Resistance/sensitivity study of *Flavobacterium psychrophilum* isolates from French fish farming

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Abstract

Flavobacterium psychrophilum is the causative agent of "bacterial cold water disease" and "rainbow trout fry syndrome" in salmonid farming worldwide. In France, a number of salmonid fish farms are impacted with this pathogen, especially during the winter period. Actually, the absence of vaccine leads to a mono-therapeutic treatment, with the use of the antibiotic florfenicol. This therapy and the high prevalence of *F. psychrophilum* in fish farms require a surveillance of efficacy – resistance against this antibiotic. Thus, we evaluated the susceptibility response of 81 French *F. psychrophilum* isolates (2007-2010) to ten antibiotics: florfenicol, and four antibiotics generally used in French aquaculture (flumequin, trimetoprim/sulfamethoxasol, oxolinic acid, oxytetracyclin). Additionally, five other compounds (amoxicillin, doxycyclin, enrofloxacin, erythromycin, gentamycin) were examined. MIC and disc diffusion techniques were used to evaluate resistance/sensitivity responses of the tested isolates.

For florfenicol, low to moderate MIC-values were measured for most isolates, but a few isolates with MIC > 1µg/ml were also present. High MIC-values for oxytetracyclin, generally used for yersiniosis infections, were measured for about 70% of the isolates. Only doxycyclin, amoxycillin and gentamycin seem to be interesting with low MIC-values observed for *F. psychrophilum* isolates and for a potential application in French aquaculture.

These results were the first obtained in France on recent isolates and the results increase our knowledge about *F. psychrophilum*. The results show the importance of antibiotic resistance surveillance, notably with increase of florfenicol resistance. We can also say it was difficult to obtain results and it is essential to have calibration of MIC and disc diffusion protocols for this compound.