



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Kayley A. Bryan	Project Number J0502
Project Title Dissolution Rate of Lactase Tablets in Various Solutions	
Abstract Objectives/Goals The first objective of my experiment was to discover whether temperature of a drinkable solution had an effect on the dissolution rate of lactase enzyme tablets. My second objective was to discover whether the acidic solutions, coffee, tea or grapefruit juice, had a greater dissolution rate over the basic solution, milk or the neutral solution, water. Methods/Materials Seven common household solutions (hot coffee, tea & water, cold milk, grapefruit juice & water and room temperature water) were gathered to test the dissolution rate on lactase enzyme tablets. Two brands (Equate and Lactaid) of lactase enzyme tablets were chosen based on what was carried by my local Walmart. Each brand of pill was submerged in each solution, agitated and the time the tablet took to dissolve was measured. This was repeated 30 times for each solution and for each brand of tablet. Results The data indicated that cold water had the greatest dissolution rate on lactase enzyme tablets. This was especially true for the generic brand of tablet, Equate. The data further indicated that hot water, room temperature water and hot tea all had similar rates of dissolution and within the time indicated on the boxes of lactase enzyme tablets. Conclusions/Discussion Lactose intolerance affects many people worldwide. Without the assistance of commercially available lactase enzyme tablets, people would suffer greatly. In order to provide relief of symptoms, it is essential to know which brand would be most effective if taken and the approximate time relief can be expected. The data from my experiment suggested that cold water had the greatest dissolution rate on lactase enzyme tablets. Although I originally predicted that hot solutions and acidic solutions would have the greatest dissolution rates on lactase enzyme tablets, the data did not support these hypotheses.	
Summary Statement The rate at which lactase enzyme tablets dissolve in various consummable solutions.	
Help Received Mother helped type report, teacher helped with graph types.	