CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
S1322

Project Title
How Safe Are Our Beaches?

Abstract

Objectives/Goals
My project was to determine the amount of fecal coliform in the beach water. Fecal coliform levels are indicators of how safe the beaches are.

Methods/Materials
This test was conducted at the Edward S. Babcock & Sons Inc. Laboratory with the help of Mr. Tom Gericke. Samples were obtained from the Newport Beach. The test used was the multiple tube fermentation technique, which included using Lauryl Sulfate Broth, Brilliant Green Bile, and EC Medium. The test was conducted three times to ensure its validity.

Results
The results were that during the first test, 240 fecal coliform bacteria per 100ml was present. During the second reading, 11 feacal coliform bacteria per 100ml was present. During the third reading, 50 fecal coliform bacteria per 10ml was present.

Conclusions/Discussion
The test finding fecal coliform bacteria levels proved the hypothesis incorrect. On an average, there were 100 fecal coliform bacteria per 100ml of Newport Beach water. The first trial varied greatly from the second and third trials. Since fecal coliform gets into beach water through agricultural and strom runoff as well as human sewage, this could explain the vast difference between the first trial and the latter trials.

The standards for fecal bacteria levels vary from place to place. In some beaches, the beach will be shut down if the fecal coliform bacteria levels exceed 400 organisms per 100ml of water, while others will close the beach if fecal coliform bacteria levels exceed 200 organisms per100ml of beach water.

Fecal coliform bacteria occurs naturally in our digestive tract and aids in digestion. The reason tests are done to find fecal coliform bacteria levels is because it is an indicator of pathogenic organisms. The more fecal coliform present, the greater chance that pathogenic organisms are also present. A person swimming in water with high fecal coliform levels also ahs a greater chance of getting sick from ingesting pathogenic organisms, or from organisms entering the body through cuts and other bodily openings. The pathogens present in the water can cause many diseases like typhoid fever, hepatitis, gastroenteritis, dysentery, and ear infections.

Summary Statement
The object of my project is to determine how safe the beach is by finding the fecal coliform bacteria levels in the water.

Help Received
Used lab equipment of Edward S. Babco & Sons Inc. laboratory under supervision of Mr. Tom Gericke.