CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
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Project Number
J1901

Project Title
The Effects of Osmosis on Decalcified Eggs

Abstract

Objectives/Goals
My objective was to determine if osmosis would cause decalcified eggs to shrink in corn syrup and expand in water.

Methods/Materials
Six raw eggs were decalcified in vinegar. Three were placed in separate containers of corn syrup and three in separate containers of water. A tape measure was used to measure the length, width and circumference of the eggs before they were placed in vinegar, after they were removed from the vinegar, and daily for three days while in corn syrup or water. The eggs were also observed for visible changes. A comparison was made between the size of the eggs before the experiment to their size at the end of the experiment.

Results
The circumference of the three corn syrup eggs decreased by an average of 4 cm, their length decreased by an average of .77 cm, and their width increased by an average of .3 cm. The circumference of the three water eggs increased by an average of 2.03 cm, their width increased by an average of .73 cm, and their length increased by an average of .77 cm.

Conclusions/Discussion
My conclusion is that osmosis causes great changes in decalcified eggs. Osmosis equalizes the concentration of water on both sides of the egg membrane. Since a container of corn syrup has a lower concentration of water than an egg, the water molecules moved out of the egg to try to balance the number of molecules on each side of the membrane, causing the eggs to shrink. The water eggs expanded due to the greater concentration of water outside of the membrane. The process of osmosis is necessary for all cells to survive.

Summary Statement
My project explored how osmosis affects the size of three decalcified eggs placed in corn syrup and three placed in water.

Help Received
Mother proofread and edited report. Sister helped set up graphs on computer.