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Microbiology

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Culture and Characterization of Epitheliocystis Agents in the aquaculture fish species

Summer Research Summary

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Fish Toxicology/Immunology and Laboratory usage guidelines

The purpose of my online research over the summer was to help establish and find past protocols and research that would help create an approved animal usage protocol for the Culture and Characterization of Epitheliocystis Agents in the aquaculture fish species being studied on. As well as any possible immunological and toxicology information that could help with background research.

I looked mostly into laboratory guidelines and protocols as well as general care for fathead minnows, RTG-2 Rainbow trout and Atlantic salmon. Generally, what I found for fathead minnow care was a tank 57 liters (15 gallon) 31x 61 x32 cm deep, with a 20cm water depth and acid 10% nitric and acetone rinsed – used disinfected with hypochlorite is ideal. The tank itself should have a culture water flow preferably from a lake/ stream water pH 7.4-8.2 with an alkalinity of 42mg/l total and hardness of 45mg/l or dechlorinated tap with a hardness of 40-300 mg/ 1 CaCO3 alkalinity less hardness for 1-2 days before adding fish (1). Preferred temperature of care is 15.6 °C and should not fall below 20 °C or above 28 °C maintained + or – 1 °C.

What I found for salmon and trout was less information but in general preferred tank pH is between 6.5 -9.0 with a flow rate of 0.7 x 10^-3 sec saturation depending on the amount of fish per tank with 8-10 hours of light for the fish (2). Other general items I found which need to be monitored daily are water chemistry (Ph, Conductivity), water temperature, light cycle, veterinary care provided as needed, records of life support, maintenance, feeding, census, and minimal pain distress (appropriate use of anesthetic, analgesic, tranquilizers) (3,4,5,6,7). In one of the zebrafish protocols I discovered carcasses disposal should follow a similar procedure for disposal of the fish maintained in the lab disposed in Medical pathological waste following NIH policy (8, 9).

The immunological research discovered focused on the specified fish used for the experiment/lab as models in aquatic ecotoxicology which evaluate acute and chronic toxicity of chemical products in vertebrate animals.

References

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