

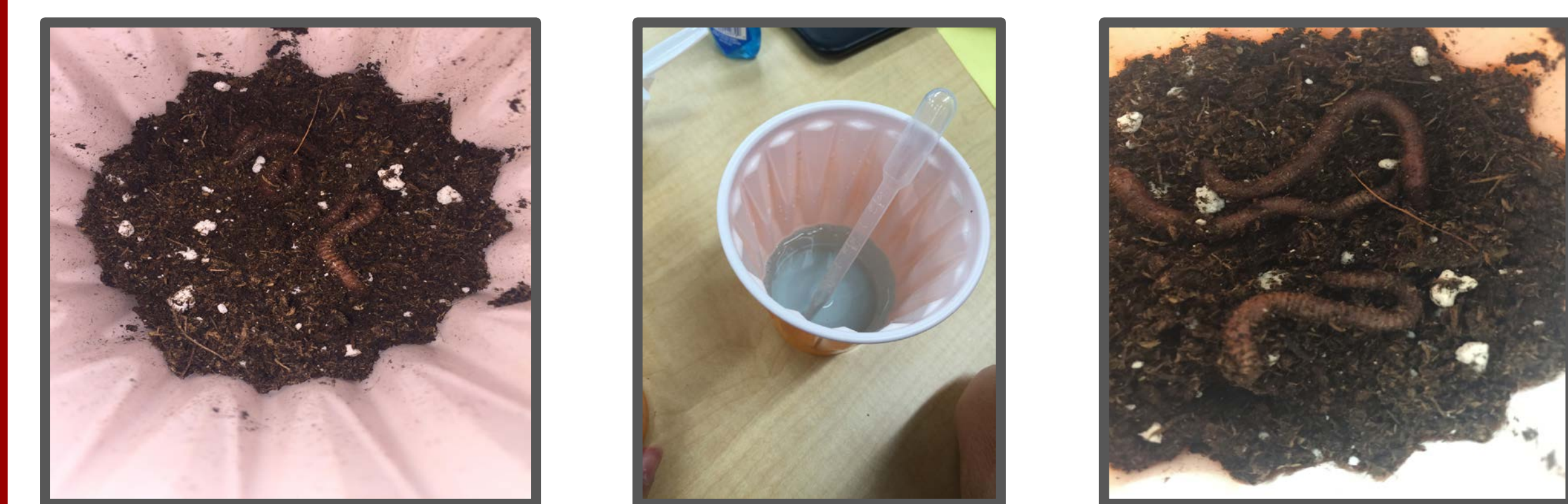
The Effect That Mouthwash Had On Earthworm Burrowing

Abstract

Mouthwash is used to clean your mouth and make our breath smell better from bacteria. It is good for human hygiene. This project is important because we need to take care of the earth and the lakes. Putting bad chemicals in the soil and the bodies of water will kill our organisms that help continue life. We need to know what is bad for the earth so we do not continue killing our planet. We found out that putting mouthwash into the worms soil will hurt the worms burrowing in a great amount. It is very healthy for humans teeth but not to ingest the mouthwash. On the other hand it is very unhealthy for us to expose it to our organisms.

Introduction

For this experiment, we are trying to see how mouthwash effects earthworms burrowing. Mouthwash is used to clean your mouth and make our breath smell better from bacteria. It is good for human hygiene. During the Christian era and the Arabian period, liquid substances that are fragranced were invented to clean your mouth (1). We wanted to see what mouthwash would do to the worm and how it would react because mouthwash after we use it goes into the water. A lot of earthworms like to borrow in the soil but some of the earthworms like to borrow near a place where is fresh and salty bodies of water. They do not go near and of course, burrow in acid soil(3).. Earthworms eat fresh dead plants. If they are deep in the soil they will eat small amounts of soil. The worms will come to the top of the soil to eat dead plant tissues(3). Earthworms have a similar nervous system to humans. If the earthworm is exposed to mouthwash then the earthworms burrowing will slow down significantly because mouthwash has high chemicals.



Materials

- 3 red earthworms
- 1 small bottle of Crest mouthwash (any type doesn't matter)
- Water
- Soil (any type)
- 2 plastic cups
- Plastic Spoon
- Timer

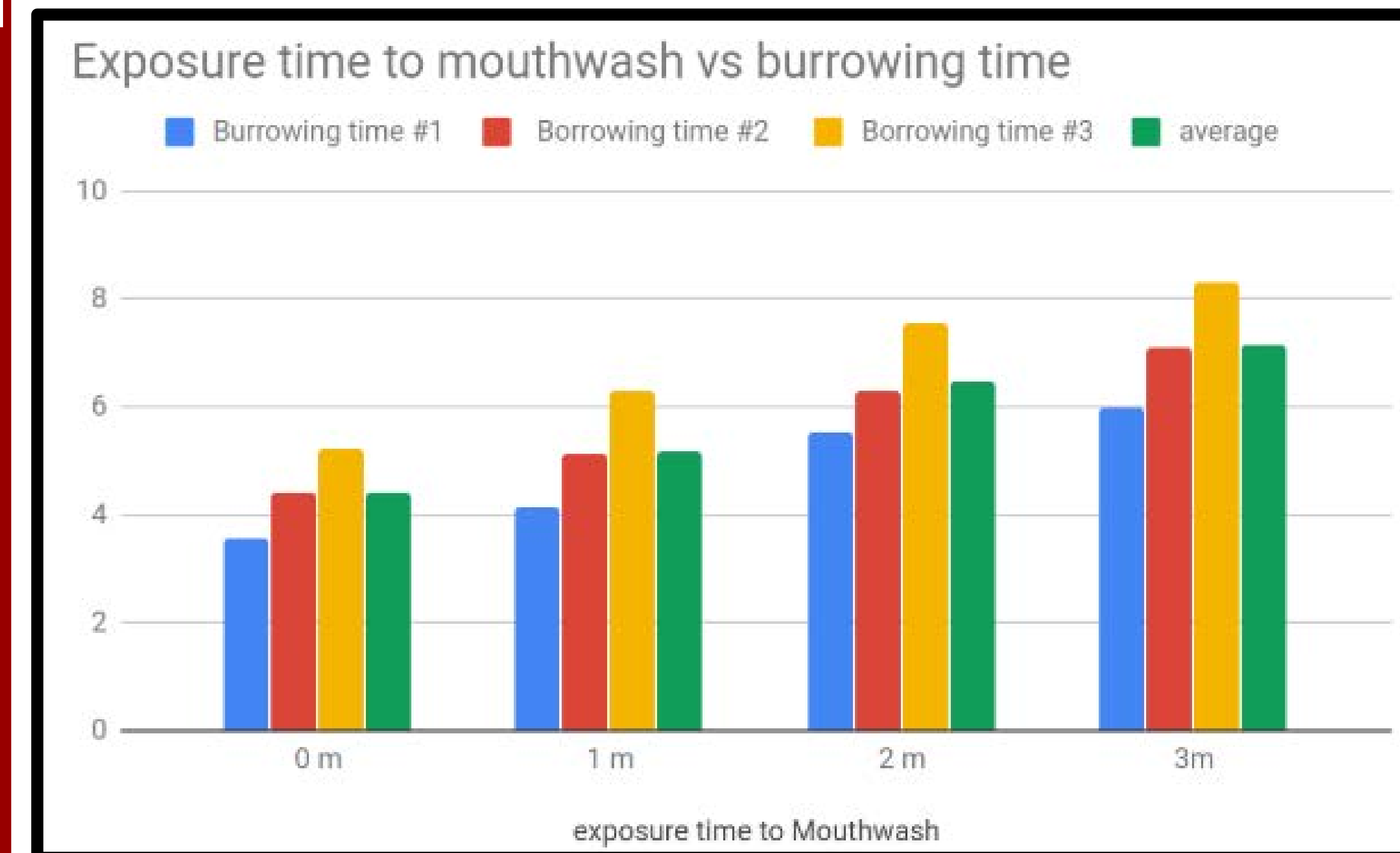
Methods

1. Get three cups ready and put 2 inches of soil in 2 cups, the other cup will be used to make mouthwash solution
2. Put the solution in one cup(1 tsp of mouthwash and 1 tsp of water) in the soil
3. Put worm inside the cup on top of the soil
4. Put the worm in one cup for zero mins to record the controls
5. Turn on the timer for 1 minute, 2 minutes, 3 minutes, 5 minutes

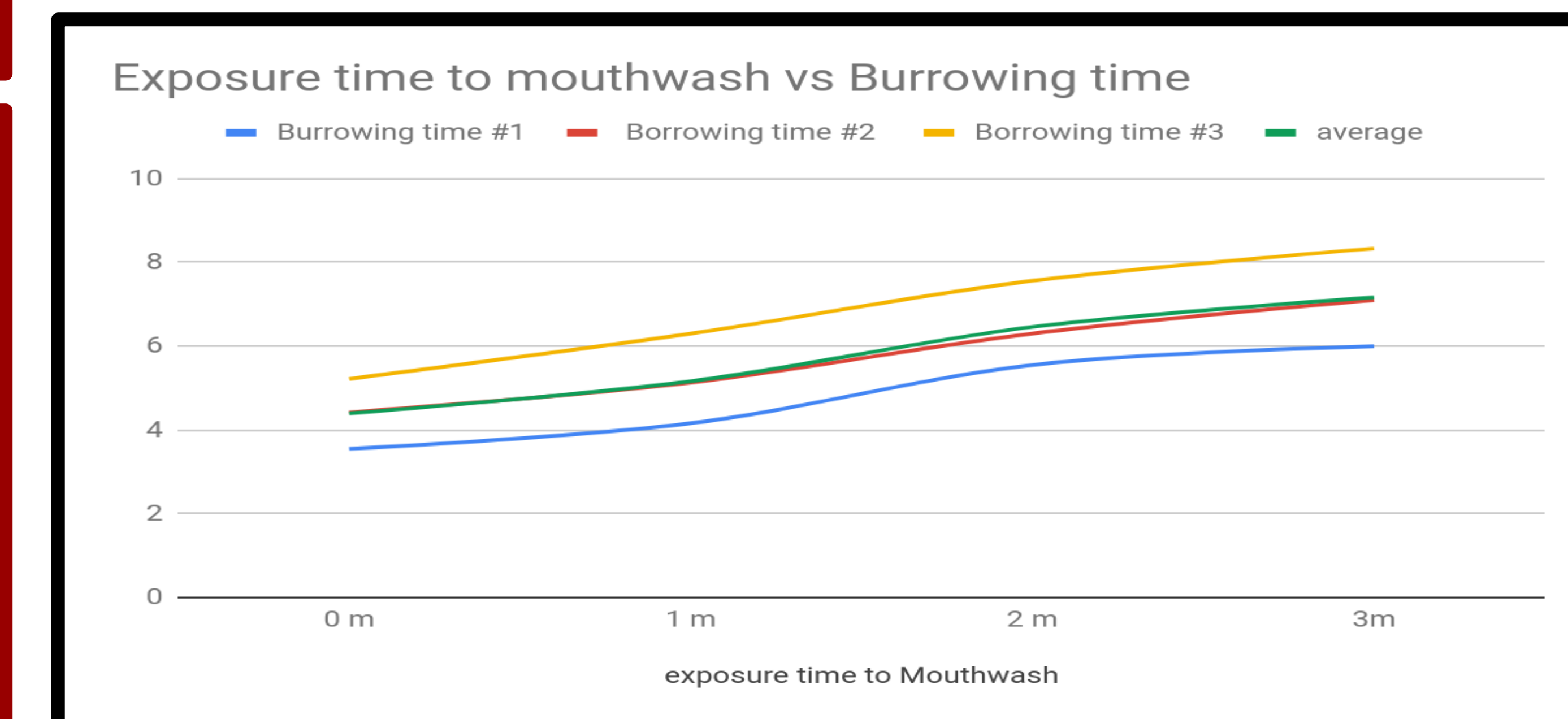
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| Exposure time to mouthwash vs burrowing time | | | | |
|--|-----------------------------|-----------------------------|-----------------------------|---------|
| Mouthwash exposure time | Earthworm Burrowing time #1 | Earthworm burrowing time #2 | Earthworm burrowing time #3 | Average |
| 0 minutes | 3 Minutes 55 seconds | 4 minutes 42 seconds | 5 minutes 22 seconds | 4.396 |
| 1 minute | 4 minutes 16 seconds | 5 minutes 13 seconds | 6 minutes 2 seconds | 5.163 |
| 2 minutes | 5 minutes 55 seconds | 6 minutes 33 seconds | 7 minutes 55 seconds | 6.46 |
| 3 minutes | 6 minutes | 7 minutes 15 seconds | 8 minutes 33 seconds | 7.16 |

Data Table (figure 1)



Bar Graph (figure 2)



Line Graph (figure 3)

Results

The purpose of this experiment is to test what is harmful to the environment and to the organisms. If the mouthwash is added to the soil then the time for the worm to burrow will slow down by a lot because of the high chemical that goes through the earthworm's skin. The independent variable in this experiment is the mouthwash concentration and exposure time. In figure 2, you can see that the more time the earthworms are exposed to the mouthwash the slower it took for them to burrow. In (Figure 1), when the worm was not exposed to any mouthwash it took an average of about 4.396 for it to borrow. After 3 minutes, it took an average of about 7 minutes 16 seconds.



Discussion

The data shows that if the exposure of mouthwash then worms burrowing will slow down at a great rate because the mouthwash will have high chemicals. The mouthwash will be absorbed through the earthworm's skin. One source of error that our group committed is we did not have a lot of trails. Another source of error we made is we used the same worm twice. This would cause the same reaction to times in a row. We should have taken our time while experimenting with the worms. The main reason for this experiment is to test what is bad for the environment. What is put into the environment affects all living species. The reaction of the worms does not exactly file up to human reactions. Mouthwash is actually very healthy for humans. That does not mean we expose it and put it into the environment for other living species.

Works Cited

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