



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2019 PROJECT SUMMARY**

<b>Name(s)</b> <b>Alice Mardanian</b>	<b>Project Number</b> <b>J1912</b>
<b>Project Title</b> <b>Effects of Sodium Chloride, Acetic Acid, and Honey on the Contamination of Raw Meat</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b> The objective of this experiment was to test the differences in performance of 3 natural meat preservatives.</p> <p><b>Methods</b> 10 grams of uncooked beef was left in tubes containing 14.79 mg of Sodium Chloride, Acetic Acid, and honey. Because cooking meat is already a method of preservation, the meat used in this experiment was left uncooked to provide a constant variable. The tubes, which were left at 22 degrees Celsius, were observed over a 5 day period and the percentage of meat rotten was determined by the amount of beef that became stickier, slimier, smellier, or changed color.</p> <p><b>Results</b> The meat with no preservatives made around 88% of the meat rot, while vinegar made around 29% of the meat rot. Salt made around 17% of the meat rot, and honey with an average of 1% rotten meat.</p> <p><b>Conclusions</b> Honey was the best preservative because of its antimicrobial properties. Repeated trials show that salt and vinegar lack the preservative properties that honey has, making it the best preservative. Honey is a reasonable alternative to artificial preservatives because artificial preservatives are harmful to human health.</p>	
<b>Summary Statement</b> I proved that honey is the best natural preservative for raw meat.	
<b>Help Received</b> None. I created the procedures and gathered the materials on my own.	