MICROBIOLOGY IN A FRESHWATER AQUARIUM

Author: Dianna Baker. Professor: Dr. Randall Myster
Principles of Microbiology. Rose State College.

Abstract

The experiment was conducted to learn what species of microorganisms were needed to ensure a successful aquatic environment. Many of the microorganisms found in the aquarium were the product of the nitrogen cycle.

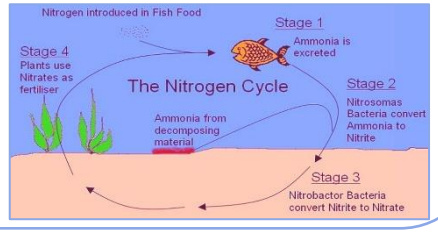


Figure 1

Background and Objective

A biological filter, consisting of three separate filter media layers, was used in the sample tank to reduce and control the ammonia and nitrate levels. The filter media helped to enhance the beneficial bacteria growth. The objective was to discover the microorganisms living within the confines of the aquarium.

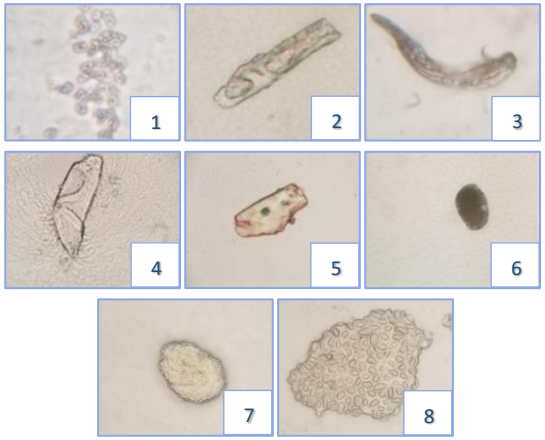
Figure 2

Methods

This experiment consisted of taking samples from various locations within a freshwater aquarium. The incubation time varied for each sample taken. The samples where then placed onto a slide and analyzed under a compound microscope with various strengths of magnification.

Slides

Photos of the microorganisms were taken at 400 times magnification with a Samsung Galaxy Note 10.



Slide 1: Nitrococcus found in the top of the water column. Slide 2: Cladophora sample taken from the substrate. Slide 3: Parasite found in the culture of substrate. Slide 4: Nitrospira sample found in the substrate. Slide 5: A spotted amoeba found in the sample from the top of the water column. Slide 6: A Parameciun sample taken from the substrate. Slide 7: Tetraselmis species found in the glass sample. Slide 8: Gonium Pectorale, commonly known as colonizing algae.

Results

From the samples taken Cyanobacteria, Nitrosomonas Europaea and Paramecia were the most abundant. This was due to the effects of the nitrogen cycle on the sample tank. The samples taken also revealed an amoeba and parasite present. The incubation time for the samples varied, with some of the samples being incubated far beyond the recommended time frame. This caused a few of the samples to be compromised.

Discussion

Too much nitrite can be detrimental to the freshwater ecosystem, so a balance in the nitrogen cycle is crucial. The water treatments and filter media aid the growth of the microorganisms by creating an ideal environment. With the introduction of unfiltered tap water there is a possibility for amoeba and parasitic inhabitants.

Relevance of Study

Curiosity is what fueled the experiment, an interest in the inhabitants that exist unseen within the aquatic environment. Also, to distinguish between the bacteria that formed naturally and the bacteria that was added due to the biological filter and unfiltered tap water.

Acknowledgements

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References

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