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REVIEW ARTICLE

An Overview of Ammonia Poisoning in Aquariums

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ABSTRACT

Ammonia poisoning is a common problem in fish tanks but is not a disease and is one of the deadliest causes of aquarium fish mortality. This happens more in newly launched aquariums. Ammonia poisoning can occur immediately or within a few days. Initially, fish may be seen breathing on the surface of the water to breathe. The worst factor in ammonia poisoning is that excess ammonia is not visible in water, although its effects are visible.

Introduction

Ammonia poisoning is a common problem in fish tanks and is not a disease, but it can put a lot of pressure on fish and lead to other health problems, including bacterial disorders. Red or inflamed gills and biting the ground by fish and darkening of the tank water can be signs of ammonia poisoning [1-4]. To treat this condition, check the water for ammonia, pH, and temperature. Clean the sandstone in your fish tank with a sandstone siphon. Ammonia poisoning is one of the deadliest causes of death in aquarium fish. This happens more in newly launched aquariums. However, this also happens in stabilized aquariums, when large numbers of fish are added at once, when the filter fails due to a power outage or mechanical failure, or when a colony of filter bacteria due to the use of Drugs or sudden changes in water conditions disappear [5-7]. The worst factor in ammonia poisoning is that excess ammonia is not visible in the water. Although the effects are visible, they are often misunderstood or forgotten altogether until it is too late.

Symptoms

- Fish breathe to breathe on the surface of the water [8]
- Red or purple gills [9]
- The fish becomes lethargic and dull [10]
- Loss of appetite [11]
- The fish is placed lying on the bottom of the aquarium [12]
- Red streaks on the body or fins [13]

Ammonia poisoning can occur immediately or within a few days. Initially, fish may be seen breathing on the surface of the water to breathe. The gills will change color to red or lilac, and may appear to be bleeding. The fish will begin to lose appetite and will eventually lose its appetite. In some cases, the fish may be seen lying on the bottom of the tank with the fins closed and folded. As the damage caused by ammonia continues, the fish tissue is damaged, showing red streaks or

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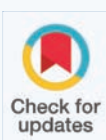
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bloodstains that appear on the body and fins of the fish. Internal damage continues to the brain, organs, and central nervous system. The fish begins to bleed internally and externally and eventually dies.

Treatment

- Lower the pH below seven
- 25 to 50 percent water change [14]
- Use of chemicals to neutralize ammonia
- Reduce or stop feeding
- If the ammonia level exceeds 1 ppm, start treatment immediately.

Lowering the pH of the water provides immediate relief, like changing the water by 50% (make sure the water you use for the exchange is at the same temperature as the aquarium water). Several water changes may be required at short intervals to bring the ammonia level below 1 ppm. If the fish is severely stressed and anxious, the use of chemicals to neutralize the ammonia is recommended. Feeding should be limited to reduce fish excretion. In cases where the concentration of ammonia is very high, stop feeding completely for a few days. No fish should be added to the tank until the ammonia and nitrite levels are reduced to zero [15].

Because the degree of ammonia toxicity is related to the pH, it is necessary to measure the pH and ammonia. The higher the pH, the higher the toxicity of ammonia. Because there are so many variables, no definite number can be determined for the ideal ammonia concentration. However, the following general guidelines can be followed.

At a concentration of 1 ppm or 1 mg / l, fish are stressed, even if the fish do not seem stressed. Even concentrations less than 1 ppm can be fatal if exposed to fish for several consecutive days. It is therefore essential that testing and treatment continue until the ammonia level drops to zero. When the ammonia concentration stays high for a long time, it is not uncommon to lose your fish even when the ammonia level is declining.

The purpose of the nitrogen cycle is to establish beneficial bacteria in the aquarium. These are beneficial bacteria that convert harmful nitrite into nitrate that is easier to manage. It also initiates a process called DE nitrification. In the bottom and compressed layers of the aquarium floor sand and other places where the oxygen concentration is zero (sometimes inside the filter or less than 5 cm of quality sand) anaerobic bacteria separate the oxygen atom from the nitrate and in the process nitrogen gas will be released.

When setting up a new aquarium, ask your friends who have a healthy, disease-free and stable aquarium to give you a pint of sand from the bottom layers of their aquarium sand. It is true that this sand looks very dirty, but it is full of anaerobic bacteria mentioned above. Pour a small amount of

sand (unwashed) on the bottom of the aquarium and cover it with at least 5 cm of new sand and fill the aquarium with chlorine-free water. In this way, your aquarium cycle takes less than 3 weeks, unlike the old method, which takes 3 to 4 months.

Prevention

Do not enter a large number of fish in the aquarium at once. Do this slowly and at intervals.

Give a very small amount of food and remove the rest of the food from the water.

Change the water regularly.

Test your water regularly to find out before it's too late.

The key to preventing fish deaths due to ammonia poisoning is to avoid rising ammonia in the first stage. When setting up a new aquarium, first add only a few fish to the aquarium and do not add more fish until the cycle is complete. Even in a fully stable aquarium, add a small number of fish at a time and do not add more than the capacity of the fish aquarium.

Give a small amount of food to the fish and remove the food that has not been eaten after 5 minutes from the aquarium. Clean the aquarium weekly and remove rotten plants and other debris. Change a small amount of aquarium water at least once a week, and in an aquarium with a large number of fish, change the water at shorter intervals. Perform an ammonia test at least twice a month to correct any problems before they become acute. Perform an ammonia test whenever the fish appear to be ill to relieve the thought of ammonia poisoning. If the filter fails, test it 24 hours later to make sure the colony of beneficial bacteria is not damaged.

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