CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY

Name(s)
Margo E.C. Georghiou

Project Number
S1506

Project Title
Pectin-Aid

Abstract

Objectives/Goals
I plan on developing a medical gel using pectin and gelatin as my substances. I will apply the gel topically on minor skin abrasions to act as a blood coagulant. To test this, I will prick finger-tips and apply the pectin mixture to the pricks. To make an easy-applicable gel, I will make three different mixtures with different ratios. Using a finger absent of pectin as my control, I will observe the three samples and compare them.

Methods/Materials
First, sprinkle two packets of Knox# Unflavored Gelatine over 60mL of cold water. After 5 minutes add 237mL of boiling water, stir to dissolve.
When the gel has formed, mix 2 tbs. of it with ¼ tbs. of pectin in a bag until even. Repeat with 1 tbs. and 3 tbs. of pectin.
Next, prep the subject by sterilizing his finger tips with rubbing alcohol. Use a Lancet to prick a finger. Wait 5 seconds, wipe the blood on a piece of paper and immediately apply the gel. Record the time it took for the blood to coagulate. Repeat three times with each mixture.
Knox Unflavored Gelatine; Sure Jell Premium Fruit Pectin; Lancets; Timer; Rubbing alcohol; Human subject; Water; 3 Ziploc sandwich bags; Rubber gloves

Results
Both the 2:3 and the 2:1 coagulated the blood in less than five seconds after the gel was applied. However, the 2:1 coagulated more efficiently. The 2:1/4 slowed the bleeding slightly. This mixture did not have enough pectin for it to perform the job.

Conclusions/Discussion
The amount of pectin in the gel does affect the blood coagulation time. Yet, my hypothesis was proven incorrect because the 2:1 ratio gel worked the best. Both the 2:3 and the 2:1 ratios coagulated in under five seconds of application yet the 2:1 did a more efficient job.
Errors in my project ranged from not being able to determine the exact coagulation time to not being able to make large cuts on the subject. Due to this my results are not exact.
Not only can the gel be used as a product to keep in the medicine cabinet at home, but it can be taken on camping trips, or kept in a first-aid kit in the car or office.
Furthering my experiment, I would try different ratios. My goal being cost efficiency along with the same great results. I would have tested more subjects in the safety of a lab, hoping to gain more accurate results.

Summary Statement
By creating a pectin-gel, I tested it's blood coagulanting abilities.

Help Received
With a nursing backgroud, my mother supervised the Universal Precautions method throughout the experimentation.