CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)

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Project Number

S1999

Project Title

Shake Ya Tail Feathers 2: Anas platyrynchos vs. Gallus domesticus

Abstract

Objectives/Goals

The objectives of our project are to determine if sebum samples from the uropygial glands of ducks or chickens will promote or prevent bacterial growth on the uropygial papilla, and, by using that information, to understand the functions and significance of the uropygial gland.

Methods/Materials

To conduct our experiment, we collected bacteria and sebum samples from ten ducks and ten chickens, separately caged, and transferred the samples to sterile nutrient-agar-filled petri dishes. While swabbing the fowl, sterile swabs, gloves, and techniques were utilized to ensure the quality of the samples. The petri dishes containing the samples were placed in a 37ºC incubator for five days. Observations were conducted daily at 6:00 AM and PM, and a total of twenty trials were conducted.

Results

In all twenty trials conducted, the sebum samples from the uropygial glands of the ducks produced less bacterial growth than those of the chickens.

Conclusions/Discussion

The conclusion that we have drawn from our experiment is that although both the uropygial oil and wax were successful in the prevention of bacterial growth, the oil samples from the ducks were four times more effective in discouraging growth. The bacterial growth was used as a tool in understanding the proper function of the uropygial gland in ducks and chickens, and illustrated the importance of the uropygial gland in the survival of ducks and chickens.

Summary Statement

This project is about determining the difference in bacterial growth of sebum samples from the uropygial glands of ducks and chickens and further understanding the uropygial gland's significance, its components and diet's impact upon it.

Help Received

Our parents helped us make the agar, catch some of the fowl, straighten out our board, and buy the materials; Dr. Kinde and Dr. Read suggested techniques for collecting sebum samples without harming the birds and provided diagrams and information about the uropygial gland.