

What is The Effect of UV Radiation on Ant behaviors?

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Introduction

The purpose of this project is to see if the ant's behavior would change if there was a U.V light on them. We are interested in this project because nobody has really done it and we would like to see what would happen. If someone had an ant problem they could use our research to try to fix it.

Cool ant facts

- Keep in a cool Environment
- Harvester ants can tolerate 55% to 70% humidity
- They can survive a few days without food but they need water more so they don't die from dehydration.
- Their latin name is *Pogonomyrmex*
- They can be 6.5 to 10 mm long.
- The tunnels have been found to go over 600 cm deep
- They can be aggressive and can produce a very painful sting

Hypothesis

We think as the UV light is shined on the ants, their behaviors will be different than when the ants are by regular light.

Research Problem

We are researching if the ant behaviors change once UV light is shined on them or will their behaviors stay the same as the regular light.



Materials & Methods

The materials we will use are...

- ant farms
- UV flashlights
- Carrots
- Harvester Ants
- Small video cameras

The methods we will use are..

- keep the ant farm in the same place and not move them around
- give them a couple drops of water each day
- feed them carrots
- observe and fill out forms for the cameras



While observing the ants, we saw they only tunnel in wet sand. While under the UV light, they carry food less and they move around and faster when above ground more often under the UV light. They also stay in the tunnels cause not all of them like the UV light. They climb the walls and move alone more often when under the UV light. The natural things like moving dead ants stay the same under UV and regular light. The ants got food faster under the UV light & sometimes went toward the UV light when it was adjusted. Most of the time the ants will move alone or with a partner.

Results

Ant behaviors with U.V light shined on them and regular light.	Regular Light	U.V Light
Digging, visiting or staying in a vertical tunnel	2	4
Ant moving toward UV light	0	3
Ant moving away from UV light	0	1
Ant getting food or carrying food	2	1
Ant getting water	0	0
Ant moving sand	1	1
Ant moving the dead ants	2	2
Ant being aggressive	0	0
Ant helping other ants	0	0
Ant moves in a group	0	1
Ant moves alone	3	4
Ant climbing plastic wall	2	3



Discussion of results

It seems that for some behaviors, the ants do these actions better when there is UV light, such as tunneling or moving faster. Many of our ants died. If we try again, we would try different food & different sand. As for watching them go, we could have more students fill out our charts so we could get more data. We could share the ant videos for others to watch and learn about ants.

Conclusion

Our hypothesis was correct, we saw the different behaviors that the ants have done under UV light.

References and Acknowledgments

- <https://antark.net/ant-species/red-harvester-ant-pogonomyrmex-barbatus/>
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