The challenge of *Aeromonas hydrophila* and bacteriophage AHϕ3 to rainbow trout in order to evaluate of survival rate

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Abstract:

One of the most important problems in the field is the management of some fish farming fields for the control of the bacterial septicemia syndrome caused by *Aeromonas hydrophila*. The purpose of this study was to find a way to control and eliminate the bacteria using bacteriophage to increase the survival rate of rainbow trout, infected with *Aeromonas hydrophila* bacteria that isolated from rainbow trout pools in Kerman province and Bacteriophage AHϕ3 was purchased from the microbial collection. 360 rainbow trout weighing about 15±2 gr in 24 aquariums were selected in 15 groups and 3 replications. One group, *Aeromonas hydrophilia* at a concentration of $1\times10^{4}$and $1\times10^{8}ml^{-1}$was injected intraperitoneally to fish and another group, immersed in contaminated water with *Aeromonas hydrophila* and then exposed to bacteriophage AHϕ3. The greatest effect of bacteriophage on the survival rate of rainbow trout was when the bacterial concentration of 1×10^{8} cfu of *Aeromonas hydrophila* and 1×10^{3} pfu of bacteriophage were immersed. There was no significant difference between the control and positive control groups in any of the treatments, but there was a significant difference between the control and treatments in both cases (intra peritoneal injection and immersion) ($P<0.05$). Also, data analysis indicated that the concentration of 1×10^{8} ml^{-1} bacterium used in the treatment group with direct bacterial and bacteriophage direct contact had the most effect on the survival rate of trout fish and reduced mortality in fish. In this study, the results showed that bacteriophages AHϕ3 effected on specific host *A.hydrophila* isolated from rainbow trout pools in Kerman province. This study showed that bacteriophages are one of the ways to increase the survival rate of trout fish.