



CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY

<b>Name(s)</b> Marissa A. Salinas	<b>Project Number</b>  29130
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<b>Project Title</b> <b>The Effects of Seasonings on the Control of Escherichia coli in Hamburger</b>
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<p><b>Objectives/Goals</b>          Part 1: How much Escherichia coli is found in Hamburger?          Part 2: Which spice affects Escherichia coli the best?</p> <p><b>Methods/Materials</b>          I will be using EMB agar to test the E.coli.          In addition, I will also be using four different types of spices. They are Cinnamon, Garlic, Oregano, and Sage.          One other item I will be using is five different meat sources. They vary from fast food chains, top of the line meat stores, and little corner stores.          The experimental test variables that I am using in my experiment are:</p> <p><b>Results</b>          Average of Non E.coli Coliform and E.coli in Hamburger Meat          # The least number of bacteria growth was Meat From Store WM at 3.4 for Non E.coli Coliform and 0.55 for E.coli.          # The largest number of bacteria growth was Processed at x Slaughter House at 16.6 for Non E.coli Coliform and 31 for E.coli.          Average Non E.coli Coliform and E.coli in Hamburger Meat Mixed With Cinnamon          # The least amount of bacteria change was Meat From Store WM with 21.6 for Non E.coli Coliform and .2 for E.coli.          # The most amount of bacteria change was Processed at x Slaughter House with 3.4 for Non E.coli Coliform and 0 for E.coli.          Average Non E.coli Coliform and E.coli in Hamburger Meat Mixed with Sage          # The least amount of bacteria change was Meat From Store WM with 3.8 for Non E.coli Coliform and 0.8 for E.coli.          # The largest amount of bacteria change was Processed at x Slaughter House with 1.6 for Non E.coli Coliform and 0 for E.coli.          Average Non E.coli Coliform and E.coli in Hamburger Meat Mixed with Oregano          # The least amount of bacteria change was Meat Form Store WM with 10 for Non E.coli Coliform and .32 for E.coli.          # The largest amount of bacteria change was Meat From Store LC with 9.8 for Non E.coli Coliform and 0.2 for E.coli.</p>
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<b>Summary Statement</b> My project is about finding the amount of e.coli in hamburger and to see what spice affects it the most.
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<b>Help Received</b> Mother helped buy supplies and cut paper
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