

One Aquarists Research on the Use of Salt in Freshwater Aquariums□

Many sources suggest that some salt is a requirement in most freshwater aquaria. The reasoning is that it can be used as a preventative measure against pathogens. Unfortunately, these recommendations are not always based on facts.

First, let me set aside the troublesome definition of the word “salt” and how I will use it. I am referring to NaCl. The common ingredient on most “Freshwater Aquarium Salt” products sold in the US. Some salts, such as African Cichlid, Livebearer/Brackish, and Marine salts have other “salts” such as calcium and magnesium. I am not referring to these in this case.

For reference, seawater contains about 3% salt by weight, or 30 parts per thousand.

Parasites:

“It helps treat and prevent Ichthyophthiriasis.” To some extent, yes. It will reduce the population of Ichthyophthirius in your tank as the free swimming or tomite stage of the organism is not as tolerant to salt. However, many times, aquarists do not notice a problem with Ich until the trophozoites are visible on the skin. This stage is not as susceptible to salt doses as the free swimming stage.

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Written by OscarBeast

Velvet is caused by *Piscinoodinium pullulate*, a nasty little parasite. Luckily, this may be kept in check by a low level salt dosage. Full infections are treated with baths in full strength salt water. I could not find any data on the salt tolerance of this bug, but once it is a problem for your fish, it is pretty tolerant of many treatments.

Lernea (anchor worm), *Gyrodactylus* (flukes), *Chilodinella* (gill parasite), *Costia/Ichthyobodo*, and *Trichondina* have all been said to be treated with salt, but on the order of 2 teaspoons of salt per gallon of water.

Bacteria

“It helps keep my aquarium free of bacteria”. Well, let's hope not! Ok, forgive me. “It helps keep my aquarium free of bad bacteria.” Not really. Some of the more unwelcome bacteria guests we may have in our aquariums are pretty tolerant of salt. Most have a tolerance of up to 1% salt water. The average is around 2% (*Aeromonas* sp. - 2%, *f. psychrophilum* - 1%, *Vibrio* 2% - 8%).

Some *Vibrio* species can live and reproduce in water up to 8% salt water. That is almost 3 times more concentrated than pure seawater! Unfortunately, the preventative dose that many recommend does not come anywhere close to this level of dosage. In fact, for a 2% dose, you would need around 5 tablespoons of salt per gallon.

Fungus

Saprolegnia is a common water mold that can be killed with full strength sea water. Again, a salt water dip might be effective, but a low level treatment dose would not.

Osmoregulation

Many state that if we add a low level of salt to our freshwater aquaria, the fish will have an

easier time with osmoregulation. Forgive me, but fish have been around a lot longer than our silly attempts to make them comfortable. Unless you have a freshwater fish in water that is drastically unlike its natural or rearing water, the fish will be able to regulate itself. Unless you are dealing with distilled water, RO/DI water, or very soft water you should not have to add a whole lot to your water.

Trace elements and micronutrients

Again, your aquarium make-up water is probably not distilled. If you are using regular tap water or filtered water, there are plenty of trace elements and electrolytes in the water. Frequent water changes will be of benefit to keep these levels high, but not too high.

Nitrite Toxicity

Use of salt provides one unarguable benefit in that it can block the uptake of nitrite via the fish's gills in an environment high in nitrite. The chloride ion in the salt is absorbed by the gills instead of the nitrite ion. This can be the difference between life and death for fish in a cycling tank.

Summary

I am not going to conclude that everyone should drop the use of salt as a continual, preventative treatment in the freshwater aquarium. I hope to, however, provoke some thought as to a common aquarium practice that we may not fully understand. Our hobby is evolving every day, and each one of us needs to be a part of that process.

References

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