rodents as carriers of leptospirosis in areas of increased human presence

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From August 2019 to June 2020, research was conducted on the role of rodents as natural reservoirs in the spread of zoonoses in eight selected localities in the territory of Vojvodina Province, Serbia. The rodent sample included 134 individuals: *Apodemus sylvaticus* (31 individuals), *A. agrarius* (37), *A. flavicollis* (62), *Micromys minutus* (1), *Mus musculus* (1), *Microtus arvalis* (1), and *M. agrestis* (1). As part of the study, organ samples (heart and kidneys) of these species were tested for the presence of *Leptospira* sp. bacteria. All samples were tested using real-time PCR method on the Genesig q16 device, following the manufacturer's standard protocol with "Primerdesign" kits. The detection of *Leptospira* sp. was conducted through the following procedures: (i) isolation-extraction of DNA from samples using the commercial kit "Genesig easy DNA/RNA Extraction kit", and (ii) real-time PCR reaction using the commercial kit "Leptospirosis Genesig easy kit", manufactured by "Primer design". The presence of *Leptospira* sp. was confirmed in 12 individuals, namely 11 individuals of striped field mouse (*A. agrarius*) from three lowland localities close to aquatic habitats, and in one yellow-necked mouse (*A. flavicollis*) from an area of higher elevation. *Leptospira* sp. bacteria were detected in the kidneys, which are the preferred site for these bacteria in all animals and humans. The obtained findings indicate the existence of critical endemic areas for *Leptospira* sp. in the territory of Vojvodina Province, where the occurrence of these diseases in humans is registered every year. The results are highly valuable from an epidemiological point of view for the improvement of public health and are very important in the context of applying the One Health approach to the problem of zoonotic diseases whose reservoirs are mouse-like rodents.

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