



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> Angela Abma; Vanessa Kumar	<b>Project Number</b> <b>J1601</b>
<b>Project Title</b> <b>Fungi Busters</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To determine how much &amp; which antifungal medication is required to slow down growth of fungus.</p> <p><b>Methods/Materials</b> We made CO<sub>2</sub> collection apparatus by drilling a hole in an empty 500ml water bottle cap inserting two inches of tubing &amp; sealing it into cap using epoxy glue to make it airtight. Attached cap onto bottle placing other end of tubing in water filled graduated cylinder inside bucket of water. Next we dissolved 1/2tsp sugar into 1/4 cup water that is 115 degrees F. Once sugar is dissolved, 1tsp of yeast is added &amp; Solution is poured in bottle &amp; capped with tubing in place. Tubing from bottle is inserted into the cylinder. Data is collected next making a note of when bubbles foamed, time of CO<sub>2</sub> production and its level at 15 minutes. This was control test. Same method was used by adding 1/4 &amp; 1/8tsp of medications to the similarly prepared solutions.</p> <p><b>Results</b> Our goal for this research project was to test independent variable which are three antifungals in different amounts &amp; their effects on dependent/constant variable which is same amount of water, sugar &amp; yeast. Noted pattern was that higher amount of antifungal medication was more effective in controlling fungal growth for one of the medication. Only comparable average was with lower amount of Lamisil &amp; higher amount of Lotrimin produced somewhat similar outcomes. We did not feel there were any errors of uncertainties that had affected validity of our results but we conducted repeat trials to rule out potential errors but our results for Lamisil were same. Our hypothesis proved to be partially correct which can be explained in conclusion. Changing the independent variable which is antifungal medication amount did cause change in dependent variable which is growth of fungus.</p> <p><b>Conclusions/Discussion</b> Our research trial proved to be partially correct as one medication in high dose and another in low dose produced similar results. One medication proved to be completely ineffective. We were unable to compare our findings with another research as no other comparison was made using three medications we used. We could do further experiment by adding higher controlled variable which is yeast as well as expired vs. non-expired medications. We recommend using Lamisil as it had the most effective outcome against the growth of fungus with lower dose compared with other medication. This may benefit patients from buying less effective medications to save money &amp; time</p>	
<b>Summary Statement</b> To determine which and dosage of antifungal medication is best to treat toe nail fungus.	
<b>Help Received</b> Vanessa's mother overlooked our project for safety reasons with hot water.	