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Repeated handling compromises the immune suppression and improves the disease resistance in overwintering channel catfish (*Ictalurus punctatus*)

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In winter, fish have suppressed immune functions and are susceptible to bacteria or virus which may lead to a high mortality. It is necessary to improve the immune response and disease resistance for overwintering fish. The present study tested the hypothesis that appropriate repeated handling could compromise the immune depression and increase the disease resistance in channel catfish over winter. Before the experiment, 35 fish randomly assigned to one of six cages. Three cages were designed as the control group and did not receive any interfere. Fish in the other three cages received a weekly repeated handling of an air exposure for 5 minutes. Fish were not fed over winter. At the end of the trial, fish were challenged with *Aeromonas hydrophila*. Plasma cortisol levels in the control fish were induced at 6 h post challenge and then declined to the normal levels. However, plasma cortisol levels in the repeated handling was observed in fish post bacterial challenge. The reduced inducement of HSP70 expression by repeated handling was observed in fish post bacterial challenge. After overwintering, repeated handled fish exhibited increased CAT activities and reduced MDA contents. TAOC, CAT and SOD activities of channel catfish were enhanced by repeated handling post bacterial challenge. The enhanced up-regulation of IL8, IL1β-a, IL1β-b together with the immune related genes of TLR2, TLR3, NOD1and NOD2 by repeated handling was found in catfish after bacterial challenge.

Biography

Bingyuan Yang is pursuing his Doctorate degree at Institute of Hydrobiology, Chinese Academy of Sciences. He is working on Fisheries and Fish Nutrition. He has published three papers in reputed journals and won the national scholarship of CSC in 2015.

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