

O302

Abstract (oral session)

**Occurrence of antibiotic-resistant enterococci from antibiotic-free trout aquacultures**

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**Objective:** Potential risks of aquacultures for the public health include the development of antibiotic resistant (ABR) bacteria/genes reservoir that can reach human through food chain. Our goal was to assess the occurrence and flux of ABR genes among *Enterococcus* in two AB free trout aquacultures receiving water from secondary rivers. **Methods:** Two Portuguese trout aquacultures (TRA-A and TRA-B) where AB are not used but feed contain copper (Cu) is given to fishes were studied (winter and summer; 2010-2011). Samples were collected from river water/sediments located upstream (n=11) and downstream (n=11) of the TRA, water/sediments from juvenile/adults fish tanks (13), feed (5) and fish (4). They were enriched in peptone water and plated in Slanetz-Bartley plain and supplemented with AB. Susceptibility to 12 AB was studied by disc diffusion (CLSI). Identification and search of ABR and CuR genes were done by PCR. **Results:** *Enterococcus* were detected in 93% samples (114 *E.faecalis*, 79, *E.hirae*, 68 *E.faecium*, 18 *E.casseliflavus*; 5 *E.gallinarum*; 1 *E.durans*, 10 *Enterococcus* spp). *E. faecalis* was mainly found in samples from TRA-A, both in winter and summer (55% of the isolates). In TRA-B, *E. hirae* was predominant in winter (72%) and *E. faecium* in summer (65%). Resistance to tetracyclines (61%; tetM-93%, tetL-55%, tetS-1%), erythromycin (33%; ermB-97%), HLR-streptomycin (19%), ciprofloxacin (11%), nitrofurantoin (8%), chloramphenicol (7%) or HLR-gentamicin (7%,aac6-aph2-55%) was detected. Enterococci resistant to  $\geq 2$ AB were found in 90% of the samples, including water/sediments collected upstream TRA, feed and fish. CuR genes, *tcuB* or *cueO*, were identified in 12% and 8% of the isolates tested, mostly feed, fish tanks water/sediments, water leaking TRA and only in a single *E. faecalis* from river water upstream of TRA-B. They often carried resistance to tetracycline, erythromycin, streptomycin or chloramphenicol. The *vanA/B*; *ermA/C*; *tetO/K*; *cfr*, *aac(6)-Ib/Ic/Id* genes weren't found. **Conclusion:** Fish raised in free-AB TRA are either colonized or in contact with *Enterococcus* resistant to copper and AB used in human medicine, through contaminated river water and feed. Feed containing Cu might select ABR genes located in the same genetic element. Multiresistant genetic platforms (plasmids, transposons, clones) can be spread to humans through the food chain or secondary routes from the contaminated environment.