

JOINT EVENT

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Prevalence of multi-resistant bacteria in aquacultured and wild fish in Lithuania**Modestas Ruzauskas**

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Aquatic environment is one of the most favourable setting for acquisition and dissemination of antimicrobial resistance. The aim of this study was to isolate, identify and characterize multi-resistant Gram-negative bacteria, prevalent in fish kept at aquaculture ponds as well as in a wild fish in Lithuania. Study subjects included 120 fish obtained from five fish farming open ponds as well as 120 wild fish caught in different freshwater lakes and rivers all over the country. Aquacultured fish species included common carp (*Cyprinus carpio*), rainbow trout (*Oncorhynchus mykiss*) and bighead carp (*Hypophthalmichthys nobilis*), while 12 different wild fresh water species were included into experiments. Cloacal isolates resistant to at least three antimicrobial classes were treated as multi-resistant. Genes encoding antimicrobial resistance were investigated in bacterial isolates and in the total DNA from the cloacal samples of fish. Thirty eight multi-resistant bacterial isolates were obtained from aquacultured fish with the highest prevalence being of *Pseudomonas*, *Enterobacteriaceae*, *Aeromonas* and *Chryseobacterium*. Only six multi-resistant isolates were obtained from wild fish. The isolates from aquacultured fish were most frequently resistant to beta-lactams, co-trimoxazole and nitrofurantoin. Some *Enterobacteriaceae* isolates demonstrated resistance to carbapenems, amikacin and tobramycin. Multi-resistant isolates from wild fish were detected only from river fish but not from the fresh water lakes. The findings demonstrate that multi-resistant bacteria are prevalent in aquacultured fish as well as in wild fish from rivers. Control measures regarding aquacultured farms should be considered with the aim to prevent spreading of resistant microbiota into inland waters.

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