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Increased catalase activity - a possible resistance mechanism in hydrogen peroxide resistant salmon lice (*Lepeophtheirus salmonis*)

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Short running title

Increased catalase activity in hydrogen peroxide resistant salmon lice

ABSTRACT

Due to their pathogenic effects and vast reproductive capacity, salmon lice, *Lepeophtheirus salmonis*, pose a problem for salmonids and salmonid fish farmers in the Northern Hemisphere. Reliance on chemical delousing has resulted in widespread resistance amongst salmon lice throughout most of the salmonid producing world. In an attempt to combat resistant salmon lice, hydrogen peroxide (H_20_2) has become increasingly used in salmon lice bath treatments. Resistance towards H_2O_2 has however also been detected in both Scottish and Norwegian salmon lice, while the resistance mechanism(s) still needs to be elucidated. Increased activity of the H_2O_2 degrading enzyme catalase has been found in several other H_2O_2 resistant organisms. The aim of the current study was therefore to investigate catalase activity and catalase gene expression in H_2O_2 resistant and sensitive salmon lice.

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