Effect of hydrogen peroxide and/or Flavobacterium psychrophilum on the gills of rainbow trout, Oncorhynchus mykiss (Walbaum) - DTU Orbit (19/10/2019)

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The immune response and morphological changes in the gills of rainbow trout fry after immersion in hydrogen peroxide (H2O2), Flavobacterium psychrophilum or combined exposure were examined. The gills were sampled 4, 48, 125 and 192 h after exposure, and the regulation of expression of the following genes was investigated using qPCR: IgT, IgM, CD8, CD4, MHC I, MHC II, IL-4/13A, TcR-β, IL-10, IL-1β, IL-17, SAA and FoxP3. Bacteria were not observed in haematoxylin-and-eosin-stained gill tissue, but the presence of F. psychrophilum 16S rRNA was detected using qPCR. The 16S rRNA levels were correlated with gene expression. Although pretreatment with H2O2 before immersion in F. psychrophilum did not significantly alter the amount of bacteria found in the gill, the immune response was influenced: exposure to F. psychrophilum resulted in a negative correlation with expression of IL-17c1, MHC I and MHC II, while pretreatment with H2O2 resulted in a positive correlation with IL-4/13A and IgM. Exposure to either H2O2 or F. psychrophilum influenced the regulation of gene expression and damaged tissue. Exposure to both combined altered the immune response to infection and postponed healing of gill tissue.

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