CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)
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Project Number
J2008

Project Title
Oxidation of Mercaptans: The Power to Remove Skunk Odor

Abstract

Objectives/Goals
The objective of this study is to determine which remedy would work best on skunk spray (n-Butyl mercaptan) to remove it's odor from fur.

Methods/Materials
Synthetic fur was tested to determine the ability of agents to remove skunk odor. Three sets of five pieces of fur were sprayed with n-Butyl mercaptan (synthetic skunk odor). After allowing for dry time, the fur pieces were then soaked in different solutions: A mixture of baking soda, dish soap and hydrogen peroxide (a treatment recommended by the ASPCA, The American Society for the Prevention of Cruelty to Animals); tomato paste with water; Vinegar; and Nature's Miracle Skunk Odor Remover. One fur piece was left untreated as a control. The fur pieces were then rinsed with water and tested in a blind sniff test by volunteers who ranked the remaining odor strength of the n-Butyl-mercaptan (skunk odor) on a scale of 1 to 10.

Results
Three trials were performed several hours apart, with each trial having the same five participants. Each participant smelled a fur piece and ranked the odor on a scale of 1-10, with 1 being the best and 10 being the worst. In between each ranking, the participants cleared their noses by smelling coffee beans. Participants could resample a fur piece during a trial if they requested and adjust their scores based on the experience with other fur pieces. Once three trials were completed, the results were averaged for each fur piece to determine which solution performed the best.

Conclusions/Discussion
Tomato paste had little to no effect on the skunk odor. Nature's Miracle Skunk Odor Remover was the most effective in removing the odor. We believe this is due to the solution's increased oxidizing capabilities (Oxygen accelerator), as this was the only real difference between it and the Baking soda, dish soap and Hydrogen peroxide solution.

Summary Statement
I showed that the remedy with the most oxidation potential was the most effective at removing n-butyl mercaptan

Help Received
I received help from 5 volunteers who smelled the treated fur samples. (Jean Preston, Sandy Fortin, Jennifer Hoffman, Scott Hoffman and Collin Hoffman). My father, Scott Hoffman, a Chemical Engineer, helped to explain oxidation chemistry as it relates to sulfide bonds.