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Abstract Book



Endangered mussels as antimicrobial-resistant *E. coli* and other species (Enterobacteriaceae family) reservoirs

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Freshwater unionoids are one of the most threatened animal groups worldwide, suffering dramatic regressions globally. The freshwater pearl mussel *Margaritifera margaritifera*, currently listed as critically endangered in Europe, and *Potomida littoralis*, listed as endangered, are both present in the River Tua basin (Portugal). The inappropriate use of antibiotics has led to the emergence and spread of resistant bacteria, recognized today as a serious public health problem. Based in the concept of “One health”, the objective of this study was to examine the antibacterial resistance rates in *Escherichia coli* and other Enterobacteriaceae isolates obtained from both bivalves collected in the River Tua Basin during the summer of 2018. Activity of 22 antibiotics was studied using disc diffusion (Kirby–Bauer) method. Multidrug resistant in *E. coli* and Enterobacteriaceae isolates was observed only from *P. littoralis*. Overall, results show that *M. margaritifera* inhabits more pristine sectors of river not subject to the development of multidrug resistance, unlike *P. littoralis* which, although does not tolerate high levels of contamination, is naturally found in lower stretches is subject to greater pressure and, as such, a greater probability of the appearance of multi-resistant organisms. The presence of *E. coli* in freshwater bivalves can represent serious public health problems once bacteria are one of the most important biological contaminants in foodborne diseases. Given the conservation status of both studied species their protection against this silent/invisible enemy should be a priority, although work done with Unionid Mussels from Northern Portugal showed that they had a great antimicrobial and antibiofilm activity.