



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Alyssa N. Cook	Project Number J1406
Project Title Dermatophytes: Analysis of the Canine Claw. Microorganism Identification in Healthy vs. Immunocompromised Animals	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this experiment is first, to determine species of dermatophytes most likely to colonize the canine claw, and second, to explore how the percentage of dermatophytes varies with the dogs# clinical health. From these findings, veterinarians will be better able to diagnose canine claw fungal infections and begin appropriate first line medical treatment.</p> <p>Methods/Materials Eighty-eight claw tissue specimens were processed. Half of each sample was put onto a bi-plate with Sabouraud#s Dextrose Agar, while the other half was put onto DTM (Dermatophyte Test Media). The samples were blinded and coded. Each bi-plate was observed and recorded every 72 hours for four weeks for color change and fungal colony appearance, and stained with lactophenol cotton blue stain to observe microscopically for characteristic fungal elements. Controls were also done for each method. Total cultures plated equaled 184.</p> <p>Results The data show that the majority of dermatophytes found in the canine claw are, in order of prevalence: Trichophyton mentagrophytes, Microsporium gypseum, Microsporium nanum and Microsporium canis. In the second part of the study, it was found that immunocompromised dogs had dermatophytes colonizing 20% (4 out of 20) of their population, while healthy dogs had 26% of their population colonized by dermatophytes (18 out of 68). Based on the null hypothesis, there was no significant difference between the healthy and immunocompromised groups.</p> <p>Conclusions/Discussion Although other veterinary studies indicated that Microsporium canis would be the most prevalent canine dermatophyte in skin and hair infections, my evaluation does not support this in regard to canine claw colonization. Trichophyton mentagrophytes was the most common dermatophyte found. These findings may reflect the subject#s geographical location or the unique microclimate of the claw. In the second part of my study, there was no significant difference in prevalence of dermatophytes colonizing healthy vs. immunocompromised animals. This may be because healthy animals are likely more active and therefore their claw tissue would be exposed to more environmental contamination over a longer period of time, causing a higher amount of colonization. These results provide important information to the veterinary community about canine claw dermatophytosis.</p>	
Summary Statement This project studies which dermatophytes colonize the canine claw and examines whether immunocompromised dogs are more likely than healthy dogs to colonize dermatophytes.	
Help Received Dr. Doty assisted in the collection of claw specimens; Dr. Harbison assisted in the blinding of the project; Sharon Gard provided general information and reference samples; Dr. Ramachandran assisted with the statistical analysis.	