CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)
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Project Number
36421

Project Title
Food Preservation: Natural vs. Chemically Modified

Abstract

Objectives/Goals
The objective of this study is to determine which food preservative is more effective, natural or chemically modified.

Methods/Materials
Make rice in a sterile environment, using sterile utensils and gloves to do so. Food process the cooked rice with each of the food preservatives: (natural) ginger, pickled plum, and perilla leaves, (chemically modified) high fructose corn syrup, citric acid, hydrogenated oil. Once each batch is complete seal each in petri dishes and measure the bacterial growth in millimeters for each trial.

Results
The results of my investigation on which food additive is most effective at preserving food were that on average after 12 days, pickled plum and perilla leaves were more effective at preventing bacterial growth and preserving food than the other additives, both natural and chemically modified, and the control with no additives.

Conclusions/Discussion
After my investigation, I learned which type of additive preservative was the most effective at preserving food and preventing bacterial growth. When doing this investigation, research and my own experiment taught me much information about all of my variables for this investigation. I have learned that perilla leaves are a healthy additive preservative and a better substitute for chemically modified preservatives, since it is a natural food additive and can preserves many foods just as well, if not better than, chemically modified preservatives. In addition I concluded that using healthier types of preservatives in combination with eating healthier foods can be a potential benefit to anyone#s health.

Summary Statement
I designed an investigation and learned which type of additive preservative, natural or chemically modified, was the most effective at preserving food and preventing bacterial growth.

Help Received
I designed and conducted my investigation with minimal help from my teachers and parents. My teachers, Mr. Nelson and Mrs. Lickey did help me with understanding the implications of my results, and how to compare my data.