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P. multocida in European bison in Poland and its identification. Thirteen strains from internal organs of dead or eliminated animals were used in the study. Physiological and biochemical properties were examined with API 20E test (bioMérieux) and by traditional methods according to generally accepted principles. The multiplex PCR (OIE Terrestrial Manual 2012), allowing simultaneous identification of species and determination of capsular type A, B, D or F, was also performed. It was found that examined strains produced catalase, were immotile and did not grow on

MacConkey agar. According to biochemical profile in API 20E test, all strains belonged to *P. multocida* species. On the basis of biochemical examinations, according to Mutters *et al.* and Bisgaard *et al.*, all examined strains were classified to *P. multocida* subsp. *multocida*. In the multiplex PCR, the fragment of 460 bp specific for *P. multocida* species and the fragment of 1044 bp indicating the presence of capsule type A, were also found in all tested strains.

Key words: bacteriology

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NATIONAL SPECIES OF BATS AS RESERVOIR OF MULTI-RESISTANT *E. COLI* AND *ENTEROCOCCUS* SPP. – ANALYSIS AND EVALUATION OF THE SCALE OF THE PHENOMENON

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Progressive development of resistance to commonly used antibiotics and chemotherapeutics is still a problem, which is confirmed by the ongoing monitoring of the resistance of selected species of microorganisms. Due to the fact that data from Poland and Europe regarding the carrier of resistant strains found in free-living animals are very few, the aim of the project was to analysis the extent and level of resistance among bacterial isolates from selected bat species.

The material for the study consisted of 112 samples (guano), taken from 7 colonies *Vespertilionidae*. The isolation and identification was carried out using standard microbiological procedures and molecular confirmation. Phenotypic resistance analysis was

based on the CLSI (M100-S24) standard. The range and type of resistance has also been confirmed molecularly (resistance genes). The examined material showed the presence of 44 multi-resistant strains belonged to *E. faecalis* or *E. faecium*, including 69.9% and 6.8%, HLAR and VAN phenotypes / genotypes respectively. Sixteen multi-drug resistant strains of *E. coli* were also isolated, including three isolates with the ESBL phenotype. It has been confirmed that national species of bats may constitute a significant reservoir of multi-drug resistant strains.

Key words: bats, *E. coli*-ESBL, *Enterococcus*-HLAR, multi-resistance

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DETECTION OF *ESCHERICHIA COLI* HARBOURING EXTENDED SPECTRUM BETA LACTAMASES IN FAECAL SAMPLES OF WILD BIRDS

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Escherichia coli is considered one of the most important pathogens responsible for nosocomial infections. Until recently, *E. coli* ESBL (Extended-Spectrum Beta-Lactamases) strains have been a common hospital pathogen but during the last few years they have been increasingly identified in out-of-hospital and farm-and-animal infections. Among *E. coli* the ESBL strains dominate the CTX-M beta-lactamase family.

In connection with this, in this work we used *E. coli* strains isolated from material taken from the cloaca bird ringed in and around the Tri-City between September 2016 – May 2017.

In total, 23 fecal samples were collected from *F. atra* (n=6), *C. olor* (n=2), *Ch. ridibundus* (n=2), *L. canus* (n=3), *L. argentatus* (n=7); *C. monedula* (n=2), *C. frugilegus* (n=1). ESBL production was confirmed with the double-disc test.

Using the PCR technique, a fragment of the ESBL encoding gene from the CTX-M family was amplified and the resulting products were sequenced. ESBL-producing *E. coli* strains were detected in 5 birds. Meanwhile, in one *F. atra* individual, two *E. coli* ESBL isolates with different drug resistance phenotypes were isolated two times.

The importance of such work is that the carriage of the ESBL beta-lactamase producing *Enterobacteriaceae* in the gastrointestinal tract of wild-type synanthropic animals is an important reservoir of multidrug-resistant strains not yet considered in epidemiological studies.

Key words: environmental microbiology, nosocomial infections, epidemiology of infections