

Dog Saliva vs. Bleach

Introduction

In ancient times dogs were considered holy because of their ability to treat wounds. But when it comes to killing bacteria, is dog saliva really as effective as they think? In order to find out, I compared the effects of dog saliva killing bacteria to the effect of bleach killing bacteria. I believe dog saliva won't be as effective as bleach because dog saliva has bacteria of its own.

Information

Luke 16: 21 "...and longing to eat what fell from the rich man's table. Even the dogs came and licked his sores." In the Bible dogs licked the wounds of people to help heal them. We may believe dog saliva can help kill bacteria or keep things clean because they lick their chops and paws to clean themselves. They also lick themselves after they go to the bathroom. Although it can kill some bacteria, dog saliva contains its own exotic bacteria and can cause serious infections. I found this information at the website www.petplace.com. This was also proven in an article called "Dog Saliva: the Next Wonder Drug?" This article was about an experiment that was similar to the one I did. They stated that dog saliva did inhibit growth, especially on nose mucous bacteria, but they also found many types of bacteria in the dog saliva itself. They concluded perhaps dog saliva is not the next wonder drug.

Bleach is known as a disinfectant. It's purpose is to kill bacteria and other germs. We find this statement true in chlorine bleach which is what I used in my experiment. Chlorine is used in pools and drinking water because it is a great disinfectant. It is able to kill bacteria. Disinfectants destroy microorganisms found on nonliving objects. When you buy a gallon of bleach at the grocery store, what you are buying is the chemical sodium hypochlorite mixed with water in a 5.25% solution.

To have a controlled bacteria to kill, I used Staphylococcus epidermis bacteria. Placing this bacteria on nutrient agar provides the nutrients necessary for the growth of the bacteria. I then used bleached and plain filter paper squares as my control group in killing the Staphylococcus epidermis bacteria. The samples of saliva from the five dogs were used on the growing bacteria to see what effects they had on killing the Staphylococcus epidermis bacteria. Here's what I used.

Materials:

Seven sterile petri dishes

Nutrient agar

Staphylococcus epidermis bacteria

Candle

Sterile cotton swabs

Saliva from each of the five dogs

Filter paper cut into 1 cm squares

Doggie treats from Hartman's Bakery

Five Tupperware cups

Sterile tweezers

Sterile scissors



Variables:

Saliva from five dogs:

Dog 1- Patches, Cocker Spaniel, age 6 years

Dog 2- Toby, Cocker Spaniel, age 11 months

Dog 3- Buster, Chocolate Labrador, age 5 years

Dog 4- Harley, German Shepherd, age 9 years

Dog 5- Bandit, Poodle, age 4 years

Control Group:

The control group is a test to kill the bacteria with bleach on the filter paper, and a test to kill bacteria with no saliva or bleach on the filter paper.



Procedure

1. On Tuesday (2-27-07) the Staphylococcus epidermis bacteria arrived.
2. On Thursday (3-1-07) the nutrient agar arrived and I heated it to a liquid form in boiling water.
3. I sterilized the work area with alcohol and washed my hands.
4. Then I poured the nutrient agar into seven petri dishes and let them cool.

5. On Saturday (3-3-07) I placed the Staphylococcus epidermis bacteria onto agar in petri dishes. To make sure no other bacteria was in contact with the agar, I placed the mouth of the test tube containing the bacteria over the candle. Before I swiped bacteria out of the test tube I passed the wire over the flame as well. I spread the bacteria over a two-inch circle on the agar with a Q-tip.
6. On Sunday evening (3-4-07) I collected the saliva from each of the five dogs. We held a doggie treat in front of them to get the dogs to salivate. After I had latex gloves on, I had the owner hold the dog's mouth open while I slid a filter paper rectangle along the dog's inside cheek. The saliva saturated paper was transported in a sterile Tupperware cup.
7. I cut the saliva filter paper into squares with a sterile scissors.
8. With a sterile tweezers I put the filter paper squares on bacteria in separate petri dishes, evenly spaced.
9. I also placed bleach filled squares and plain filter paper squares on bacteria in separate petri dishes. I then let the dishes sit for two days.
10. On Tuesday (3-6-07) I lifted the filter paper with sterile tweezers to look underneath.

Results

Bleach was the most clear underneath, showing that the growth of the Staphylococcus epidermis bacteria had stopped. All the rest (including the plain filter paper) looked similar, but Toby's squares looked slightly better than the rest. Toby was the youngest of the group.

Conclusion

My hypothesis that dog saliva won't be as effective as bleach was correct. To improve the experiment I would have allowed the bacteria to grow longer to see more of a result.