CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
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Project Number
J2106

Project Title
Peanut: The Invisible Danger

Abstract

Objectives/Goals
The objective of my science project was to find out the best cleaning product for removing peanut butter from a hard, non-porous surface. My hypothesis was that bleach (3-6% solution of sodium hypochlorite or Clorox) diluted in water will remove 100% of peanut protein from a hard surface when compared to the other cleaning products.

Methods/Materials
I conducted the experiment by applying peanut butter to a hard surface and wiping the area clean of all visible peanut butter using distilled water, bleach solution (Clorox), alcohol wipes, dishwashing soap, and antibacterial wipes. Next, I used a peanut allergen testing kit to determine if there was still peanut present on the surface. The testing strips provided will pick up the smallest amount of peanut protein present, approximately 5 ppm (parts per million). A positive result means there is peanut protein present. A negative result means there is no peanut protein present. I completed six trials for each cleaning product. In addition to the cleaning products, peanut butter and testing kit supplies, materials included protective gear such as googles, a mask, gloves and a vest. This was necessary as I am allergic to peanut.

Results
In the experiment the control trials show that using a cotton cloth alone to remove peanut butter from a non-porous, hard surface gives a positive result; peanut is still present. For the Clorox solution five trials were negative for peanut and one was positive. For distilled water, alcohol wipes, dishwashing soap and water, and antibacterial wipes, all six trials were positive for peanut protein.

Conclusions/Discussion
The presence of peanut protein on a hard surface when distilled water, alcohol wipes, dishwashing soap, and antibacterial wipes are used to remove the peanut, supports the idea that peanut protein is difficult to get off a hard surface.
Clorox with five negative trials supports that this cleaning product is most effective in removing peanut protein.
In conclusion, the results support my hypothesis that Clorox solution is the best cleaning product to remove peanut protein from a hard surface. This information is important because it could be shared with schools and other businesses around the world so they can keep their cafeterias and other areas clean. Allergic reactions to peanut can be life threatening so using Clorox to clean will keep students and others safe from an allergic reaction to peanut.

Summary Statement
My project shows that bleach is the best cleaning product to remove peanut protein from a hard, non-porous surface when compared to distilled water, alcohol wipes, dishwashing soap and antibacterial wipes.

Help Received
My mother taught me how to do a criss-cross pattern when collecting a sample. She also helped me graph my data.