Nitra-Zorb® Efficacy in Reducing Ammonia and Nitrite Levels When Starting a Freshwater Aquarium

INTRODUCTION

One of the main problems when starting a new aquarium is fish stress from elevated ammonia and nitrite levels. The beneficial bacteria (biological filter) that use ammonia and nitrite produced in the aquarium require time to grow. This is called "cycling' the aquarium. During this time, which can be six weeks or longer, the fish in the aquarium are subjected to elevated concentrations of ammonia and nitrite (New Tank Syndrome). This is very harmful to the fish, often making them more susceptible to disease, shortening their life-span, and even causing death.

AIM

The objective of this study is to answer the following questions:

- Will NITRA-ZORB keep the ammonia and nitrite at safe levels while the aquarium is cycling?
- Will NITRA-ZORB keep the biological filter from developing normally by removing the ammonia and nitrite from the water?
- Will NITRA-ZORB prevent the build-up of nitrate?

METHODS

- Four 10-gallon aquariums were set up with power filters and BIO-CHEM STARS® (biological growing medium).
- The aquariums were filled with half tap water and half deionized water with the pH adjusted to 7.0 - 7.1.
- NITRA-ZORB was placed in the filters of two aquariums.
- The other two aquariums had no NITRA-ZORB and were used as controls.
- All aquariums had 1.6g of fish which were fed 30mg of food twice a day.
- The NITRA-ZORB was recharged weekly following the instructions on the package.
- Ammonia, nitrite and nitrate were monitored daily.
- When all aquariums had cycled and ammonia and nitrite were both 0, the NITRA-ZORB was removed from the test aquariums and the ammonia and nitrite were monitored for one week.

RESULT

- The control aquariums cycled normally, showing peaks of 1.5 ppm (mg/L) ammonia and 4.0 ppm (mg/L) nitrite before the levels dropped to 0 ppm (mg/L) after 7 ½ weeks (See Chart 1). Nitrate began to appear during the cycle, reaching 10 ppm (mg/L).
- The test aquariums never had ammonia or nitrite levels higher than 0.25ppm (mg/L) (See Chart 2). No nitrate appeared during the experiment.
- One week after the NITRA-ZORB was removed, the ammonia level in one of the test aquariums rose to 0.5 ppm (mg/L) for one day, then dropped back to 0.25 (mg/L) and then to 0 ppm (mg/L). No nitrite or nitrate appeared in the aquarium.

DISCUSSION

- These results show that using NITRA-ZORB when starting a new aquarium will prevent the high peaks of ammonia and nitrite seen in the normal cycling of a tank. This will protect the fish.
- The results also prove that using NITRA-ZORB will not prevent the development of the biological filter, though it may cause it to either grow more slowly or to form a smaller colony, as evidenced by the slight rise in ammonia after the NITRA-ZORB was removed from the test aquariums.
- In addition, nitrate will be prevented from building up in the aquarium by using NITRA-ZORB.

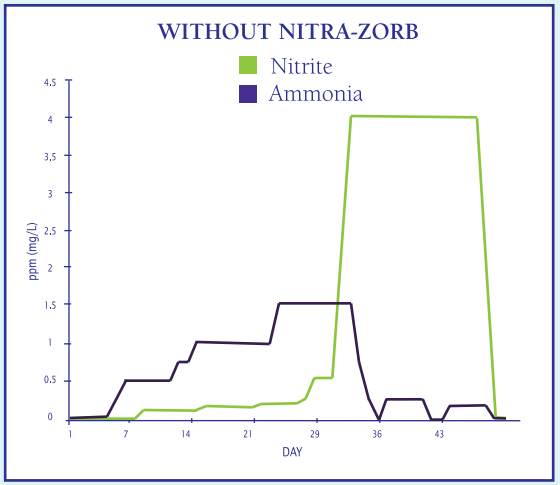

Chart 1: Control tank: average ammonia and nitrite concentration.

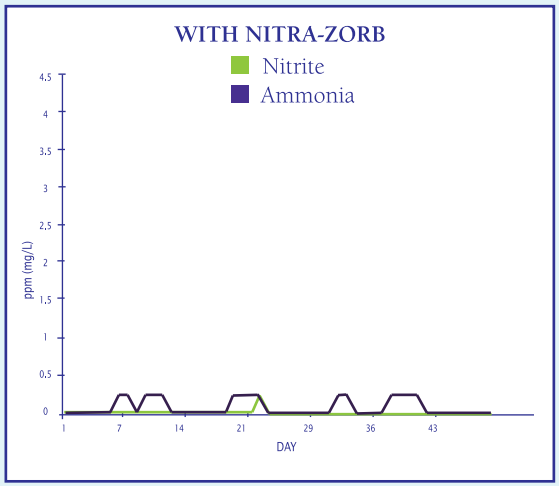

Chart 2: Test tank: average ammonia and nitrite concentration.

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