CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY

Name(s)
John M. Azizian

Project Number
J1801

Project Title
Solutions and Medications: Analysis of Pill Coatings for Dissolving Purposes

Abstract

Objectives/Goals
Determine if coatings of pills containing the same main ingredients (such as Advil/Ibuprofen) affect the time it takes to dissolve the medication in the human body.

Methods/Materials
Mixed carbonated water, water, carbonated sweet water, and white wine with simulated stomach acid. Tested solutions# pH with pH Microprocessor Tester. Timed it took to dissolve gelatin, colorless, sugar, no coating, and keratin coated Advil/Ibuprofen in these solutions (using magnetic stirrer).

Results
Keratin coated pills took the longest to dissolve in all solutions. Gelatin pills took the second longest to dissolve, but sugar and not coated Advil took the least amount of time to dissolve in all solutions. Colorless coated pills took average time to dissolve. In addition, all coated Advil dissolved in least amount of time in the water solution, which had the lowest pH (acidity) levels and most amount of time in carbonated sweet water, which had the highest pH (alkaline) levels. Also, water mixed with simulated stomach acid increased the pH level the least compared to the other solutions.

Conclusions/Discussion
The pill coatings affect the time it takes for pills to dissolve in a body. Solutions with lower pH levels help dissolve the pills in the human body most efficiently. Therefore, doctors advise to take medication with water.

Summary Statement
Determine the rates at which medicine with the same ingredients (Ibuprofen) covered with different coating dissolves in the human body.

Help Received
I received help from my mother and father who proofread the report, bought materials, and helped me with Excel Software.